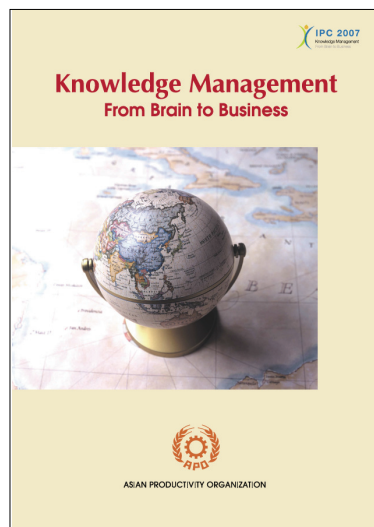


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Knowledge Management

From Brain to Business



ASIAN PRODUCTIVITY ORGANIZATION

Knowledge Management

From Brain to Business

2007

Asian Productivity Organization

Proceedings of the International Productivity Conference 2007, Thailand, 18–19 January 2007, jointly organized by the Asian Productivity Organization and the Foundation for Thailand Productivity Institute.

This volume was edited by Dr. Serafin D. Talisayon, Manila, the Philippines.

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WELCOME ADDRESS

Dr. Phanit Laosirirat
 Executive Director
 Thailand Productivity Institute

The International Productivity Conference (IPC) is one of the prestigious public forums of the Asian Productivity Organization (APO,) held on special occasions to celebrate the APO's attainment of crucial milestones. This year's gathering is in recognition of the 45th anniversary of hard work to promote the national productivity movement of member countries and it is also the 12th anniversary of the Thailand Productivity Institute's presence in promoting the productivity movement in Thailand. For each IPC, National Productivity Organizations and the

APO Secretariat carefully select emerging productivity topics, for which discussion will strengthen the productivity movement in member countries. This conference has adopted the theme of "Knowledge Management – From Brain to Business" and through it we will showcase outstanding knowledge management applications by globally renowned enterprises from Asia, Europe and the United States.

IPC 2007 continues our tradition of identifying the latest developments among productivity tools and techniques within government, business and at the grassroots level. This year, the International Productivity Conference will showcase the newest techniques, the latest developments and bring the best and the brightest in the world of knowledge management together in one place. These highly qualified speakers will cover the advanced topics that meet the needs of the evolved knowledge management practicing organization.

"The International Productivity Conference...will bring the best and the brightest in the world of knowledge management together in one place."

One such speaker we are honored to have with us today is Professor Ikujiro Nonaka. His presentation will recognize the importance of knowledge management as an essential tool to drive strategy for any organization, while underscoring that for a company to create value, it must possess the ability to determine and undertake the best action in a specific situation so as to serve the common good. This point is further confirmed by Mr. T.S. Rangarajan, who makes a presentation from the perspective of the Tata Group's experiences.

IPC 2007 will also offer presentations that are truly based on firms' experiences of tackling the knowledge management initiative at the organization level. Ms. Martha Seng, who is the Knowledge Transfer Manager of Buckman Laboratories (Asia,) will stress the need to engage individual workers in learning since their willingness to participate in knowledge sharing is directly related to a need or desire to learn. Individuals, she will point out, must be supported with the tools, resources and environment needed to engage freely in various communities.

Mr. Dirk Ramhorst, Vice President of Operations, Seimens Business Service Germany, will focus on new territories of knowledge management. He is a true believer in knowledge

management in every aspect of the organization and his presentation will be on how to structure project management and even organizational design based on knowledge management.

IPC 2007 would like to extend its thanks to Mr. Chaovalit Ekabut, President, Siam Pulp and Paper, SCG Group, for attending the IPC. The Thai business community has a keen and constant interest in the activities of the SCG Group . At this conference, Khun. Ekabut will shed some light on an ongoing project of the Group, which is how the integration of knowledge management and learning leads to innovation.

We are also pleased to have Mr. Atsushi Niimi, Senior Managing Director, Toyota Motor Corporation Japan, with us at the conference. Toyota has become the number one automaker in the world and it intensively applies knowledge management in its operations. Mr. Niimi's presentation will focus on knowledge management practices at Toyota Motor Corporation.

Last but not least, Mr. Rory Chase, Managing Director, Teleos, share his views and experiences with us. Teleos is the main principal that established the Most Admired Knowledge Enterprises (MAKE) research program. In association with the Know Network, it identifies and recognizes those organizations which are leaders at creating intellectual capital and shareholder wealth by transforming new as well as existing enterprise knowledge into superior products/services/solutions.

The conference's rich and diverse group of resource speakers will strengthen our understanding of knowledge management. Whether it is growing and developing internal talent, guiding one's organization through new transformations, bringing knowledge strategy to new heights, or finding out what is new in the field, this conference will provide a great opportunity for learning and networking.

Finally, I would like to thank all resource speakers, the APO, supporting organizations and participants who have made this conference a dream come true. Sitting here today you are all already winners. I hope each and every one of you enjoy the conference and return home with a heightened awareness and understanding that you can put into fruitful practice within your own organizations.



WELCOME ADDRESS

Mr. Shigeo Takenaka
 Secretary-General
 Asian Productivity Organization

On behalf of the Asian Productivity Organization, I would like to extend a very warm welcome to all the distinguished delegates to the International Productivity Conference on Knowledge Management here in the bustling and beautiful city of Bangkok. We organized this conference to mark two important events, the 45th anniversary of the Asian Productivity Organization and the 12th anniversary of the Foundation for Thailand Productivity Institute. Knowledge management is not only one of the APO's thrust areas but it is growing in importance in this fast-changing and globalized world. That is why we decided to choose it as the

central theme of our combined celebration. I very much hope that the coming two days will prove that our decision was right.

Knowledge management is not merely a fashionable new management trend. It is instead a logical consequence of developments occurring around us right now. Among them, the most significant development in terms of elevating the status of knowledge management is, in my view, the growing importance of innovation as a means to achieve sustained economic growth in many countries.

In Singapore, a policy shift from productivity-induced growth to innovation-induced growth took place decades ago. The Republic of Korea has long prided itself on producing human resources who can lead industry to innovation and breakthroughs. Japan's new government came out with a statement that it would make innovation the centerpiece of its economic policy.

In a way, it is inevitable that high-performing countries will resort to innovation as a means to stimulate economic growth, as their population growth rates are dwindling and are likely to drop below zero in the near future. The Japanese fertility rate, or children born per woman, for example, registered only 1.26 in 2005, while the comparable figure for the Republic of Korea was 1.08. Even more striking is a sharply declining trend in the fertility rates of middle-income countries in Asia. The fertility rate in Thailand declined sharply over the last half-century and in 2005 it stood at 1.7, which was lower than that in the United States, France or Sweden.

For middle-income countries, the prospect of achieving economic growth by increasing labor force participation is very dim indeed. It is no wonder that interest in innovation as a means for economic growth has begun to spread from high-performing countries to middle-income ones in Asia and the Pacific.

“For achieving innovation, the most relevant tool is no longer quality control or quality management. It is knowledge management in its broadest sense, with value creation or knowledge creation being the most relevant.”

Soon interest will spread to developing countries as well. The days of incremental or continuous improvement preoccupying corporate managers are over. It is to innovation and breakthroughs that those managers have turned their attention. For achieving innovation, the most relevant tool is no longer quality control or quality management. It is knowledge management in its broadest sense, with value creation or knowledge creation being the most relevant. Many theoreticians and practitioners have realized that creating knowledge by strengthening the ability to turn the tacit knowledge of staff members into tangible organizational assets is crucial for organizations.

Today and tomorrow we will have the opportunity to listen to presentations by representatives from internationally renowned organizations on how they have been utilizing knowledge management in the pursuit of organizational excellence. Today's first session immediately after this ceremonial session will start off with a keynote speech by Professor Ikujiro Nonaka, who will present his thought-provoking views on knowledge. You will no doubt learn a great deal from our speakers' experiences and insights. Our staff members at the APO Secretariat also look forward to learning and benefiting from them, because the Secretariat itself has embarked on a modest experiment in knowledge creation. This may be a good occasion to share with you what we have done so far to cultivate a "knowledge-philic" work culture that allows our staff members to enhance their knowledge-creating capability.

The Asian Productivity Organization, which was founded 45 years ago, organizes about 100 seminars, training courses and workshops as well as big conferences like this one every year in various places throughout Asia. We have a compact Secretariat in Tokyo with slightly fewer than 50 staff members. Although small in number, our officers are capable, active and diverse in the sense that they came from 10 different countries.

The first measure we took for knowledge management was to create an appropriate work environment, both physical and virtual. We replaced most of the high partitions and filing cabinets in the office with low ones to make everything and everybody more visible. We reduced the number of operational departments from five to three, and reorganized the layout in such a way that distances among officers are physically closer. In doing so, we were conscious of the famous "30-meter rule" proposed by Professor Thomas Allen of MIT, which states that two persons whose desks are more than 30 meters apart have a communication frequency of almost zero. We then transformed our newly created open spaces into formal and informal meeting spaces to encourage interaction among staff members. Finally, we ensured that the new physical layout incorporated IT support.

The second measure we took was to introduce a new reporting system in which the officer responsible for an APO project is mandated to submit a report on its contents and to make recommendations to improve it. Previously, we had a reporting system but did not have a clearly defined format and it was not strictly enforced anyway. Now, however, the submission of a report after attending an APO project is compulsory. Moreover, guidelines on items to be reported were announced in which officers are asked to rate project results and explain the reasons for that rating. Dozens of reports under the new format have already been submitted and these are full of new ideas and suggestions for operational and organizational improvement. With the results, I am confident that the APO Secretariat will be able to provide better service to member countries by offering projects that are more useful, focused and relevant.

The third measure we took was to demonstrate the commitment of management to the concept of knowledge management. It is well known that leadership commitment is crucial in motivating people and creating a new work culture conducive to the creation and sharing of knowledge. We deliberately encourage brainstorming sessions and IT-supported knowledge-sharing sessions among staff members. The fact that knowledge management was selected

as the theme for IPC 2007 to commemorate the 45th anniversary of the Asian Productivity Organization is itself the best testimony to our commitment to this concept.

I believe that knowledge management is a key source of innovation in any organization. Knowledge is going to be the lifeline of an organization just like land, labor and capital were in the past. So I sincerely hope that all of you benefit from your participation in this conference. If you can take back even one idea from the conference and implement it in your own organization to strengthen knowledge-creating capability, I will be more than happy as the organizer of this event.

Finally, I wish to take this opportunity to thank the Foundation for Thailand Productivity Institute for its tireless efforts, without which this conference would never have been held.

Thank you.



KEYNOTE ADDRESS and OFFICIAL OPENING SPEECH

Mr. Piyabutr Cholvijarn
Deputy Minister
Ministry of Industry
Thailand

Mr. Shigeo Takenaka, Secretary-General of the Asian Productivity Organization, Dr. Phanit Laosirirat, Executive Director, Foundation of Thailand Productivity Institute, Resource Speakers, Distinguished Participants, Ladies and Gentlemen:

It is a great pleasure and honor for me to chair the official opening ceremony of the APO International Productivity Conference 2007 on "Knowledge Management – From

Brain to Business" on behalf of the Deputy Prime Minister and Minister of Industry (H.E. Mr. Kosit Panviamras) as his Excellency is tied up with another important function at the same time this morning.

I would like to warmly welcome all distinguished participants from both the APO member countries and local members. Our co-organizers, the Asian Productivity Organization and Foundation of Thailand Productivity Institution, along with their respective representatives of Mr. Takenaka and Dr. Phanit Laosirirat, are beaming with joy as well as gratitude to have experts in knowledge management from all over the world present here at this auspicious conference. The experts will share and enlighten us with valuable information, experiences and research findings on showcases of outstanding knowledge management applications pioneered by world-leading enterprises from Asia, Europe and the United States.

IPC 2007 is especially auspicious as it celebrates two very important concomitant events: the 45th anniversary of the Asian Productivity Organization and the other the 12th anniversary of the Foundation of Thailand Productivity Institution, which is the National Productivity Organization for Thailand.

The world is a dynamic place. Knowledge and technology are crucial drivers leading to this dynamism. They influence all policymakers, business and academia alike in every country to seriously think of the ways and means to promote, develop and manage knowledge so that it will enhance national competitiveness. Most essentially, it is how we, with extensive investment in scientific and technological infrastructure and human resources, turn these drivers into applications that can be used commercially as well as beneficially toward strengthening of our nations and the peacefulness and happiness of mankind.

Thailand has embarked on a journey to become an intelligent and knowledge-based society, coming to recognize that knowledge is the central part of productivity and knowledge management. Knowledge must be integrated into government, business and academic institutions because it is the main engine leading to sustainable growth and the health of our economy. All organizations, employees and the whole of society must be encouraged to adhere to the concept of continuous learning and improvement. It must be rooted deeply in

our daily practices. Every employee needs to be trained to apply quality tools and methodologies to embrace operational productivity and quality and to understand the conditions where core competencies lay as part of the drive toward organizational excellence. Small and medium-sized enterprises require help to identify operational deficiencies, take remedial actions, and improve efficiency and productivity—the critical source of profitability.

Realizing this importance, our Deputy Prime Minister and Minister of Industry have launched a number of programs focused on building productivity as well as promoting the development of intellectual property in some industries, namely, printing, rubber, food, electronics and automotive spare parts. Next year, we plan to expand our productivity program into other key industries. The investment requires the business community and academia to work hand-in-hand in human resources training, process and operational optimization, the upgrading of technology and the innovation of all critical factor inputs through research and application. The Ministry of Industry, by way of multi-layered and multi-faceted approaches, also plans to deploy scientific and technological discoveries and make advances through the National Science and Technology Development Agency, the Ministry of Science and Technology, and the Thailand Research Fund Regional Office to commercialize new innovative products.

Furthermore, Thailand has allocated huge funds through centers of excellence, in which the funds are being used to provide scholarships and research grants and to develop more PhDs, post-doctorates and researchers. This year we will increase by five the number of centers to the already existing seven centers of excellence in the fields of math, physics, information technology, biodiversity and system biology. The Office of the Public Sector Development Commission (OPDC) has established its own system for knowledge management. The important strategy was to develop an organization for excellence by fostering OPDC personnel to be knowledge workers with complete knowledge in all aspects, including concepts, theories and knowledge on circumstances, especially those that concern public administration in Thailand and overseas.

A Knowledge Center has been set up to collect information and knowledge on innovation and guidelines for public sector development. It is a mechanism to help promote learning organizations, and to encourage creativity and the development of new knowledge on competency, vision and change in the attitude of public officials, so that they have modern knowledge and are competent to perform their duties adequately with maximum efficiency and integrity.

As Thailand is working arduously to prepare itself for the complexity and speed of technological advancement in the 21st century, the country is also working toward becoming a “greener economy and society.” Tremendous work has been done particularly in the energy sector, in which we are promoting and developing clean fuel from biomass and ethanol from agriculture products. In the industrial sector, the Ministry of Industry has supported existing factories and encouraged new ones to be built in organized industrial estates designed to manage industrial waste and pollution, such as toxic chemicals, with effective waste control and disposal systems. The Ministry of Industry also has been enforcing EU standards, such as Waste Electrical and Electronic Equipment (WEEE) and Restriction of the Use of Certain Hazardous Substances (RoHS,) for our industrial products to not only achieve greater awareness and acceptance of eco-friendly products but also to enhance the ability to compete in the global market.

The APO International Productivity Conference 2007 is especially auspicious and extremely fortunate to be able to bring together the best and the brightest speakers from various fields of expertise to present and share with you the most current issues that contribute to the benefits of knowledge management and look ahead at the trends of the productivity-related factors and findings that will nurture your thoughts of what will lead the world through the

next decade. I am certainly eager to hear all the proposals and recommendations that emerge from the conference.

I also sincerely hope that all our foreign guests will have the time to relax by visiting our ancient cities, palaces and temples, and enjoy Thai food as much as they can.

I now declare the APO International Productivity Conference 2007 on "Knowledge Management – From Brain to Business" officially opened.

Thank you very much.



Strategy as Distributed Phronesis: Knowledge Creation for the Common Good

Ikujiro Nonaka
Professor Emeritus, Hitotsubashi University
Graduate School of
International Corporate Strategy
Xerox Distinguished Faculty Scholar
UC Berkeley
First Distinguished Drucker Scholar in Residence at
the Drucker School and Institute
Claremont Graduate University

I am very much honored to give the keynote presentation for IPC 2007.

I would like to present the most recent developments in my work with Professor Ryoko Toyama on a new concept of leadership. The title of my presentation is "Strategy as Distributed Phronesis: Knowledge Creation for the Common Good."

There are some misconceptions about knowledge management:

- *"Knowledge management is... something to do with information technology (IT)."* Seventy-eight percent of IT systems projects fail. Information technology can help, but it is the human factor that makes the difference.
- *"Knowledge management is... about product innovation."* Innovation must happen in the entire operation of an organization, such as planning, financing, procurement, marketing, process innovation and service.
- *"Knowledge management is... something that makes us efficient."* Fifty to seventy-five percent of knowledge re-engineering projects fail. It is not just about efficiency (or exploitation of existing knowledge,) but also about effectiveness (or exploration of new knowledge.)
- *"Knowledge management is... a large-scale operation."* It can start small. It requires creativity and persistence, rather than large amounts of capital.
- *"Knowledge management is... the responsibility of 'smart people'."* How we get everyone's commitment to share his or her own knowledge and create new knowledge is the key to success. In 82 percent of the cases where knowledge management fails, the reason is organizational resistance.

Knowledge management is not about managing knowledge. We cannot directly manage knowledge, which is embedded in the body and mind. I prefer to use the term "knowledge-based management."

Over the last 10 years we have been developing the theory of knowledge-based management, or the knowledge-based theory of the firm. It is not just a management tool but a theory for the new paradigm of the knowledge economy. As Kurt Lewin says, "good theory is the most practical." Without theory, ideas become fads and eventually disappear.

"Phronesis has something to do with the virtuous habit of making decisions and taking action that serves the common good, the capability to find a 'right answer' in a particular context."

Peter Drucker said, *"Knowledge is the only meaningful resource today."* Knowledge is one of the most important assets of an organization to create value and hence, sustainable

competitive advantage. Compared with the resource of capital in the industrial age, knowledge displays the following characteristics:

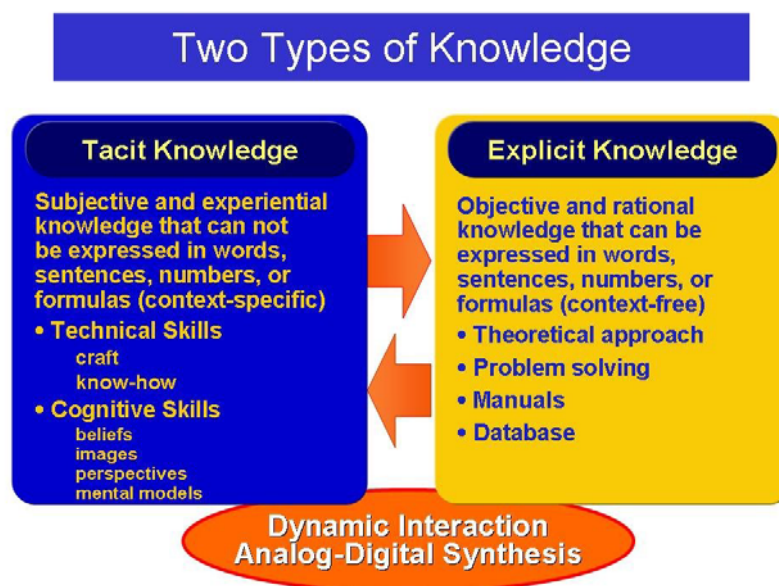
1. Increasing return
2. Unlimited usage
3. Production and consumption are not separate
4. Difficulties in market transactions
5. New value by re-categorization
6. Quickly outdated
7. The most crucial: created by humans in relationship

In Western epistemology, knowledge is defined as “justified true belief.” The belief must be true, and truthfulness must be justified. Subjective belief must be validated objectively, and this in turn must be validated subjectively. The constant interaction between the subjective and the objective constitutes the validation of, and the approach to truth, in our relentless pursuit of perfection. According to Whitehead, *“there are no whole truths; all truths are half-truths.”*

3M Corporation recently compiled the history of how their company was started; they summarized it into about 80 propositions. The first proposition is: “conceive, believe, achieve.” Persistence—combined with creativity and faith—is still the best formula for long-term success.

There are two types of knowledge: explicit and tacit (see Figure 1.) They have contrasting natures. That is why it is interesting.

Figure 1: Tacit and Explicit Knowledge



Constant interaction between the two types of knowledge may generate contradiction and that contradiction generates creativity. It is not easy to convert tacit knowledge into explicit knowledge, and back again to tacit knowledge. We cannot convert all of our tacit knowledge into an explicit form.

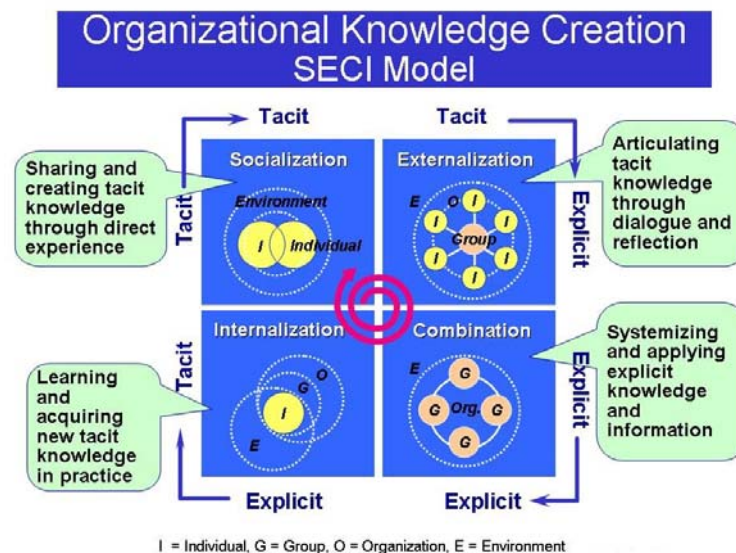
According to Hiroshi Okuda, Chairman of Toyota Motor Corporation:

The strengths of Japanese manufacturing industries are in the technologies (based on) tacit knowledge. With the progress in Information Technology (IT,) tacit

knowledge is converted into explicit knowledge. But we still need tacit knowledge. To build a car, we have to build people.

The basic model of organizational knowledge creation is a process of converting the tacit knowledge that people have into explicit knowledge that can be shared more broadly, using IT systems for example, and then convert back into the tacit knowledge of a larger number of people.

Figure 2: SECI Model



Socialization

The first step, consisting of tacit-to-tacit interaction, is called "socialization," which is the process of converting tacit knowledge through shared experiences in day-to-day social interaction. Tacit knowledge is difficult to formalize and often is time and space specific, so tacit knowledge must be acquired through shared and direct experiences such as spending time together or living in the same environment. In the tradition of apprenticeship, for example, the apprentice learns the tacit knowledge needed in his or her craft through hands-on experience. One can share the tacit knowledge of customers, suppliers and even competitors through shared experiences.

There is strong potential for increasing awareness or getting new ideas through socialization. I can see things from the perspective of a customer, for example. But do not stop there. I have to convert this awareness into language for two-way communication and maybe elaborate that language into a concept in a process called "externalization."

Externalization

Here, tacit knowledge is made explicit so it can be shared with others in the form of concepts, images or written text, and become the basis of new knowledge. At this stage, dialogue is an effective method to articulate one's tacit knowledge and to share it with the articulated knowledge of others. We have to have persistence to convert continuously concepts into documentation.

Combination

In combination, the newly expressed knowledge is disseminated among the members of the organization. The use of computerized communication networks and large-scale databases can facilitate this mode of knowledge conversion. This includes the breakdown of concepts, such as expressing a corporate vision as an operationalized business or product concepts and so creating systemic explicit knowledge.

Internalization

This stage can be understood as practice, where knowledge is applied and used in a practical situation to become the basis for global teamwork.

Knowledge expressed as a product concept, manufacturing concept or service concept has to be actualized or realized through action. Through practice and reflection, concepts will be internalized and become one's own tacit knowledge.

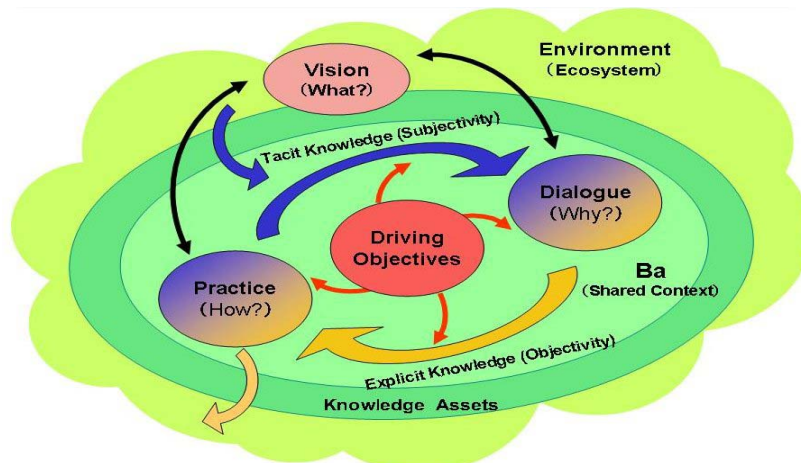
Our dream, vision, ambition or belief now becomes crystallized into a concrete product, technology and service. And after it is introduced into the market, it draws out the tacit knowledge of stakeholders in the market, such as consumers, suppliers and competitors as well. So we cannot stop the cycle. It continuously spirals on and on persistently. Through this process, individual tacit knowledge becomes group knowledge. Group knowledge becomes organizational and then is converted back to the individual. So, the process is spherical, not circular.

We can conceptualize the process of knowledge creation within the SECI model (socialization, externalization, combination and internalization.) Knowledge created through this process can trigger a spiral of knowledge creation expanding vertically and horizontally as it moves through a section, department, division or organization, or even beyond the boundaries of the organization. So in that sense, individual knowledge grows into team knowledge, then organizational knowledge, and back again to expand the knowledge of the individual, while also expanding horizontally to more and more people until eventually we are creating social knowledge.

This is organizational knowledge creation. It is a never-ending process that upgrades itself continuously. The question for the knowledge-creating company is "how to promote this SECI process efficiently and effectively?"

It is not an easy task. So let me present here the basic model, a dynamic model of a knowledge-creating firm.

Figure 3: Dynamic Model of a Knowledge-Creating Firm



The model starts with a "vision." The fundamental question of the knowledge-based firm is "why do firms differ?" Firms differ not only because of factors like mobility barriers or the cost of acquiring resources, which prevent one firm from imitating the successful strategies of another, but also because they envision different futures based on their unique view of the world, their values or their ideals. Not only do firms differ in their ability to foresee the future, to sense or to seize new opportunities, but they also differ in their ability to envision the future to create new opportunities, to realize their own vision of the future.

Traditional strategic management originating in neoclassical economics assumes profit maximization is the sole purpose of the firm. We have to question the validity of this assumption when we see the reality of how firms operate. Collins argues that many excellent firms have pursued their own absolute values as goals rather than as mere means for profit maximization. So in that sense, the knowledge vision is very important.

The essential questions are: For what purpose do we exist? Where should we exist (existence and domain)? Why should we create knowledge?

First, we ask the question, "in what do we believe?" Our belief—this subjectivity—is fundamental. So in the model as we present it, the knowledge vision is a very fundamental guiding principle. One does it because he or she wants to, not because everyone else is doing it. We need a long-term view beyond the arena of competition, not a short-term view based on efficiency of knowledge utilization. We need a vision that can inspire the intellectual passions of employees.

Second is the "driving objective," the bridge between the ideal or vision and action, because a firm's knowledge vision is just empty words if there are no active efforts to realize it. For knowledge to be created and justified, the firm needs a concrete goal, code of conduct or standard of action to connect the vision with the knowledge-creating processes of dialogue and practices. We call this connecting bridge the "driving objective."

Third is "dialogue." Dialogue is dialectic. Knowledge creation is guided through the synthesis of contradiction. The world is filled with contradictions and their synthesis occurs in the creative dialogue of the dialectic. Truth is dynamic and developed in dialogue through the dynamic process of thesis, antithesis and synthesis. This is the dialectic. Synthesis does not result in the elimination of one or the other proposition, but is reached by taking the discussion to a new level.

Therefore, dialogue is open-ended. Conflict with others serves as a catalyst to reach a higher level of understanding beyond compromise. It may be a zigzag process but it can lead to the creation of something new.

The context of dialogue is existential; a theme is created by sharing deeply held thoughts and beliefs.

Dialogue generates meaning. It is not about a very simple, logical deductive process like: "Humans are mortal; Socrates is human; therefore, Socrates is mortal." So what? This is right, logically right. So what? No new meaning is created from such a proposition. But if we ask, for example, what it means to be mortal, then we may reach a new conclusion, such as "Socrates as thought is immortal."

Dialectic dialogue is not easy to achieve. Companies like Toyota, for example, engage in dialogue as a shared discipline expressed in the slogan: "Ask Why Five Times."

Problem	Production line holds excess work-in-process inventory
---------	--

Question	Answer
1. Why?	Production orders led to unnecessary parts in the production line.
2. Why?	Timing of changes in the production line and timing of production order did not match.
3. Why?	Although there was trouble in the next production process, the prior process continued production.
4. Why?	The information that the parts would not be necessary at the next process was not communicated to the prior process.
5. Why?	It was not the "next process ordering necessary parts" system, but the "pushing in" system based on a production plan. We need to build a system to incorporate changes at the production line.

So the answer to the fifth "why?" becomes strategy. If you repeat the question "why?" five times it really angers some people. But practiced as a discipline, the relentless question "why?" is not taken personally; it is accepted as part of the discipline. The practice is simple but building the discipline is not simple and takes time. A leader should show by example. Once we succeed in this practice, knowledge is generated.

We can move beyond contradiction using logic or discussion, but we can also do this through action. Contradiction that cannot be solved by objective analysis alone can often be solved by synthesizing subjective views and intuition accumulated through practice. It may be that action is more powerful than words.

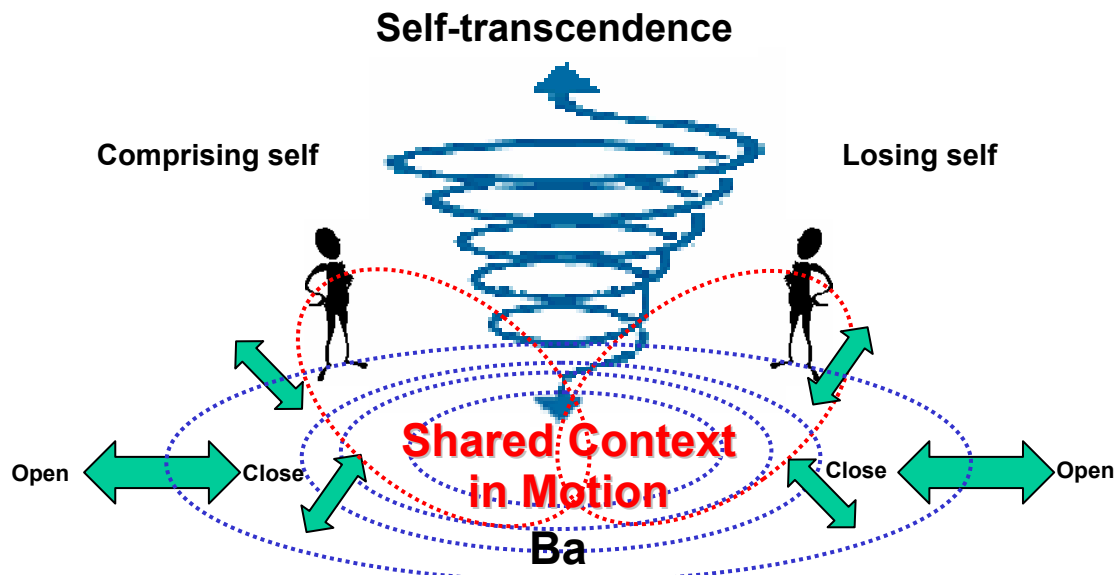
"Practice" here does not just mean action; it is dialectic in action. Schon emphasized the importance of "reflection in action." Reflection in action requires one to think about how one sees the essential meaning and outcome of the action so that adjustments can be made as the action unfolds. In Japan, we call this institutional practice a creative routine or *kata* in Japanese. *Kata* is continuous interaction of tacit and explicit knowledge in an expanding spiral until the practice becomes second nature. *Kata* as form means "way of doing things." Good *kata* functions as an archetype to foster creative routine, but it has a higher level of freedom. It is a continuous process of self-renewal through high quality feedback in action that sharpens the senses and helps to notify one to modify differences between predicted outcomes and reality.

The fourth component is "*Ba*," which originates from the word *basho* or place. It comes from the Japanese philosopher Nishida who tried to build a philosophy based on Zen Buddhism. We define *Ba* as "a shared context in motion for knowledge creation." It is not just a physical place, but a dynamic place where we can share context to create meanings. It is a relationship among participants at a specific time and space. Participants in *Ba* understand the contexts of others and themselves, and through interaction, change those contexts. *Ba* can emerge among individuals, in work groups, project teams, informal circles, temporary meetings and virtual spaces such as e-mail groups, as well as at the frontline in relations with the customer.

The kind of place I love is a drinking place. It is a place where we can be open with one another, sharing context including personal history which encourages sharing of tacit knowledge because tacit knowledge is very context specific. It is knowledge of my way of life, about this and that place, and what I did because of this. So it can encourage sharing of deep tacit knowledge. But, in our country, the time we have for drinking has been shrinking.

Every year I go to Finland. The best *Ba* is the sauna. We share knowledge there. At the top floor of Nokia, there is a sauna. By taking a sauna, we begin to share tacit knowledge; we empathize with one another and then have creative dialogue. *Ba* is a very crucial stage in knowledge creation. It is illustrated in this picture, as sharing tacit knowledge, sharing context and spiralling upward and onward.

Figure 4: *Ba* as Shared Context



Nishida states that the essence of *Ba* is nothingness. This does not mean that nothing exists there. Instead, it means that *Ba* exists in the relation with others. With *Ba* one loses oneself by shedding the atomistic view of the self as absolute, and opens up to others. Through such relationships one can see oneself in relation to others and can accept others' views and values so that subjective views are understood and shared. *Ba* supports such sharing and synthesizing of subjectivity, which is necessary for knowledge to be created.

I have thus far talked about vision, dialogue, practice and *Ba*. The remaining element that is most crucial to synthesizing all these is leadership, namely, the role of leadership in a knowledge-creating company. Leadership becomes a dynamic process of synthesizing vision, *Ba*, dialogue, practice and knowledge assets in the knowledge ecosystem to create knowledge. How can we conceptualize knowledge-based leadership? We have been still struggling with this but at this point I would like to introduce the concept of "phronesis" and develop it further.

Aristotle distinguished between three types of knowledge as intellectual virtues:

1. Episteme (scientific knowledge): universal, context-free and objective knowledge (explicit knowledge)
2. Techne (skills and crafts knowledge): practical and context-specific technical know-how (tacit knowledge)
3. Phronesis (practical wisdom or prudence): experiential knowledge to make context-specific decisions based on one's own value or ethics (high-quality tacit knowledge)

Phronesis has something to do with the virtuous habit of making decisions and taking action that serves the common good, the capability to find a "right answer" in a particular context. In reality, action is always context specific. Theory cannot cope with the context of

dynamism; only human wisdom can, through practice. Phronesis is acquired only through high-quality direct experiences.

Leaders with phronesis are ethical and virtuous, able to create a coherent linkage between words (the talk) and action (the walk.) Phronetic leaders are able to “walk their talk.” They can size up a situation and develop and execute an appropriate action that takes into account most local constraints and larger unifying principles as well. So what kinds of abilities constitute phronesis and how can we develop phronetic leadership? At this time, we think it consists of six abilities:

1. Ability to make a judgment on goodness
2. Ability to share contexts with others to create *Ba*/shared sense
3. Ability to grasp the essence of particular situations: God is in the detail
4. Ability to reconstruct the particulars into universals using language/concepts/narratives
5. Ability to use any necessary means to realize concepts for common goodness
6. Ability to foster phronesis in others to build a resilient organization

Ability to Make a Judgment on Goodness

The following is the first paragraph of Aristotle’s Nicomachean Ethics:

Every sort of expert knowledge and every inquiry, and similarly every action and undertaking, seems to seek some good. Because of that, people are right to affirm that the good is ‘that which all things seek.’

So it is this kind of value of the common good that gives the firm an absolute value to pursue that is a goal in itself. It is not simply a means to achieve profit maximization which is the goal set by conventional management scholars in their theory of the firm. In short, one pursues goodness for his or her own sake not because such good leads to profit or advantage over others. It is not simply a means, but an absolute, self-sufficient good, such as happiness, or more specific to the firm, self-realization. Money is not goodness in itself but a means, an important means to achieve a goal that is goodness. Profit is something gained as a result of pursuing phronesis rather than the ultimate goal of the firm. I think King Bhumibol’s concept of a sufficiency economy or the King of Bhutan’s Gross National Happiness initiative are values that have to do with the common goodness that we have to think about. I am proud of these Asian concepts.

So let me talk in more concrete terms about leadership by touching on three cases: Honda, Canon, and Seven-Eleven Japan. I know there are many excellent companies with phronetic management and phronetic leaders, but let me focus on these three cases.

Souichiro Honda wrote,

Philosophy is more important than technologies. Things like money and technologies are merely means to serve people...There is no meaning in a technology if, at the base of it, it does not consider people. Philosophy is what drives a firm’s growth...A true technology is a crystal of philosophy.

Toshifumi Suzuki, CEO of Seven-Eleven Japan, says,

Our competitors are neither other companies nor other stores, but our customers’ needs and wants. Our absolute value is to answer the fundamental question “what does the customer want?”

Ability to Share Contexts with Others to Create *Ba*/Shared Sense

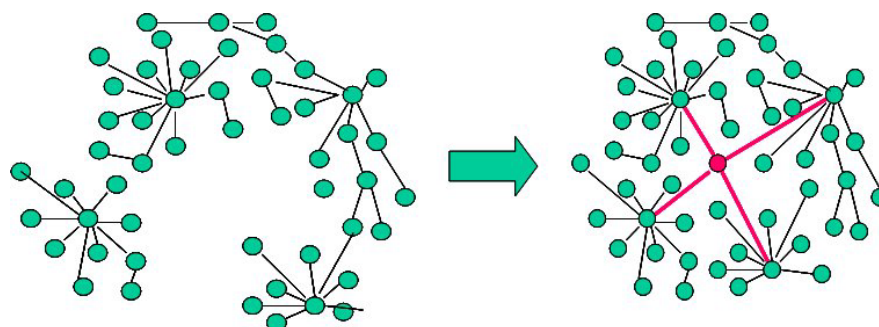
The ability to mobilize people depends on one's imaginative capacity to understand, empathize and elicit empathy from others in return. To do this, one needs an ability to read a situation and adapt to it impromptu. Since phronesis is the ability to make a decision that is suitable for each situation, one has to be able to quickly recognize the situation and understand what is required in that context. Souichiro Honda loved to joke. He would say,

Joking is very difficult. You have to grasp the atmosphere of the occasion and the opportunity. It exists only at that particular moment, and not anywhere else. The joke is in the timing and it does not work at any other moment....To joke is to understand human emotion.

Canon is another interesting example. It has a daily morning meeting of senior managers from 8:00 to 9:00 a.m. called *Asakai*. There is no set agenda. Anybody can initiate any kind of discussion on timely topics. So it is really a good place to share tacit knowledge. Executives are encouraged to bring up whatever is on their minds or express opposite points of view—ideals and the reality, constraints and possibilities, internal capability and market opportunities. These are debated from many perspectives and combined timely. If some issues are not solved at *Asakai*, they are quickly transferred to a variety of formal meetings such as management strategy meetings. Consequently, *Asakai* meetings are linked to variety of meetings within Canon in a multilayered way, making it open, expanding and extending it to larger groups and spreading knowledge quickly, like a "small-world network."

Small-world network theory means any two people can be connected through common links of friendship. Your message can reach anyone in the world through six degrees of separation. So choose the people and then share. It is a very fast way to spread not only explicit knowledge but tacit knowledge as well. Through the rewiring of multilayers of *Ba*, those *Ba* that are far apart connect to each other to find new combinations and create new knowledge.

Figure 5: Multilayered *Ba*



Fujio Mitarai, CEO of Canon has rewired multilayered *Ba* by holding a management strategy meeting that includes division and section heads—during lunchtime. It has almost 100 percent attendance because everybody has to eat lunch anyway. Most of the time the attendees eat Japanese udon noodles—or very simple foods like sushi. They eat in five minutes and then have 55 minutes to talk. All the leaders are linked: that is their way.

Ability to Grasp the Essence of Particular Situations: God is in the Detail

This photo shows Souichiro Honda at a Honda motorcycle race trying to put himself at eye level with the riders so that he can empathize with them by seeing things from their viewpoint. By seeing what they see he can sense what they feel. This picture captures the essence of the Honda way.

But in simple observation, somehow there must also be an underlying hypothesis. As I said, knowledge is justified true belief. Without belief, I can see nothing. I have to have a hunch, intention and hypothesis.



In the case of Fujio Mitarai at Canon, he regularly visits the frontline. He is well-known for his ability to modify his message to fit the context. He shares his management philosophy in a way that employees can really understand through annual visits to every Canon office and factory in Japan. During those visits he speaks for about two hours at a time, meets with every employee in the smaller branches and with everyone from assistant manager up in the larger branches. This helps him to acquire contextual knowledge which he uses in strategic decision making.

We must see reality in a dynamic context. CEO Suzuki at Seven-Eleven Japan says,

It is impossible to apply universal rules derived from past experiences because customers' needs keeps changing and each store is operating in different context. We are successful only by denying the past and constantly reflecting on the future to find fundamental solutions in each particular context.

Ability to Reconstruct the Particulars into Universals Using Language/Concepts/Narratives

This picture is another good example of Souichiro Honda. He is trying to articulate a concept through dialogue, again while sitting and keeping the same eye level as the engineers, thereby building concepts in direct dialogue on the spot.



Souichiro Honda argues,

Action without philosophy is a lethal weapon; philosophy without action is meaningless.... Just to be hard working has no value. Rather, working hard in the wrong way is worse than laziness. 'The right theory' is the necessary premise for working hard.

Also Fujio Mitarai says,

Strategy is a creation of events. Quantify your objectives as much as you can. And develop a story to crystallize the numbers by specifying a beginning-middle-end story structure.

Storytelling: through storytelling we can share tacit knowledge because it refers to a very context-specific vision.

Toshifumi Suzuki says,

It is not good if you just see a tree, not a forest. Of course you have to see the particular tree. But you have seen the entire forest as well as the trees.

Ability to Use Well Any Necessary Means to Realize Concepts for Common Goodness

The reality of the strategic process is dynamic and full of confusion and contradiction. In a knowledge-creating company, it is synthesized by dialectical thinking through social interactions. Phronetic leaders exercise political judgment in such a process by understanding others' emotions and by giving careful consideration to the timing of their interaction with others. To do that, it is very important to accept contradiction.

Leaders should accept and internalize the contradictory existence of human beings and should accept both purity and impurity.

At Canon, the corporate culture love paradoxes. Fujio Mitarai says,

Paradox is a way of life at Canon.... Facing a paradox, we embrace it and go forward coping with it. We are constantly on the move.

And another important rule of Mitarai's is: "Keep communicating."

Persuasion is important. Our goal is to move forward through reform, and in many cases, reform means destruction of the status quo.... Persuasion is necessary to turn those who oppose such reform in favor of it and bring out their efforts.

Ability to Foster Phronesis in Others to Build a Resilient Organization

Now, this last ability is perhaps the most important. Strategy as phronesis is not formed or implemented by a few select leaders in the organization. Rather, phronetic leadership is embedded and distributed in the organization with various members assuming leadership in a particular situation. Cultivating this kind of leadership requires mechanisms for fostering and transferring the phronesis that is already embedded in individuals to create a system of distributed phronesis. This will ensure that an organization has the resilience to respond flexibly and creatively to every situation to pursue its own good.

To make phronesis a distributed phenomenon, one has to present the issues to be worked out, to constantly ask the question 'what is good,' and provide good examples in each situation that can teach the phronetic way of thinking in practice. It is an ability to enable people to understand what phronesis is through dialogue and practice in various *Ba*.

To foster phronesis, one has to show by example. We need examples because phronesis is high-quality tacit knowledge. We cannot share just using a training manual. We have to show how things are done. That is why we need the distributed small-world networks of collective phronesis. How we do this may be the fundamental question and challenge for us.

At Honda, the corporate culture articulates the Honda philosophy.

Honda Philosophy (1998)

Fundamental beliefs:

- Respect for the Individual
- Three Joys (of buying, selling, creating)

Management policies:

- Proceed always with ambition and youthfulness
- Respect sound theory, develop fresh ideas and make the most effective use of time
- Enjoy your work, and encourage open communication
- Strive constantly for a harmonious flow of work
- Be ever mindful of the value of research and endeavor: Go to the actual place, know the actual situation and be realistic

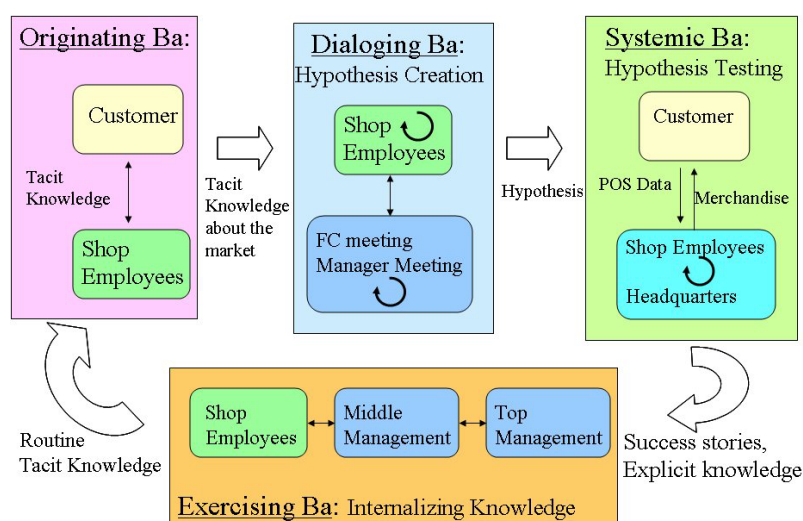
According to Takeo Fukui, the current president of Honda,

Honda is not a company in which only top management plays an important part. Everyone at the frontline is very important. Every worker should be Souichiro Honda. It is important for Honda to create many [in the mold of] Souichiro Honda.

Let me summarize what Seven-Eleven Japan has done based on our model of the dynamic knowledge-creating firm. What is interesting is the company's driving objective: to reduce opportunity loss. Opportunity loss occurs when a customer comes to the store and cannot find what he or she wants to buy. If we define the problem as a reduction of inventory costs, then it is easy to resolve because it is about reducing "visible" inventory. We can simply use a computerized automatic ordering system like that used by Wal-Mart. But reduction of opportunity loss means you have to see the consumer's needs and wants—this is something that is "invisible." To reduce opportunity loss, one needs to seek the essence of a phenomenon. To make a phronetic judgement, it is necessary to look at the details to see the essence of a phenomenon. To pursue the driving objective—that is to reduce opportunity loss—one has to think relentlessly about what is the essence behind the consumers' needs and wants. Never stop thinking. With increasing practices and experiences, one's intuitive capability will increase. This is wisdom. Knowledge becomes wisdom and wisdom is phronesis. It is the capacity to find the right answer on the right spot at the right time. One can only develop this ability through practice, the practice of high-quality experiences.

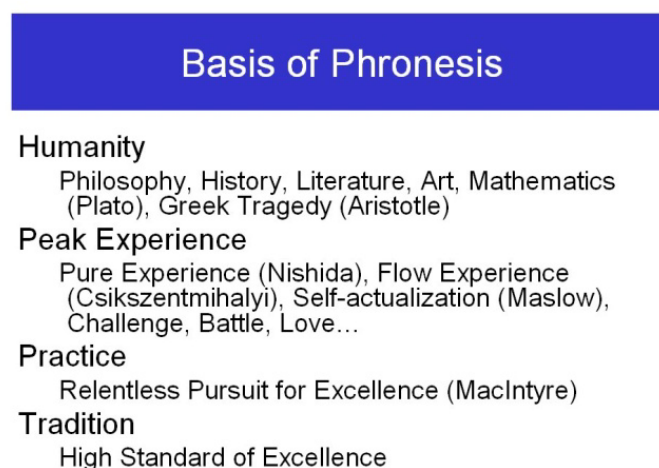
At Seven-Eleven, the corporate culture has embraced a lively *Ba* for the executive process: originating *Ba* in the stores, a dialoguing *Ba*, a systems *Ba* and exercising *Ba*. Managing lively, multilayered *Ba* is crucial (Figure 6.)

Figure 6: Multilayered *Ba* at Seven-Eleven Japan



Developing the concept of phronesis as we continue to define knowledge-based management is very challenging. The shift from knowledge to wisdom is crucial to future competitive advantage and sustainable growth of a company. We have not yet reached final conclusions on this aspect of management, but nonetheless the basis of phronesis (Figure 7) is the quality of experiences. This quality is similar to the “pure experience” described by Nishida, the “flow experience” by Csikszentmihalyi and “self-actualization” by Maslow.

Figure 7



Practice is very important. The relentless pursuit of excellence, and company traditions that value high standards of excellence, are demonstrated by the three leaders I have described. These three leaders have never allowed themselves to be satisfied.

So in conclusion, I can say that the knowledge-creating company is a company that practices idealistic pragmatism. It is a company that synthesizes (Figure 8) human ontology (For what purpose do we live? What is our vision of the future?) and epistemology (How do we know? What is the truth?). The phronetic company synthesizes objective and subjective views of knowledge as in the SECI spiral.

Figure 8

A Knowledge-Creating Firm is...

A company who practices the idealistic pragmatism which synthesizes;

Ontology: How to be

- "For what do we live?": the vision to the future and the commitment to it.

Epistemology: How to know

- "What is the truth?": the SECI spiral which synthesizes objective and subjective views.

Creation: How one can change itself and the environment

Management is viewed as "a way of life" rather than a "tool to make money".

The knowledge-creating company's strategy is distributed phronesis, which emerges from the practices that pursue common goodness in each particular situation. In such a view, the firm is not a mere profit pursuing entity, but one that pursues the universal (ideal) and the particular (reality) at the same time. It is not "either-or" but "both-and."

So, a knowledge-creating company is an entity pursuing idealistic pragmatism, which synthesizes the rational pursuit of appropriate ends and whose appropriateness is determined by ideals. By pursuing such ideals everyday through the SECI process in specific and dynamic contexts, knowledge is created and refined to become wisdom.

To build and practice such a strategy, a firm needs phronesis to establish an ideal and realize it in a practical way. One has to know what is good (namely, an ideal) and make judgments in particular situations (namely, practice) to realize such goodness. Such phronetic capability has to be shared collectively with organizational members, not practiced just by one phronetic leader, because the strategy has to be carried out across the organization. Building such organizational phronesis is an issue for everyone to create a resilient organization that can deal proactively with any environmental changes to realize its idealistic vision.

Thank you very much.



Collaborative Enterprise-Wide Knowledge Sharing and Organizational Learning – Taking Knowledge Sharing to the Next Level

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Singapore

Adapted from material presented by Kathy Buckman Gibson,
Chairman of the Board, Buckman Laboratories International, Inc., USA

Story of Buckman Laboratories

Buckman Laboratories was founded in 1945 by Dr. Stanley J. Buckman; two years ago we celebrated our 60th anniversary. We are a manufacturer and supplier of specialty chemicals for the following industries: papermaking, leather making and water treatment. We are privately owned and we have no plans to change that. We are a global company with ten manufacturing plants around the world in nine different countries including Singapore and China. We have 1,450 associates. Because we do business in over 90 countries, we are aware of the challenges associated with different cultures and diverse peoples and languages.

Mission Statement:

We, the associates of Buckman Laboratories, will excel in providing measurable, cost-effective improvements in output and quality for our customers by delivering customer-specific services and products, and the creative application of knowledge.

Our mission statement is focused on providing improvements in output and quality for customers by delivering customer-specific services and products and the creative application of knowledge. Providing services and products may seem quite obvious, and at Buckman we have recognized that our ability to be customer-focused is our main differentiator.

The ability to deliver the creative application of knowledge is also an integral part of who we are and what we strive to be. Why?

"...only if that individual has a need or desire to learn will he or she engage in knowledge sharing that creates value." (Kathy Buckman Gibson)

As an organization, we have moved from being a very product-driven organization during our early years, where we would focus on developing a specialty chemical product and then looking at all the different markets to which we could sell that product (enabling us to sell to over 15 distinct markets,) to becoming more market-driven in the late 1980s and early 1990s, focusing on three global markets of pulp and paper, water treatment and leather, and working to be able to provide all the specialty chemical needs of those markets.

At the same time, we shifted from a pure product orientation to a market orientation. We began to recognize the need to shift toward becoming more knowledge-driven as an organization.

Figure 1: Journey of Buckman



We realized that for us to truly understand these three markets that we sell to, we needed to tap into the knowledge and expertise of our people serving those markets, as well as our individual customers' knowledge and expertise. In order to compete in what was becoming a much more global marketplace and also to contend with companies three to five times our size, we had to be able to leverage the talents of all our associates around the world for any given situation we were encountering with a particular customer. And so, under the leadership of our CEO at the time, Robert Buckman, we began our journey of becoming a knowledge-driven organization.

To be knowledge-driven, we have to figure out how to add value to the chemical products we sell and to do it better than our competitors. It is no longer good enough to know the product. Now we must also know everything about our customers' processes and their products. This requires us to rethink how we want to invest our resources to achieve success. For example, what do these customers really want? Do they want a product or do they actually want a *service* that involves some of our existing products and some of our competitors' products?

Are we able to combine our capital assets and knowledge assets in order to develop and be dominant in some new core competency that has a higher value added for the customer? To do this, we find that we must be able to mobilize anybody within the entire knowledge base of the organization for the task at hand. **We have to remember that 90 percent of that knowledge base is in the form of tacit knowledge (that which is between the ears and behind the eyes.)** It is changing every minute of every day.

*"An individual without information cannot take responsibility;
an individual who is given information cannot help but take
responsibility" – Jan Carlson*

The challenge in most organizations is to get people to assume the responsibility for transforming the ship (organization) and in doing so making things happen. We have to trust our people to act responsibly. But to do that, we must give them the information and knowledge they need, and rely on them to use their common set of values to determine how to act. Note that the focus is on the people, who are the individuals in the organization.

A culture of knowledge sharing requires that you have to be able to trust the information that you receive to be the best that can be sent to you, and those that send it to you have to be able to trust that you will use the information in an appropriate manner.

But How Do We Build This Trust?

You have to have a common value system within the organization if you are going to have proactive knowledge sharing across time and space. This can be embodied in a Statement of Values for Effective Communication or as a Code of Ethics, which forms the basis of and creates the foundation for communication that is essential for knowledge sharing to take

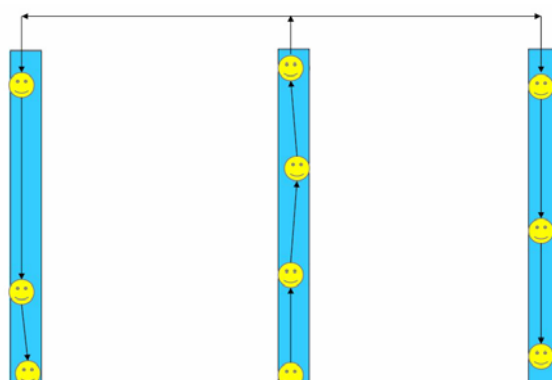
place across the organization. Similar to the common web-based browsing standards that proved to be essential to create a global format for electronic communication, this Statement of Values is essential for effective knowledge sharing that will create value for your organization. The important part is that it should be developed by a process that involves all the individuals in your company rather than promulgation from on high. This is how we developed our code of ethics at Buckman.

Our code of ethics is our statement of values for working together and how we relate to the greater community outside the organization. Ideally, for any organization, you want to be in the position of being able to change rapidly, to meet the changing demands of your customers or clients. But to put yourself in this position, you have to be willing to give your associates a certain level of autonomy to do so, and you have to create the environment in which they will do what needs to be done, to build a more empowered environment with faster decision making for example.

This represents the other side of the trust equation, and again, it highlights how and why this common set of values is very important. Management must be able to trust associates to act intelligently and responsibly. This two-way trust is absolutely essential if we are going to have proactive knowledge sharing in an organization.

Why is it so important to focus on the individual? Let us look at how communication works in any organization. In a typical command and control structure (Figure 2,) knowledge moves up and down the organization in a sequential manner from one person to the next. But this sequential manner creates its own problem has its limitations.

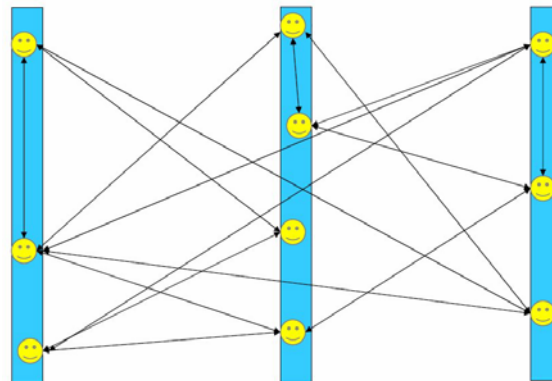
Figure 2: Typical Command and Control Structure



Let me give you an example. When I was younger, I used to play a game with my cousins. We would line up in a row or circle and the first person would start to give a message to the next person, and then the second person would repeat the process to the next one and then it would move on to the last person. What would happen was that when the message reached the last person, it would have changed significantly. So this is an example of communication in a typical command and control structure. But that does not mean that the command and control structure is unimportant. It still is important because there are certain things for which you need to go to management or a superior to make a decision, for example, when what you plan to do require resources.

Figure 3 shows a networked communication model in a command and control structure and illustrates how much faster communication flows when this is allowed, facilitated and encouraged. But notice that ideally, each person communicates with many others; not just one person up and down the chain of command but with several people within the organization. Recognize that in this networked structure, as opposed to the typical sequential structure (Figure 3 vs. Figure 2,) communication can be across the organization, operating boundaries and entities. For example, I am based in Singapore, but through our global knowledge network, I can communicate with my associates in Australia or South Africa or the United States.

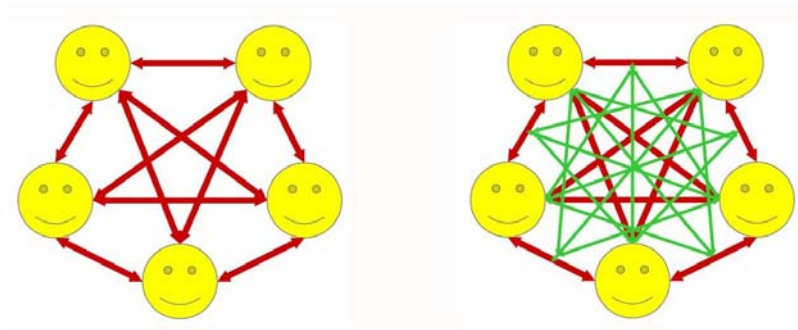
Figure 3: Networked Communication Model



But this does not mean that the typical command and control structure is unimportant. It is still important; for instance, if you were making a decision that involved corporate resources, you would still have to go to management for approval and access to those resources.

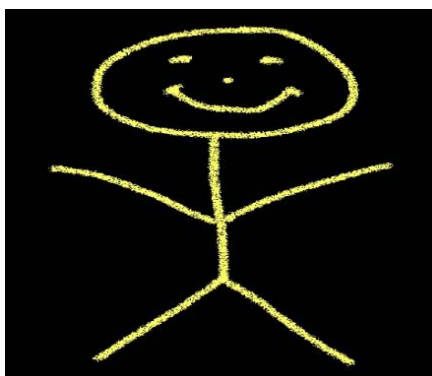
Also, the knowledge that resides in the heads of people is always changing, always growing in both quantity and quality. As we add in the secondary connections (Figure 4,) the complexity of communication increases. This shows the power of Metcalf's Law. We call it the power of increased communication. This is why networks have power and are able to deliver value. The value increase comes from the movement of knowledge. In addition to the speed of response, there is an automatic quality control piece built into the knowledge exchange. It rarely takes more than three to five people in an exchange around a need to produce a high-quality response.

Figure 4: The Power of Increased Communication



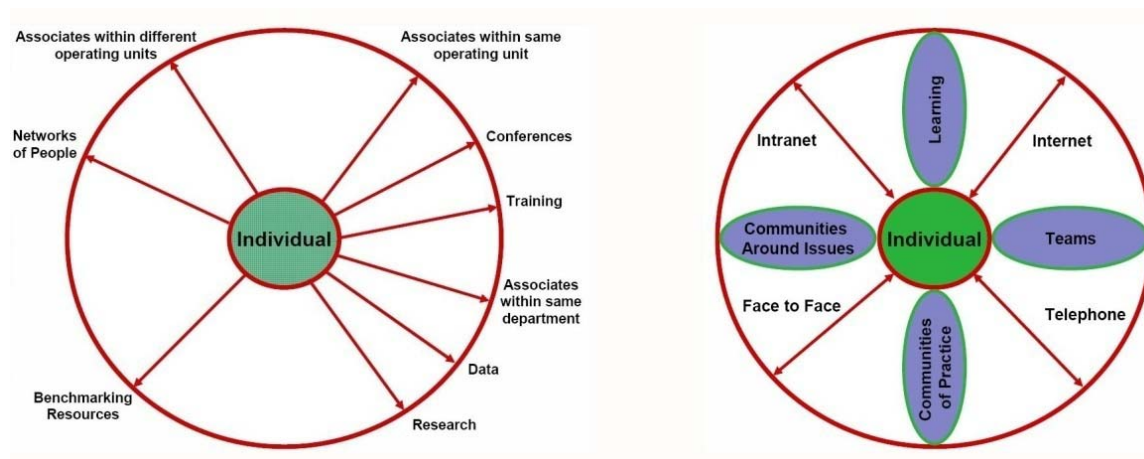
So what are some of the strategies that flow from these principles of communication and knowledge sharing as they relate to becoming a knowledge-sharing organization?

Figure 5: Fred or Fredricka



This is the individual in an organization. Let us call her Fredricka. She represents all those individuals in the company who are there day after day trying to do their best for the company. The question is: how can you help them achieve success in this effort? How can you release and leverage the capabilities of each individual, transcending time and space? How can you help them to be the best that they can be for the common good of the organization? If we want knowledge sharing across time and space, we need to think about how we can increase trust among these individuals in the organization across time and space.

Figure 6: Community of One



In essence, we are talking about the community of one where we will all be connected. Every individual is connected to each other to wherever we need to go for information and knowledge. There are many varied resources that each individual can go to or ideally need to have access to in order to do their job well. There can be access, for example, to the knowledge network and databases, and access to fellow associates' knowledge within different areas of the company, to the Internet, to discussion forums, etc.

Learning

One of the most important resources is your employees' ability to access each other. As an individual reaches up to establish this connection and access the information embodied in this connection, this leads to the development of communities around issues, communities of practice and in some cases, formal teams as well. At the foundation of this, however, is a need to engage that individual in learning because only if that individual has a need or desire to learn will he or she engage in knowledge sharing that creates value. In other words, the

employee must be open to learning in order for this community to work. It is then the responsibility of the organization or its leadership to provide each individual all the means necessary for him or her to be able to interact and tap into the various resources needed to have the information the employee requires and to take responsibility for what he or she does within the organization. How much freedom we give employees to participate in this community will determine how involved they wish to become.

Let us start with this key foundation. The issue is developing an associate or employee who understands the benefits associated with learning, which ultimately leads to your organization becoming a learning organization. I think we will all agree that becoming and being a learning organization is essential to success in today's rapidly changing world. This was a concept introduced a number of years ago by our friend Peter Senge. He says "*the organisations that will truly excel in the future will be the organisations that discover how to tap people's commitment and capacity to learn at all levels in an organisation.*"

Note that it must be at all levels and it is about nurturing people to become focused on learning, changing and growing. As an example, we started a five-year program some years ago for our plant operators to help them to achieve a certain level of performance and improve their job attributes in order to be more effective in their job. Some people initially did not understand or see the importance of the training, but as they saw their colleagues who went to the training moving up in their jobs ahead of them, they began to see the difference the program made and this is the kind of learning culture that we want to build because we can only progress if each individual has that learning mindset.

In essence, we are talking about how we make each individual and ultimately the entire organization more adaptable. What do we mean by adaptable? This means that the individual is willing to learn and grow, and to recognize that his or her role within the company will necessarily have to change to meet the needs of the environment. And it has to start with a willingness on the part of management to make real investments, both in terms of money and people time in formalized training within the organization. Without the corporate focus on training, efforts to create a learning culture are merely hollow words. It has to come from the top.

You need to be smart about combining the different learning technologies. For example, John Stitt, one of our tissue experts, ensures that whenever he plans to conduct an instructor-led training course on tissue making for our sales or technical people, that these trainees first go through some form of PC or CD-based training which provides them with basic information that they need to know before they come for the face-to-face training session, thus resulting in more productive learning when they come together for the actual training.

Hence, we try to give our associates a well-rounded and diverse set of learning opportunities, and we make use of various delivery options to extend their access to learning. Our online Learning Center enables our associates to take courses anytime, anywhere. We must expand access to learning so that it is available anytime, anywhere through multiple delivery options (web-based, classroom, CD, web-casting, university access.)

Translating materials to our people's native languages is also important. At Buckman, we have even moved away from using formal translators from the outside, to the use of our own people so that the translation is as close as possible to our people's day-to-day language.

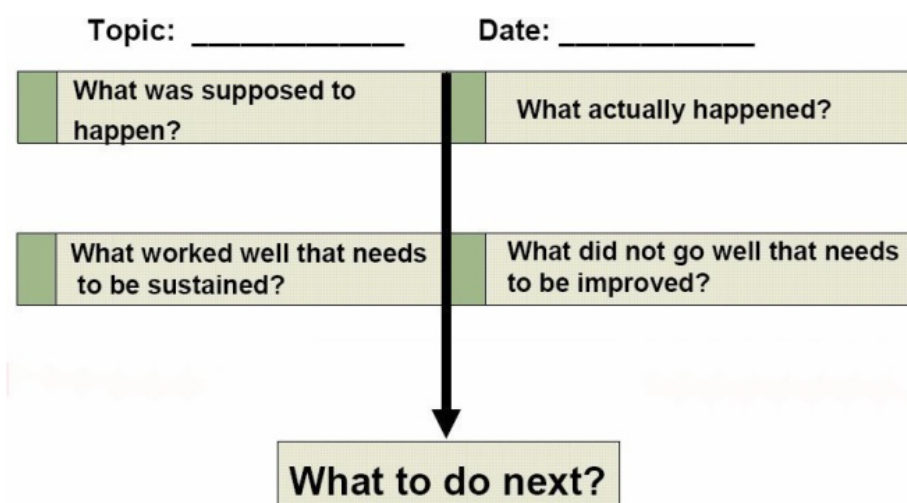
We are implementing a learning management system, which includes training catalogues and training records, and this is managed by our Learning Center team. Another part of the whole learning culture process is being able to bring everyone to the same level. We have

set training standards that are necessarily global. Our forums and workgroups are some of the tools and methods we use to facilitate the transfer of best practices. Again, all of this needs to happen at all levels of the organization, informally and formally, because for our learning culture to thrive, we must continuously create and facilitate a learning environment.

We also need to develop and implement knowledge tools and processes or programs that support this learning environment. One example of a tool or process that we developed is the After Action Review, which was originally developed by the United States Army.

We use the BAAR (Figure 7) to review as a team an activity, training or event. We review together what was supposed to happen and then what actually happened, specifically what went right that needs to be sustained and what did not that needs to be improved. The BAAR is our reality tool. It helps us to see how effective we are in our planning, our presentation and whatever we are doing: what was positive, what was negative and what changes we may want to adopt based on the results. It helps us to think about what we are doing, how we are doing it and how we can improve. That is why it is a great learning tool.

Figure 7: Buckman After Action Review (BAAR)



One of the key benefits of the BAAR is that it creates an environment whereby people can focus on the process and not on the individuals; in other words, not putting blame on individuals but on the process when something is not working well.

As you can see, the learning environment we endeavor to build and the steps we take to become an effective learning organization are aimed at helping us to enhance internal knowledge sharing and cross teaching and learning among individuals. This is always ongoing and occurring every day, every minute and every hour in a networked environment.

I will cover a few more tools and processes that we use a little later.

Relationship between the Customer and the Organization

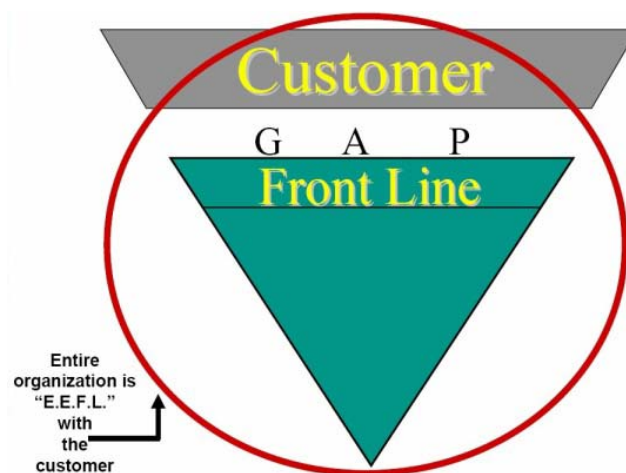
To compete in today's economy we have to think about how to tap into the knowledge and expertise of all the people in the organization as it relates to how we interface with the customer. This interface traditionally only involves the frontline: our salespeople, our technical support people, and our customer service people. But ideally, we want to create an environment that allows everyone—the entire organization—to be involved and engaged on the frontline, to be "EEFL" or "effectively engaged on the frontline."

The entire organization being EEFL with the customer means that everyone in all departments, from sales to support, from the management to the operations people, all are involved in closing the gap with the customer.

Why is it so important to have everyone being effectively engaged on the frontline? Because as individuals, we are all vulnerable to being beaten, but collectively when we collaborate as a team, we can win in any situation. We need to focus on the importance of tapping into the hearts and minds of the organization to meet the needs of our customers. It is the most powerful weapon that we have in the competitive arena today. With the whole organization being EEFL with the customer, we are in essence creating a greater level of power for our frontline. And the frontline can have the collective power of the organization behind them with everyone doing their utmost to meet and satisfy customer needs.

Ideally, we must create an environment that allows us to have the entire organization embrace the customer.

Figure 8: EEFL



Communication and Knowledge Sharing

"Communication is human nature - Knowledge Sharing is human nurture!" – Alison Tucker

This definition of knowledge sharing was written by my associate in the United States, Alison Tucker, who is our Global Communication Manager. I think it is one of the best definitions I have seen of knowledge sharing because it clearly illustrates the relationship between communication and knowledge sharing. Communication is a human need. You cannot have effective knowledge sharing if you have not first mastered the ability to communicate in a relationship. But what does it take to effectively communicate with each other, with another individual?

We have to work at overcoming the barriers that are blocking us from effectively communicating, and we all know there are many barriers. To overcome these barriers on a consistent basis so that we can have effective communication, we have to work from a common set of values as it relates to communicating. Remember the importance of trust in communicating and sharing knowledge with others. We should observe simple protocols based on common values, such as basic e-mail protocol, which are universally understood to help us improve communication. How we manage our communication with others is very

important but it is something that we tend to easily overlook. It is really about going back to the basics before we can move on from communication to knowledge sharing.

Knowledge Sharing

What do we mean when we say effective knowledge sharing? It is:

- Willingness on the part of one individual to communicate information
- Willingness on the part of the receiver of the information to listen and learn
- Application of that learned information to create value for your organization, ultimately for your customers

Knowledge for knowledge's sake will not get us much anywhere other than, for example, the pleasure we might take in having that intellectual stimulation. It does play an important role in fostering learning in the individual, but ideally, once that individual is provided with the information and knowledge, he or she must be able to take responsibility to make things happen and then use it to create value somewhere in the value chain of the organization.

Closing the Gap

How do we close the gap with the customer or whoever your audience may be if you are a non-profit organization (like the Asian Productivity Organization, for example?) How do you close that gap so that you are able to enhance communication with those people? How do you engage them in knowledge sharing for the common good? To do this you have to focus on harnessing the power of your entire group of people. You have to focus on using that power to create additional value and you do this by enhancing communication with your audience, engaging in productive knowledge sharing with your audience and using that knowledge to streamline and enhance your internal activities.

I am now going to move to some of the tools and business practices that we have developed within Buckman, which have helped us take our organization to the next level of knowledge sharing not just internally but with our customers.

The **Requirement Alignment Tool** is our primary communication tool that we use internally in Buckman as well as with our customers. This important tool helps us to ensure that what we do for our customers is always aligned with their requirements and that these requirements are consistently being met. Let me explain how we employ the Requirement Alignment Tool to ensure that our customers' programs and processes are successful. First, we ask for the customer's requirements for every system and we document it on the Requirement Alignment Tool. Then we ask the customer to define the measurements for success. Third, we make sure that we have the resources and that we are capable of meeting those requirements or accomplishing the task or tasks according to their requirements.

It sounds simple but it takes a skilled listener to accomplish this process and make it work. All our associates are well trained in the application of the Requirement Alignment Tool. It is at the heart of our Customer Satisfaction Workshop, our Transition Workshop, and we use it internally also to realign our processes and for our employee appraisal and management performance as well. The Requirement Alignment Tool process helps us to respond to the needs of our customers and the problems and issues they face everyday, while at the same time, being able to react quickly to their changing needs and to the changing business conditions that surround them.

The **Customer Satisfaction Survey (CSS)** is our tool for creating dialogue with our customers, allowing for feedback from them and enhancing knowledge sharing with them. We use it to communicate with our customers on how we are doing relative to the 8

Business Management Standards, which are our global standards that we employ across the world with our customers. The 8 BMS is something that we use to ensure and assure that our global customers see the same high standards from Buckman Laboratories no matter where they are located in the world. So the CSS provides the knowledge sharing vehicle that assures continuous improvement as well as the action steps that are necessary to maintain that continuous improvement. This is done with the specific requirements and measurements given by the customer (using the Requirement Alignment Tool) so that it is done the customer's way using input from their people through face-to-face communication and knowledge sharing. How easy can that be? The CSS is made up of a very simple 25-point questionnaire. We ask our customers how we are doing in all these 25 areas. So in other words, we do not measure customer satisfaction; our customers are doing it for us through their use of the CSS. We have a global database containing every one of our customers, and this database is monitored continually to tell us whether we are on track, or if we are going off track, and then how we can improve. We know which are the things we must continue and which ones we must change to get back on the customer's track. Thus, the Customer Satisfaction Survey helps us to continue to meet our customers' needs, making sure we keep their systems on track, and also helping us to reduce attrition. For us, it is a very powerful tool.

Discipline in the Use of Teams

In today's workplace we have to look toward teams to help develop and implement various initiatives. As we began using teams several years ago at Buckman, we recognized that we were not utilizing the talent of our people or groups very effectively—it seemed that a lot of time was being spent around the conference table but with little outcome or effect. So we stepped back and spent time to develop a process to put around our teaming efforts, designed to ensure that our team efforts are effective. **TeamToolz** provides standard methods of chartering a team: why the need for a team, what is the team's purpose, what do they have to deliver and what value do they add to the process of whatever they are doing. TeamToolz helps the members of a team collaborate better and share with each other to succeed. It facilitates the process of teamwork. We also use trained facilitators to help our teams stay focused. This approach has been successful so far. Today we have more successful teams and also successful virtual teams.

One good example of successful teams is our Global Key Corporate Account (GKCA) Teams. Each GKCA team stretches across the global company and is made up of different people around the world who are tasked with developing our relationship with a respective customer, thereby closing the gap with that customer. TeamToolz is a process that has helped them tremendously.

Other areas or practices that we have developed or adopted within our organization, which help us to reinforce our learning culture and facilitate the sharing of knowledge with our customers include:

- Training
- Performance management
- Organizational surveys – These help provide management with feedback from our own associates on how we are doing as a company and also to allow us to have dialogue on the results that we see. This is knowledge sharing.
- Communities of issues and practice: open dialogue, customer-specific, industry-specific or business function-specific
- Customer interface standards – global standards for our customers (the 8 BMS)
- Defined problem-solving methodologies – which we use with our customers.

As the leadership of the organization, or if you are responsible for some portion of successfully implementing knowledge strategies, you can focus on creating and implementing practices and disciplines that support a knowledge sharing and learning culture.

To summarize, we do all of this and have gone through the effort of implementing all these practices on a global basis in order that we can close the gap that we have with a customer. In doing so, we aim at creating greater value for our customers and our shareholders. Remember also that to effectively engage in any of these interfacing activities, you have to continuously look at how you build the trust that exists between you and those with whom you are interfacing because only when there is trust will there be knowledge sharing that goes beyond mere interaction. Only when there is trust will there be knowledge sharing that can then lead to the creation of value.

Remember also that we are talking about a community of one because it is the individuals in your organization and their ability to connect with the various resources available to each of them that represents knowledge sharing, within and outside of your organization. And those of you in the position to support organizational change must look at ways in which you can support those individuals and their learning, to support their ability to actively participate in communities around those issues and communities around practices, and support the use of their talent also in team environments.

Finally, it really comes down to what we can best do to help Fred or Fredricka, the individuals in our organizations, be in a position to do his or her absolute best.

Thank you very much.



Connecting Strategy and Operations through Knowledge Management – The Tata Group Experience

T.S. Rangarajan
 Head, RFID Solutions
 Tata Consultancy Services, India

I thank the Asian Productivity Organization and the Thailand Productivity Institute for giving me this opportunity to speak before you. I come from one of the largest industrial houses of India, the Tata Group, which is more than 150 years old.

We heard Professor Nonaka speak about knowledge management as almost a philosophy. We heard Ms. Martha Seng speak about the importance of the people part of knowledge management. This is perhaps the most difficult aspect. I have chosen the easier path of talking about knowledge management in a way that is more down to earth, and which most of you will relate to easily. It is much closer to heart for us because I come from an information technology (IT) organization.

I am going to talk to you about how knowledge management, as it is being spoken and practiced today, has been largely enabled by IT. It is IT which is helping us to talk about these things effectively today. And coming from an IT organization, I will show you some demonstrations of how IT tools or processes are designed as well as how they are used in our company and the rest of the Tata Group. It is our belief that these tools are very essential. We cannot be sitting in this hotel, talking to each other, without the use of these tools. I do not pretend to be a philosopher or thinker; I am a very hands-on guy. I will be very happy to answer questions later on how did we did this and how are we trying to do that.

Knowledge management has not only been a very important tool for our company but we have also created a practice out of it. A lot of this information we will share freely with you. We will follow the presentation printed in the bound handout but more than that, I want to show you how these portals work. As consultants, we sell the practice of knowledge management. I am unabashedly telling you that I am a salesman for TCS on knowledge management.

"Knowledge management is proving to be a risk sharing platform. I get comfort in knowing that I have more people I can go to if I have a problem. I am not alone; I am sharing my risk."

Here is some basic information about the Tata Group:

- India's largest conglomerate: 93 operating companies across 7 industry sectors
- Represents excellence and integrity
- Trusteeship concept
- Pioneering spirit
- Leaders in multiple businesses
- Group turnover in 2005-06 of \$21.9 billion (Rs.967,229 million,) the equivalent of about 2.7 percent of India's GDP
- Over 215,000 employees and 2.3 million shareholders

- Total market capitalization: \$42.8 billion (Rs.196,422) as of June 30, 2006
- Operations in more than 40 countries across six continents.

When I was preparing for this presentation, I used precisely the same points that Martha was talking about. I tried to connect with a number of the Tata companies with which I was not very familiar.

I come from Tata Consultancy Services and it was a huge challenge for me when APO approached us. APO asked for someone from the Tata Group to come and make this presentation on knowledge management because the Tata Group received the Global MAKE award this year. It was a tough challenge for me to be able to reach many people in the Tata Group and let me say that it was because of our IT tools that that I was able to very quickly connect with people, very quickly get the information that is required and very quickly understand it.

To present all these things in a public forum—that is possible because of these tools. And I realize that tools can help connect strategy to operation. It is tools which are enabling these things. Therefore I chose my topic as **Connecting Strategy and Operations through Knowledge Management**.

Interestingly, even before I thought about this subject, it is what the Tata Group was trying to do. It is trying to leverage all the technologies and tools that are available to us to see how we can do better business with our customers, how we can work with our stakeholders more effectively and how we can serve the community in which we live.

The Tata Group is very well known in India for community welfare. All of us in the company are actually driven hard. We have to work very hard to earn money and the Group readily spends it on the community that it supports. We have a chain of hospitals. We have a chain of educational institutions. One of the finest research institutes in India, the Indian Institute of Science is largely funded by the Tata Group. So money goes back to the community; that is the benefit. We create the supply chain that we need to do business better and that is the cycle that has been repeated in the last 150 years.

How did knowledge management start in the Tata Group?

The credit goes to the oldest company in Tata Group, **Tata Steel**. They took the first baby steps when they included this sentence in their vision statement in 1999:

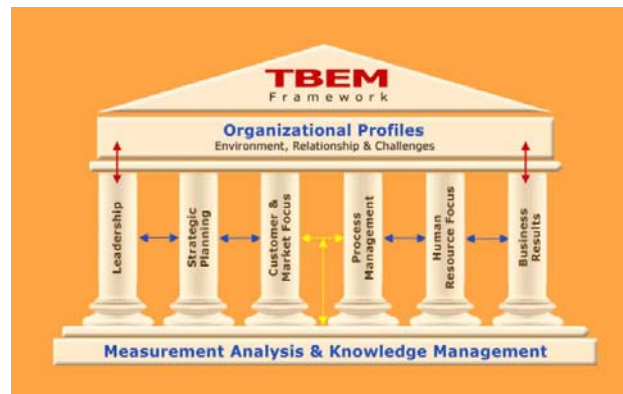
"Tata Steel enters the new millennium with the confidence of learning and knowledge based organization..."

I think companies are realizing the importance of how they can actually leverage the knowledge which is resident in their employees. Most of you know that some time back business process re-engineering was a very hot fad in the market. The reason it died, however, is that people looked at it as a strategy to reduce costs by cutting or removing employees. What they did not realize was that when they remove employees, the knowledge that those employees possessed went with them. The employees that were being removed were so called non-value adding management of organizations, which is so critical in a team with all the knowledge it had. People thought that the frontline or salespeople, and the production people who are directly tasked to add value, are the people that are required. Then you have the top management to run the strategy and decide what you want to do next. The middle management was traditionally considered to be not that useful. And in their wisdom, companies decided to do away with middle management. Business process re-engineering failed for this specific reason.

These are big lessons that were learned and as the result, the concept of knowledge management was born. In respecting knowledge management and leveraging knowledge, there is a lot more realization now of how knowledge management can make or break a company.

What Tata Steel did was to make knowledge management part of their strategy, through the Tata Business Excellence Model (TBEM.) Measurement, analysis and knowledge management form the foundation of the strategy.

Figure 1: Tata Business Excellence Model



Most of the documents we have to fill out for our TBEM assessments have a lot of questions on knowledge management: how are you conducting knowledge management, how are you actually developing strategies, what is the basis, etc. All of these are examined in great detail.

Tata Steel decided that it has to create a value management program for its customers, suppliers, employees and each of its stakeholders. Tata Steel defines its value chain as a connected series of internal and external organizations, resources and knowledge streams involved in the creation and delivery of value to end customers. Tata Steel developed two programs in particular to help manage knowledge across its value chain: the customer value management (CVM) program and supplier value management (SVM) program

Tata Steel wanted to make sure that every stakeholder is addressed with knowledge by adding value to the relationship between the stakeholder and the company. This is a very important step that Tata Steel took. Even today, Tata Steel is considered as one of the most advanced companies in terms of its ability to handle stakeholders very effectively.

The Jamshedpur facility of Tata is very old. It has a huge community where the whole city is run by the Tata Group. This particular city is well administered, as is its hospitals and police. The concept is to go back to the society and give back to them what we have earned. Tata has been pioneering in this since their beginning. And in knowledge management, they also are pioneers.

They created a roadmap for knowledge management at Tata Steel:

Phase 1: 1999-2000

- Awareness
- Process design
- System design
- Launch of KM portal
- Early success stories communicated

Phase 2: 2000-2001

- Knowledge communities kick-off
- Security system in KM portal introduced
- Linked KM with PMS (performance management system)

Phase 3: 2001-2004

- KM Index introduced
- Community Index introduced
- Customer and supplier knowledge
- "Ask Expert" launched
- Recognition system introduced

Phase 4: 2004-2005

- Knowledge *Manthan* introduced
- Linkage with IPR Portal
- Integration with Aspire
- Quality Index introduced
- Thrust in usage of knowledge
- Knowledge across value chain

Three knowledge management strategies were adopted:

1. Codification
 - Capture, deploy and use
 - Knowledge transfer is independent of time and space
2. Personalization
 - Knowledge transfer across divisions, departments, customers, suppliers: K-communities, CVM, RVM, SVM
 - Knowledge *Manthan* (churning) for shop-floor employees
3. Knowledge Diffusion
 - Usage of K-assets (KP, CoP, projects, etc.)
 - K-debates
 - Quizzes
 - Knowledge *Manthan*/MASS ("*Manthan ab shopfloor se*")

I want to give you an example of codification versus personalization strategies. About eight years ago there was an article comparing how consulting firms work. It classified consulting firms into the two following groups:

1. Codification or IT focused. One group was busy creating IT tools and web portals for worldwide access by its employees. People were encouraged to write down their monthly reports, time sheets and all the information that they collected daily. Everything was to be uploaded into the portal and everything was searchable and accessible. The way you got judged was how much you contributed to the portal.
2. Personalization or people focused. The other group, on the other hand, did not rely on tools. They focused more on the people they had. They picked up the phone, called up their people who had done some of their projects, talked to them and got the knowledge that was required to start a project, and got their hands and feet wet on the project very quickly because they were able to connect.

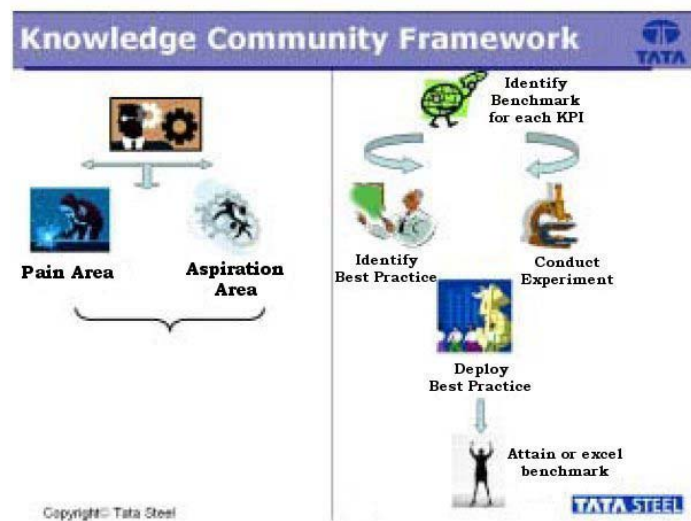
The conclusion of the paper was both of them were equally successful. They did not want to make a judgement on which was better because the data was not sufficient for long-term conclusions. And it is also proven today that people are still important when it comes to knowledge, when it comes to an organization's performance. Like in the presentation in the morning, you do not need cars; instead, you build people first, and the service or product comes later. That was what the paper talked about.

Tata Steel wanted to look at knowledge management from both an IT and people focus.

Thus, Tata companies tried two things: codification which is the capture and transfer of knowledge independent of time and space, and personal communication in the form of explicit to tacit knowledge diffusion. Most of the Tata companies have taken the step of creating their own portals as well as creating communities of practice where it is called *Manthan* in Hindi or Sanskrit. It actually means churning, where you bring the people together. You make sure that there are affinity groups created, they exchange views, they are connected, they shake hands and all that.

Tata also adopted a Knowledge Community Framework (Figure 2.)

Figure 2: Knowledge Community Framework



For all this work Tata received the following awards:

- 2006 Global MAKE award
- 2006 Indian MAKE award
- 2005 Indian MAKE award
- 2004 MAKE Asia award
- 2003 MAKE Asia award
- APQC best practice partner

Tata Chemicals is the next company that implemented knowledge management.

Tata Chemicals launched an IT-enabled knowledge management process last year. They developed interesting unique methodologies, including sharing stories by employees that can build a repository of tacit knowledge.

Today one of the very interesting methods to bring people together is the storytelling method. You talk about what happened, tell the whole story and document it. There is a writer assigned to these groups to document the storyteller's tacit knowledge.

I was doing a project a few years ago on creating an artificial intelligence-based maintenance management system and I realized that one of the most difficult jobs is to acquire the tacit knowledge of the maintenance technicians and managers who have been operating the plant for more than 40 years.

So what Tata Chemicals did was to collect these stories. It is easy to understand why Tata Chemicals used stories. Being a chemical plant, it is process-based and one of the most important processes is maintenance. How do you know how things were fixed if you cannot recall it from the past, get these stories from people? They are also experimenting with new concepts like theatre. They use theatre to create awareness, commitment and organizational transformation. It communicates the message in an energizing, emotional, participative and 'fun' manner, and has been used to spread the message of knowledge management, TBEM, code of conduct and cultural pillars across the enterprise.

It is like a political campaign: you have to coin a tag line or create a slogan to go to the community and then energize them to work toward knowledge management or whatever practice you want.

Tata Chemicals also has a concept of "Listeners"—those who listen to these stories during the discussion from workmen in their local language, translate them into English and upload them in a portal called *Titli*, which in Hindi means butterfly, connoting facilitating transfer and further deliberations.

Other Tata companies have their own KM initiatives:

- Titan Watches – KM Portal, CoPs like *Manthan*
- Taj Group of Hotels – KM Portal, CFS for customer knowledge
- Tata Refractories – KM Portal
- Tata Power – KM Portal
- Tata Coffee – CoPs like *Manthan* in plantations

Tata Consultancy Services, which is my company, started about 40 years ago. Here are some highlights about TCS:

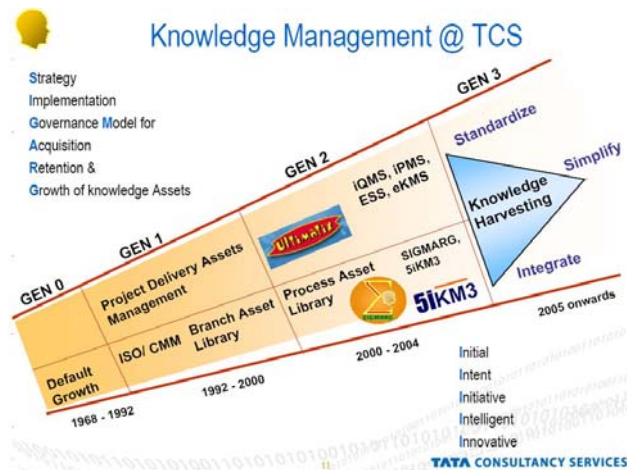
- TCS was established in 1968
- FY2006 revenue of US\$2.97 billion (from US\$2.24 billion in FY2005)
- Over 74,000 employees
- Awarded triple certification for Quality (ISO 9001:2000,) Security (BS 7799-2:2002) and Services (BS 15000-1:2002)
- 2006 Indian MAKE Award
- First company in the world to be assessed at Level 5 for integrated enterprise-wide CMMI and PCMM
- Global presence: operations in 47 countries, 179 offices
- First and largest
 - Software R&D Centre in India
 - Software Exporter in India

We had revenue of more than US\$3 billion dollars in the first quarter of this year. We have more than 78,000 employees now. We are a 2006 Indian Make award recipient. We are the first company in the world to be assessed at Level 5 for integrated enterprise-wide Capability Maturity Model Integration and the People Capability Maturity Model.

What did we do in knowledge management?

This is the journey of TCS in knowledge management.

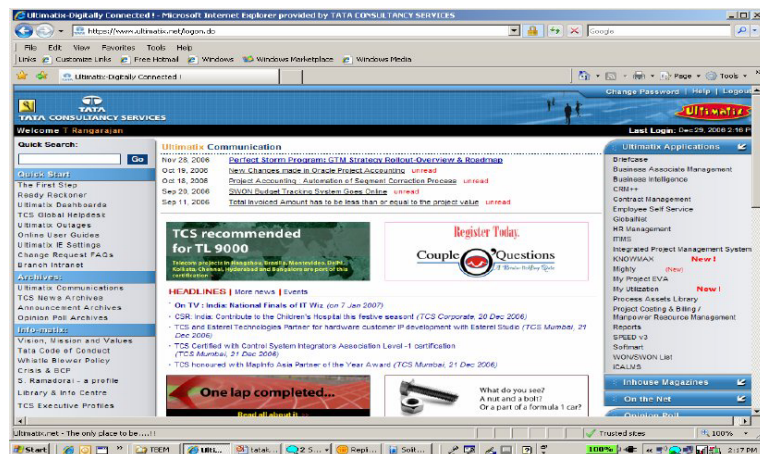
Figure 3: Knowledge Management at TCS



From 1968 to 1992, a span of almost 14 years, we did not do anything on knowledge management. From 1992 to 2000, our first step was to realize that whatever we deliver must be subject to some quality assessment. We had the ISO/CMM and the Branch Asset Library. In 2000-2004, we created a portal assessment. We had the Process Asset Library, and then we created the Integrated Quality Management System, Integrated Project Management System, eKMS and Employee Service System.

Only in 2005 did we begin to formalize this whole thing. We have done a lot of groundwork, let me say that. Today it is much easier for me to shift from one platform to another within the company. We have all the transactions recorded. We have all the knowledge captured. It is now available in our library. And that is why we were able to come forward and offer what we have, a trademark methodology called SIGMARG or Strategy, Implementation, and Governance Model for Acquisition, Retention and Growth of Knowledge Assets.

Figure 4: My Ultimatix



We launched a knowledge management portal in December 2006. It comes with my own **Ultimatix**, which is the portal that we use internally for our work. In my Ultimatix portal you can see my name there (Figure 4.) I have some headlines, communications coming; I have a briefcase; I can access management associates; I have business intelligence, CRM contracts, employee service. I can do Global Net while I travel anywhere in the world. It shows my CEO talking about this, some knowledge board, and so on. I am sure many companies have facilities like these. It is a very large portal. I can do anything I want in it. In fact, I have to start and finish my day with it. This is my portal. Everybody has access to this portal. Everybody has graded/accepted this portal based on what their grade is and what kind of

role and responsibilities they have in their organization. It has enormous amount of information. For all my policies, whatever I want, I go to this portal. And we are adding more and more facilities to this portal.

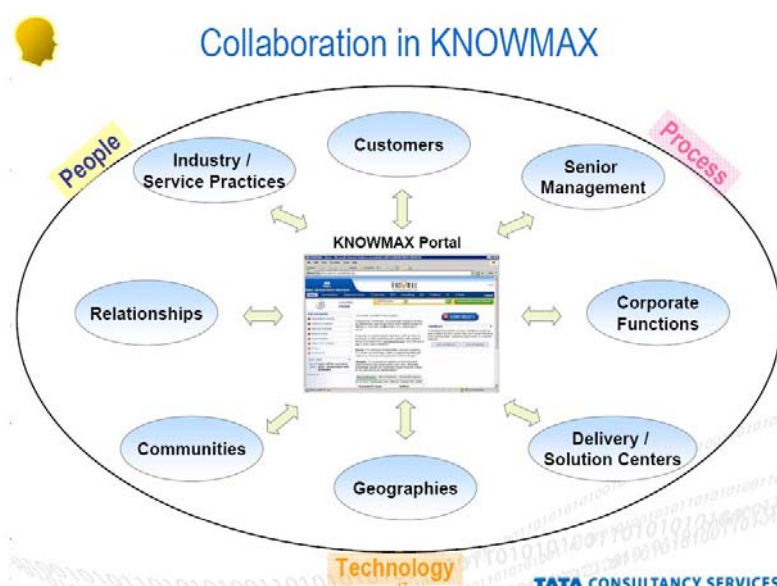
KNOWMAX is the new addition to this portal (Figure 5.) I completely agree with Martha. Getting people to contribute to this portal is a huge challenge. It is very easy for me to say that we have created a portal, we will share all the information with you and we will be doing so many things for people, but it is still voluntary. We cannot force people to contribute.

Figure 5: Homepage of KNOWMAX portal



The real challenge is to make people understand its importance. Everyone is asking the same question: what is in it for me? Why do I do this? People have to be coaxed and cajoled. They will also realize its benefits, like I have benefited a lot from this portal in preparing for this presentation. I am sure others will find some benefits also (Figure 6.)

Figure 6: Benefits from Collaboration in KNOWMAX



Introducing a knowledge management portal brings up many issues that have to be addressed:

- Knowledge is very dynamic. You cannot be seeing the same page all the time; it has to move. Activities are increasing and someone has to take the responsibility of documenting them. Somebody has to make sure that this document at the end of the day is posted. **Maintaining and updating portals** is a lot of work.
- Knowledge management is a big job. We have to justify its significance and show its **quantitative benefits** so that top management will give you the resources. We cannot be talking about intangibles all the time.
- Wal-Mart has a database of more than 300 terabytes of information. An issue in data warehousing is **currency of information**: what should stay stored and what will be junked. One difficulty we have is nobody has the authority to throw out a document from this portal unless the author him/herself offers a new version.
- The portal can really empower the frontline; there is no doubt about that. If I have to go to some client or go to the frontline, I can get an Internet connection and download documents. I do not have to prepare much for it. But who is to guarantee that the presentation is current? Somebody has to own it. **Version control management** has to be taken control of.
- We learn all these things and we must put them all together: people, process and technology all have to work together. Our practices, our relationships, our communities of practice, senior management, everybody is associated (Figure 6.) In intranets and extranets, and in all those kinds of nets to connect to various stakeholders, another issue is: who do you give access to connect to the information? I have this question right in the beginning of the conference. I have a piece of locked information. What should I share? What is shareable publicly? What is shareable privately? What is not to be shared? I am not sure I can share all those information and statements publicly. How do we create a **hierarchy of access rights**?
- Yet I want to empower my frontline sales person with all the critical information that is available with me. At the same time, I want to make sure that my critical information will remain a company secret. Will it go to my client? This is a huge challenge operationally. How do you **balance** empowerment of frontline sales people against confidentiality of company information?

Let us go back to the Tata **Business Excellence Model** (Figure 1):

- Introduced in 1995, fashioned after the Malcolm Baldrige Award
- Companies surpassing targets get the JRD Quality Value award (named in the memory of JRD Tata)
- Corporate governance included in 2006
- Focus is on goals, not prescriptive with respect to structure and systems, is adaptable
- Rigorous data and facts-oriented analytical framework with scoring system

This is the tool which ensures that each company is “on its toes” all the time. This is the one which ensures that every aspect of a company’s performance is reviewed by an external assessor. This is where we have put knowledge management as a critical input because we understand the importance of knowledge management in the Group.

I showed you our Ultimatix portal, and how knowledge management supports our operations. I was able to go to my office here in Bangkok, and operate as if I was working at my desk in the United States. It gives capabilities enabling every employee to work efficiently. But there is a question of security; who is allowed and who is not allowed and what can happen if somebody does not use it responsibly?

We are looking at how knowledge management can enable the enterprise content management framework. We are today saddled with a lot of content. You look at Google,

YouTube; just imagine how they manage their content. That is public information but when it comes to private information, it is a challenge all the time. We have used our knowledge and capabilities as a software company to learn these things from knowledge management.

We have at TCS a **knowledge management maturity model**, called **5iKM3**, fashioned after CMMI and PCMM. Its objectives and uses are to:

- Assess and evaluate the state of acceptance and maturity of the knowledge management initiative
- Evaluate and benchmark current people maturity in participating in the knowledge management initiative
- Measure the benefits from the knowledge management initiatives
- Identify and define the knowledge usage for business benefits
- Identify and define mid-course corrections in managing knowledge in the organization

5iKM3 looks at three components:

- **People** – They are the ones who possess the knowledge and are both creators and users.
Culture – This is the guiding force behind the way people respond to sharing and collaboration for knowledge.
- **Technology** – This is the enabler for managing knowledge.
Infrastructure – This facilitates the complete knowledge management environment.
- **Process** and Policies – These facilitate the people in their effort to capture, organize, store and reuse the knowledge created by them.
Strategy – It guides people in harnessing their knowledge for organizational benefits and it is important for an organization to have a firm long-term knowledge management strategy in place.

5iKM3 captures all the learnings we have had, with people and culture, process, policy and strategy, technology and infrastructure and how these components develop through five stages of knowledge management which is recognized globally: **Initial, Intent, Initiative, Intelligent** and **Innovative**.

What have we seen? We have seen that at the “Initial” stage, people are very conservative in sharing knowledge. You can see that people who are not used to computers and who have grown old before computers were introduced have no facility to use the machine. So we believe that there will be some generational change that will come about as we move forward. The new generation will adapt to this much more easily. They will not require focusing and cajoling. They will not have any insecurities about whether they can share this or cannot share that. They quickly adapt and change. This is what we saw in terms of the maturity level in the “People” component.

Then, at the next stage we began to realize that a very important person left the organization and he took with him all the things that he was doing. As a result, whatever he was doing in the organization collapsed. So we realized that he is a “knowledge point.” We cannot allow these things to happen. So at the “Initiative” stage, the knowledge points have been identified; the capturing process has started; and the sharing processes have also started.

In terms of the “Process” component, at the “Initial” stage there is no strategy defined, no process defined, no adherence to process. In terms of the “Technology” component, the “Initial” stage is totally transaction focused.

5iKM3 is a tool which we use to do a first-level assessment of the company for which we work, to see how we can acquire knowledge management for them. We make an

assessment for them and then we use our own learning to see how we can help them move forward to the next stages.

Then we have an implementation methodology that we call **SIGMARG** (Figure 7,) which means consolidation or summation of paths. This methodology charts out a roadmap by consolidating all tangible and intangible enterprise-wide knowledge, addressing all the touch points, enabling their usability and leading an organization to become a knowledge-enabled enterprise. It has made knowledge management very visible.

Figure 7: SIGMARG

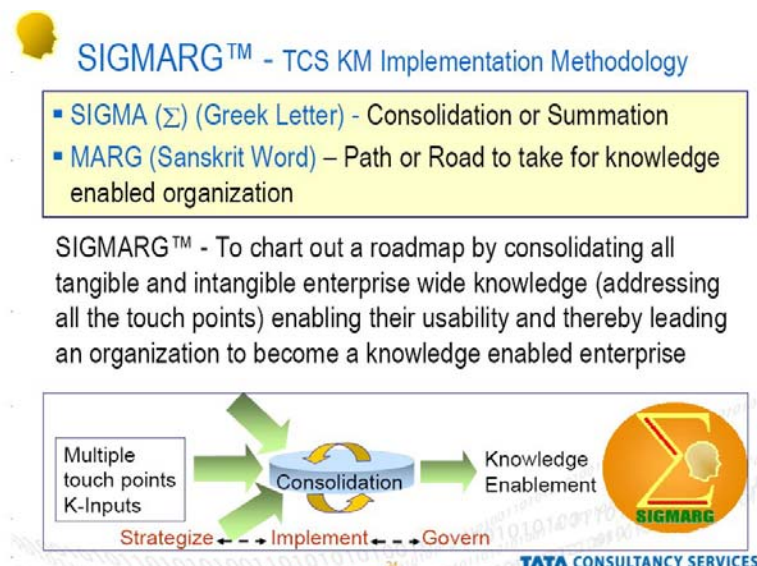
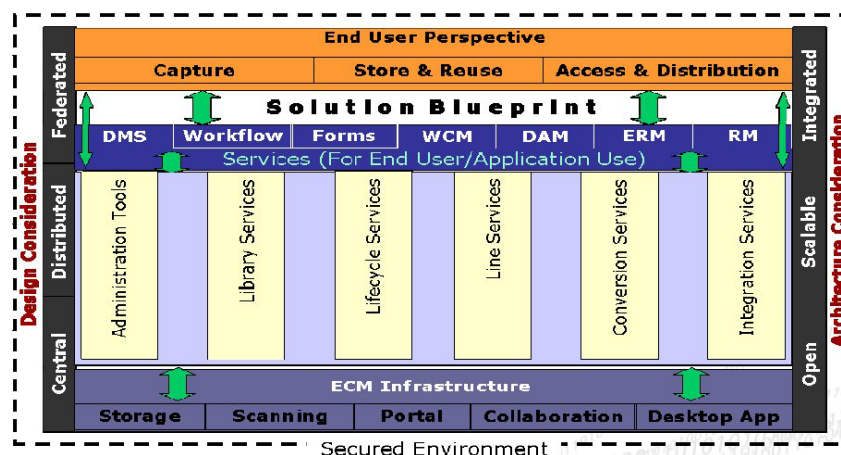


Figure 8: Enabling Knowledge Management through an ECM Framework



Now this is a fairly big slide—**Enabling Knowledge through an ECM framework**. You can see it talks about not just knowledge but how you are going about the data, how you are going to manage information, how you are going to manage the content that you have, what kind of architectural framework you require to manage that, and how you will manage it using knowledge management.

There are design considerations that people put in: that it has to be central, that it has to be distributed and federated, and that it has to be open, scalable and integrated. And we use

several tools a like document management system, workflow systems, forms, digital rights management and enterprise resource planning. All these have to be properly seen from the context of putting them to use where you know the people need it most. We use it as a framework to crosscheck what the organization has, and then to help them move. I must say that from a consulting company's perspective, knowledge management is really exciting because it actually leverages our core competencies in data handling, in software applications, and in helping people see what they can reach. There are limitations. People are important and their knowledge has to be captured; at the same time the currency of that knowledge cannot be guaranteed. Somebody has to take ownership; somebody has to look at the security of key areas. All these together make a fairly interesting and challenging task.

Now let us move to the **Tata Knowledge Chain**.

Each Tata company has its own portal to manage knowledge within the company. The Tata Knowledge Chain is an initiative to leverage competencies across the Group. For example, how do you enable a Tata Refractories person who wants a question to be answered by Tata Chemicals? That is the purpose of the Tata Knowledge Chain.

There are many interesting challenges. Who can access it? Who is authorized to do so? Who is capable of doing so? How do you grade their competences? Are they the right people to advise? How do you check what they have said?

This is another interesting journey on which we have embarked: the Tata Knowledge Chain. We think that we are a Group; even then there is some resistance. People will say that although we are a Group, my company's secrets cannot be shared. That is the biggest challenge. How do you make people understand? I do not think you can defend it for them; they will have to decide what they share and what they keep for themselves.

We started just a couple of months ago, in November. The first pilot group has created a portal, the **Tata Knowledge Portal** and there are questions being asked. There are only nine companies which came forward for the pilot. Another five are waiting on the sidelines. After the pilot there is another list of seven companies that may want to come later. It is not only the reluctance to participate. It can also be a cultural issue that prevents them from coming. What is the cultural issue? Look at, for example, TJC Engineering. TJC is Tata Johnson Control, a joint venture between Tata and Johnson Control. The Johnson Control guys ask why should we share all these things, why should we go to the group? So there are conflicts of interest. Actually operationalizing these things is not very easy. There are issues that require corporate commitment. There are issues about violation of commercial agreements. There are legal implications for doing these. There are issues which are unknown. They are not so easy. There are limitations to what actually can be put on the ground.

What do we expect from the Tata Knowledge Chain? We expect to capture reusable content. We call them "Next Practices" from across the Group companies. Nine Group companies have contributed 38 Next Practices across the various categories. We have initiated processes to capture practices from outside the Group as well. We are sharing new trends and concepts across Group companies.

What more can we expect from the Tata Knowledge Chain? Connecting people. People from similar work areas interact and suggest solutions to problems faced by colleagues. Some examples follow:

- One place where we have found this to be very useful is in IT itself. When I am working with some process or problem I can easily get support from others. We also **share process documents, formats and templates** for reuse.

- I told you about the Tata business excellence model. So when results were announced for this year, there were some laggards who did not make it. They have to be boot trapped from where they are. So the highest-scoring companies are given the responsibility to **help laggard companies perform better** by looking at some of the places where they do not score well and helping them with it. That has been a very good advantage of TKC.
- We have corporate governance requirements on ethics. We have ethics counselors everywhere. If I have a problem with my boss, a customer or whatever, I can go to the ethics counsellor. I am sure all of us know about this problem. It is an extremely challenging situation. We have found that the maximum ranking we obtained out of this Tata knowledge thing is just six. The sexual harassment issue for example: how do I handle it? I can **look for someone from another company who had actually faced a similar issue** and see how it can be handled in my company. The Tata Group is known for its integrity in India and we place very large importance on ethics in our company. So anything and everything that is a code of conduct will get printed in all our responses to tender. We cannot give gifts, we cannot accept gifts. We have a corporate code of conduct, the Tata Code of Conduct. You can be summarily dismissed if you do not follow the Tata Code of Conduct. People find support in these issues through the TKC. These people are able to go out and learn things from them.
- Tata Refractories people created a crucible, a very good crucible used for moulding a metal product. Another company in the Group, Titan, benefited from this in developing its watch design. Tata Metalliks and Tata Steel similarly **exchanged technology**.

To summarize, the TKC has accomplished the following:

- Approximately 2,000 experts from 16 companies have participated
- There are 20 Knowledge Areas (or Communities of Practice) such as Strategy, Supply Chain, Sales & Marketing, Fibres, Manufacturing, Human Resources and Procurement
- There have been repeat customers: 12 percent
- Since November 2006, the contributions to the TKC have been: 99 queries, 484 answers, 39 best or next practices and 15 documents shared. Below is the breakdown by company, indicating actions to have taken place:

Company	Questions Shared	Replies	Next Practices
Tata Steel	17	100	9
Tata Motors	3	62	7
Titan	15	24	2
Tata Tea	3	28	2
IHCL	4	30	3

Now comes the **Tata Benchmarking Club**. This is part of the Tata Knowledge Chain initiative. TBC is trying to benchmark processes within the Tata Group first. We have a website. Wherever metrics are documented, explicit information is available for people to share. You contribute the metrics by industry or by year. A pop-up display of comparative metrics and industry average can be made wherever data is available in a category.

Where are KM, TKC and TBM leading us?

- Knowledge management is proving to be a **risk-sharing platform**. I get comfort in numbers, or in knowing that I have more people I can go to if I have a problem. I am not alone; I am sharing my risk. Whatever my area of operation, I have other people to help me out in terms of sharing.
- It is a platform for both **continuous and quantum improvements**. What is continuous improvement? For example, if a new version of my Ultimatix portal is released today and lots of problems and errors are encountered (just like when you

upgrade from Windows XP to Vista,) then solutions are made, enhancements are added, and more functionalities and features are introduced. The people also become mature as the process becomes mature. What is quantum improvement? For example, in our Ultimatix, KNOWMAX is a quantum improvement: suddenly I have access to a lot of company information for my work, and I do not have to look for public domain information.

- It helps **innovation**. As we have seen this morning, we have to move from productivity to innovation. Every quarter we are assessed on what innovation we have achieved. This platform has allowed me to think outside the box with people in a number of Tata companies helping me. I can tout ideas or have stupid ideas vetted, while concentrating on the core requirement that you have to innovate and keeping the basic purpose of innovation.
- It adds value to **strategic and operational decision support** because you have data.
- It creates **new social networks** and communities of practice within the Group and companies offering unprecedented **access to "people's knowledge."** About a couple of years ago, there was an article in CIO Magazine. The article talked about a conference where they gave an RFID (radio frequency identification) tag to each participant. They designed a system whereby every time a participant meets someone for the first time, the tag will recognize that a new network has been established. At the back of the conference venue was a big screen showing the connections taking place. At the end of the three-day conference, the participants knew who had made the most number of new contacts, the "Networker of the Year Award." It was a successful exercise. The article talked about how networks are created, how people are brought together such as in MySpace. This is now happening in the Tata Group. Social networks are created. I probably know more people outside my company than within my company. Knowledge management initiatives enable the creation of communities of practice.

In conclusion, the knowledge management initiatives that the Tata Group of companies embarked upon in 1999, almost seven years ago, has begun to penetrate the companies. It may be happening too slow or too fast but probably this is the reason why Tata won the MAKE awards. The implementation experience that we have had has many learnings and I have shared with you the learnings we have seen from an operational perspective. Knowledge management initiatives have included the Tata Knowledge Chain and Tata Benchmarking Club. Knowledge management started with strategic focus through the Tata Business Excellence Model and is enabled by IT for operations. My company has created a knowledge management practice with knowledge management relevant competencies. We are also seeing good growth; we are seeing how people are adopting not only the concepts but also the tools in knowledge management. People today are not looking at efficiency alone—efficiency is fine, we are doing and getting paid for that—but now they are looking at innovation. Innovation is needed for survival and knowledge management has enormous potential to help here.

Thank you so much for the opportunity. I have given you all the Tata links below. If you have any questions, please e-mail me and I will answer your questions as best I can.

Thank you.



Knowledge Sharing Session

Day 1

Resource Persons:

Ms. Martha Seng

Mr. T.S. Rangarajan

Moderator:

Mr. Prasit Tansuvan

Question: What are your measurements for knowledge management success?

Martha Seng: I would say that this is not one of our strong areas, measurements. When we first started our knowledge-sharing journey, which was over 20 years ago, no one was practicing it and few people even envisioned knowledge sharing at that time. So, there was nobody to benchmark or measure ourselves against. We did not learn to measure ourselves until very much later. But now, we have processes and tools in place, for example, those which allow our customers to measure us and which help us to know how we are doing. We do have a knowledge sharing steering committee and its members are looking into ways of building more and better measurements of what we are doing.

T.S. Rangarajan: In our case, technically the measurement is not very difficult because in using IT tools, any transaction can be measured: how many people are accessing this portal, how many questions have been posted, etc. For one to talk about the success of knowledge management as opposed to counting transactions, that is more difficult to say. We have what is called KPI, or Key Performance Indicator, for all the processes that we have established. In software, we have put a number of processes in place; that is the reason we received CMMI and PCMM certifications. So there are lots of metrics. There is the Tata Business Excellence Model, which is completely based on metrics. There is constant competition to grab the attention and "eyes" of people, whether they are in the office or

outside. So it is very difficult for anyone to bring in a concept and get people to buy that concept. I would be very happy if people embraced knowledge management, contributed, and then we are able to look at their statistics and see whether we have made any significant improvement such as in creating new innovations at work. According to our metrics, since we started knowledge management in 1999, it has penetrated four Tata companies.

Question: How does knowledge management improve organizational performance? How do you measure the percentage contribution of knowledge management?

T.S. Rangarajan: At Tata Consultancy Services, we have a financial measure for that. How much revenue am I getting out of knowledge management? That is very easy; I can tell you I am getting about US\$40 million out of knowledge management. But if you want to ask me how knowledge management has increased or improved organizational performance within the Tata Group, first I must have a measurement for performance of the organization *per se* to start with. Then I have to see how knowledge management has improved it. There are some process-related metrics that we do have. PBM is probably a better place to look for that. Through the Tata business excellence model we capture all these data and constantly compare them year by year for a company, across the companies and for all these companies so we are able to see definite improvements in the performance of the companies as time goes on. But how much of that is contributed by knowledge management? I think it is still very difficult to gauge because it is still not very clear how knowledge is being leveraged by the companies.

Martha Seng: For us at Buckman Laboratories, we know that if we had not started looking at using knowledge sharing and knowledge-based management to run our business, in order to serve our customers' needs better, we do not know whether we would have survived up to today. We could have been knocked out of the race earlier. Like Ranga said, it is not something we can easily measure (how much knowledge management has actually helped) but we do know it has helped us because it made a difference for us.

Question: Please explain RAT in more detail and how to measure it?

Martha Seng: The Requirement Alignment Tool allows us to, first of all, ask the customers: what is it that you need from us, what are your requirements, what are the problems and issues that you need us to address? Our sales people are trained to use this tool. They sit down with the customer face to face and ask them, and they affirm and note the requirements. The second question is: how will we measure if we are meeting your requirements, that is how can we define measurements for success? To give you an example, suppose I am a customer and I ask a waiter for a cup of coffee and the person who is serving me asks, "How do you like your coffee?" So I say, "I like it with cream but no sugar, and I do not like powdered cream." I am telling the waiter my requirement. So he makes a cup of coffee according to my request, according to my requirement instead of not listening and getting a cup of coffee that is with milk and sugar and everything delicious, which is very nice, but something I do not like and did not ask for. The Requirement Alignment Tool allows us to listen to the customer and then address the need according to what he or she wants. It also allows us to understand better, whether or not we have the resources to provide what the customer needs, and if we do not, we have to move into problem solving, to go and find the people and the resources needed.

T.S. Rangarajan: I will explain this in a different way. Requirements analysis is a very important first step in developing software. The idea is that you can, as an internal or external customer, tell me your requirements but I must write them down. The key word here is writing down the requirements because if you write them down, you have an option of getting them validated by the customer once again—an iterative process of getting requirements correctly from the customer. The reason requirements analysis is important in software production is because software is a little complicated and people may expect it to do a lot of things that it cannot exactly provide. Requirements must be written down very clearly and in a very detailed way. Very often if you do not have a validated requirements document signed by the customer, it can lead to legal litigation.

Martha Seng: I forgot to say that when we do the Requirement Alignment Tool, we do not only do it just once with the customer. We do it whenever there is something new that comes up. It may be that the customer's requirements have changed or they are in transition to a certain process or have changed from another supplier to us for another product, or we have new products to sell to them, etc.

Question: Since knowledge would be outdated, what is the key concept of knowledge validation or knowledge repositioning? And a related question: since knowledge is basically contextual, how do you categorize and codify knowledge?

T.S. Rangarajan: That is a very good question. I would like to downgrade this question from knowledge to data first. We will move to knowledge next. As far as data is concerned, you know there is a time stamp for the data and you can categorize it based on whatever parameters it came to you with. Then you store it and use it. When you want to make it context-specific, then you need to add some elements to that data, like the source or whether it has digital rights. You have to make sure that you are codifying also that data. So, from the experience of handling data, I would say that what actually graduates to becoming knowledge will have itself to be first filtered. I do not think everything and anything is knowledge. I do not think anything and everything is useful data. So the first check is whether this data is useful. I am coming from the point that in IT, what I do is, if all the people in this hall have a tag and I have two readers and I constantly measure the data from the tag, I am trying to get information, for example how many people are sleeping or how many people are switched off. What will I do with this information? I will try to increase the temperature, or reduce the temperature to make you uncomfortable so you are kept awake. If I want to do that, there is a lot of redundant data that comes to me from your tag because there is no change in the status of your position. Those are data that I do not want. So I am going to use some software parameters, check some of them, and remove what is not knowledge for me. Knowledge is only the change of state. So in the case of knowledge, you have to first filter the artifacts that are useful or which have a future useful life. Now, who judges the future life of usefulness? That is again a process that you have to fulfill. For every company will have to create its own parameters of classifying the knowledge and then codifying it. You rely on some experiences you may have based on contexts that you have seen elsewhere and your own parameters or framework to identify which is useful from which is not.

Question: Leadership plays a major role in knowledge management. Could you please give a few examples in the case of Buckman Laboratories?

Martha Seng: Mr. Robert Buckman as the CEO started us on the knowledge-sharing journey. He first started it when he looked at how we could share best practices. Then he thought about giving responsibility to our people so that they could be empowered to act to meet the needs of our customers. He merged three departments in the company—Telecommunications, IT or MIS Department and Technical Center—into one

Knowledge Transfer Department. The second thing he did was to get this new department to build a network that would allow managers to talk to each other anytime. At that time, it was very troublesome because of technology limitations and he could get it only for the managers. But the managers would not share because they were used to the traditional idea of controlling information and were not comfortable with sharing. Mr. Buckman as a leader wanted to set the example. He decided that employees at all levels should have a computer so that everyone could talk to each other. The managers realized he was serious about this, and soon saw that those who were sharing knowledge were getting promoted more quickly than non-sharers. His philosophy was/is that all our associates are important and everyone has different strengths and talents to contribute to the company's success so everyone must have the same equal opportunity.

This culture of knowledge sharing in our organization did not stop with Mr. Buckman's retirement. Today, our current leadership continues to support it and emphasizes the value of knowledge sharing as evidenced by the knowledge tools and programs that we use today, internally and with our customers. Our Chairman, Kathy Buckman Gibson, is a clear example of visible top leadership support in this area through her direct involvement and efforts which include: heading the knowledge-sharing committee, speaking at knowledge conferences around the world, and working with customers who are interested in implementing knowledge management.

T.S. Rangarajan: Even in our own group, people think that knowledge is something they want to treasure for themselves. If you take knowledge away from them they feel powerless. That is a very genuine fear. One way is you can reward people who share and also you can train people to move up or plan their career. The reason people are scared when knowledge is taken away from them is the fear of not being able to have this job or not being able to move up. So you have to give them an alternate to move. Often we see this when we take a project and somebody else has been doing the project earlier. Transition is very tough because they will transfer anything. But as we use more and more IT tools, there is a lot of technical information already available. There are a lot of things that come to you, and probably people have not realized that time is up here and they can move on to another place.

Question: Business is increasingly becoming more multicultural in context. While sharing is a universal ideal, do the drivers of knowledge sharing—such as communication, building networks and learning programs—always work? Would you please share your or your company's experience, if any, **when different cultures collide and knowledge sharing fails?**

T.S. Rangarajan: We have direct experience of this. We are operating in 49 countries and there are a number of nationalities represented in the group. We have probably the most diverse set of people from South America to Japan and as a policy we are recruiting local people almost everywhere. There is a cultural issue that is very predominant in our business. So we have given huge importance to culture in our organization and many times before we undertake a project we undertake a cultural sensitivity exercise that we build into our projects. Cultural sensitivity is very important to us. It is coming up because of globalization with its advantages and disadvantages. An example of advantages is if I have a sales manager in Thailand who can speak Thai, it is a huge plus for us. But his challenge would be how can he talk to the offshore team in India and match with what his client is requiring in Thailand? So, what I have to do is bring him to India and so on. The second thing about culture is language. We have a permanent, very successful department that handles language. We have foreign language certifications. We encourage people to learn different languages. So we realized that these are important attributes of successful networking

required in our kind of business. More often business gets done because they have proximity to the culture which they are addressing.

Martha Seng: I would say that for us this has been an issue from the start and that is why we thought about having a statement of common values that everyone can identify with and work on together, calling those values our Code of Ethics. It helps us to address the differences in culture, in language and even just between two individuals. This is an extract:

Because we are separated by many miles, by diversity of cultures, and languages, we at Buckman have a clear understanding of the basic principles by which we will operate our company. These are, firstly, (a) that the company is made up of individuals, each of whom has different capabilities and potentials all of which are necessary to the success of the company; and second, (b) that we acknowledge individuality by treating each other with dignity and respect, striving to maintain continuous and positive communication in all of us.

These are relevant. When we come from different cultures, we do things in different ways. In a similar situation, I might do something and he may do something else. Our Code of Ethics helps us to remember the universal values by which each of us should operate. I think it is not just for a company but for the world, as well.

Question: How do you make people take responsibility after they receive information and if information is distributed to all, but each one has different information requirements, what is an effective way to deal with it?

Martha Seng: If someone has received information but does not want to use it or be responsible for using it, and this person does it deliberately all the time despite receiving good and relevant information, then this should probably be reflected in that person's performance appraisal. Over the years we have had one or two examples where we had to let people go because they refused to cooperate or did not assume responsibility.

Question: For codification purposes, for converting from tacit to explicit knowledge, which tools or procedures have you used that yield good explicit knowledge? Please give an example of codification infrastructure.

T.S. Rangarajan: As I described earlier, storytelling or theater processes are specific instances where knowledge is being captured. So let us say that there was a big fire in a plant—how was that fire handled? Nobody has recorded that. Until such time that you have a knowledge management system in place, people would simply quote that as an incident in the logbook and file that complaint with the fire department. There might have been an e-mail sent. But that incident has not been recorded as an incident for future improvements. So you stated the question to the group by saying, "Oh there was a fire in another plant." What would happen? People would come out. Everybody would tell his or her story. "You know, I was in this plant when it happened." Try to document the whole thing as a story. Once you document you connect tangible artifacts supporting that document like there was a police report filed this date. So you create that whole artifact surrounding those documents. You can extend this to complex maintenance problems, or even to meetings that you had this morning. In the meeting, records describe what decision was taken, how the decision was arrived at, what are the things that helped that decision. In knowledge management, it is clear that documentation is very important. There was an instance when one person suggested that we set up a museum. He said, "If this company has been in existence for 40 years, then a museum can show how this company worked 40 years ago and moved on." It would be a very good place to bring clients to show credibility on what we did all those years and how we have grown so much. There are things that are positive only if you have the

visible artifacts in place. So in knowledge management, what we believe is important to codify: secure documents, connect it with evidence that supports it and then index it in such a way that it is accessible and cross-referenced.

Question: Technology is used to facilitate knowledge sharing. However, **there is a part of knowledge that is truly tacit and which cannot be articulated and hence it cannot be shared through technology.** How does the Tata Group or Buckman Laboratories deal with this kind of knowledge?

T.S. Rangarajan: I would have loved this person to give an example of what they mean by knowledge that is truly tacit cannot be articulated. I believe it is not very difficult to articulate knowledge and I think one really gets the feel if you read a good novel or see a good movie. It is a question of how do you articulate things that give the experience to the reader as if he or she is actually going through the whole thing? So I believe it is also an art or competence that needs to be nurtured and more and more when you talk about content and knowledge management you will find such competencies in great demand, such as the ability to write a nice script. I did a couple of films, not feature films but specific videos, for my solutions. I really appreciated the way the whole thing was done. We wrote the story, wrote the script, identified the actors, identified the technology, and put all the flashes. It is a great experience. I would recommend everyone to get this experience once, to know that it is possible to articulate if only you know how to and if the company feels that knowledge capture is crucial for the company's survival. It is not difficult to articulate tacit knowledge. For generations you see artisans, for example, transferring their skills to their children. The transfer of tacit knowledge has been happening for centuries.

Martha Seng: I think that you are talking about that part of tacit knowledge where, for example, if I do not know how to ride a bicycle but Mr. Prasit (our honorable moderator) does, he can instruct me and give me tips on how to balance myself or what is the right way to get on the bicycle or get off. But if I do not get on and do it myself, I cannot learn. Perhaps technology cannot really play a part here; it can only to a certain point. Mr. Prasit may have given me the instructions and the tips to follow and I remember and maybe print them out but I still have to get on my bicycle and try it myself to learn the knowledge of how to balance. It is the same thing with a chef who wants to cook something. He can teach his followers and trainees what to do, but there is a certain part about cooking that only the chef knows to give the particular taste that makes the food really special. If I could share an honest story about myself: before I started at Buckman Laboratories. I was (am) a painfully shy person. I like to sing and I can sing in the bathroom, no problem, but when I was younger and I had to go up on stage or on television for talent time or concerts I would tremble or feel really sick or sing badly. When I joined Buckman Laboratories, I never dreamed about myself standing in front of a crowd or talking to the general public and still keep my cool. But you know, I had a very good coach and mentor in Mr. Buckman and he was able to encourage me and coach me and tell me that I can do it. Courses and guidebooks may help us but they can never replace a true mentor's coaching.

Question: For how many years has Buckman Laboratories been implementing knowledge management? **How did you measure in terms of operational metrics, the effectiveness of knowledge management initiatives? What were the problems you encountered at the onset of your implementation?** This would be useful for those who will embark on new knowledge management initiatives.

Martha Seng: After Mr. Bob (Robert) Buckman took over from his father in 1978, he started traveling with our scientists and R&D teams in the early 1980s to teach our sales people abroad. It was very tiring so he started thinking about how we could do better

and that was when we began to embark on knowledge sharing; so it has been more than 20 years that we have been doing this. But I would say that perhaps we have been doing knowledge management for an even longer time without knowing it. I say this because in the early years of our founder Dr. Stanley Buckman (Bob Buckman's father) when there were no computers, he truly encouraged creativity in solving customer problems. He made all our associates keep a notebook in their pocket for recording ideas or little inspirations that they thought could be useful to the company, and which they could eventually share with the team. He called this little notebook the "idea trap." I think that was also knowledge sharing except that we did not call it that. The second question was about the measurement, and like I said earlier, this is not a strength. We actually are looking at doing this better. We do use simple ways of measuring productivity or sales increases (by sales per salesperson or associate for instance) to see how much it has increased from the time we started knowledge sharing to the present. The third part of the question is on problems we encountered in starting implementation. This had something to do with building the culture. For example, it is natural for people to think that knowledge is power and thus they are hesitant to share it. We had to think about changing the mindset of our people: that if they keep knowledge to themselves, they are not going to be of any use to themselves or the company. I think this was the major challenge.

Question: This question is for Tata. **Does Tata provide knowledge to its competitors,** because if they grow by Tata knowledge then it would be more fruitful for India? Does Tata realize this? What is your policy on this?

T.S. Rangarajan: I think I am giving the impression that the Tata Group is opening its office for anyone to come and take what they want. That is not true. We have private documents and as I said it is not possible for all knowledge to be shared with everybody. But having said that, I would definitely say that we are much more open to sharing knowledge or talking to people, or sharing our experiences. There is a lot of information on the Tata Group on our websites and portals, which is publicly available. What we believe is that every time an item or product is created, it will get copied or commoditized very, very quickly. As an example, take an integrated chip. It has so much capability built into it, but it gets so easily copied. That to me is how the world is, and the only way that we can survive is to keep innovating something new. And, I would say, when you start sharing you will find that you are the richer for it because if you give to somebody, that person is also willing to give you something in return. I believe generally that the concept of sharing is mutually beneficial; we say always that the more you share the more you gain. The more you talk about what you have, the more people will know. If I did not speak about the Tata Group today, I would not have seen so many people coming to me after that presentation asking me and telling that they want to do this and that. I would not have known them at all. So I believe that there is more to gain by sharing than by trying to withhold.

Question: It is true that an individual without information cannot take responsibility, but in some organizations, responsibility and information can belong to two entities or departments. **What steps may be taken by individuals who have responsibility but no information?**

T.S. Rangarajan: I do not think people have responsibility without information. If they are in that condition they will have to take responsibility for their condition first. They have to clear with information sources what they need to discharge their functions. I would say that that is a very archaic situation where somebody is sitting with responsibility without having information. I could not and I would not even imagine that situation. The other extreme, where people who have information and do not have or do not take the responsibility, is again totally unimaginable. People having more knowledge but who are unable to do

anything about what they have—I think these are extreme situations. I would be very interested to know where they exist, because they will give us a lot of consulting opportunities there. I believe that people who have information will automatically become responsible. Information and knowledge can be very critical in many cases and it also enables actions to be taken. But at the same time, the person who has that information has to realize quickly the importance of the information. If I am sitting on a piece of information without realizing its importance—I think that is very serious. That amounts to the wrong person at the wrong place.

Martha Seng: Yes, I think that this is a very real situation and it could be a major problem in any organization. When we first started, we had a major problem in that the middle managers were used to having the information but keeping it. They delegated tasks to their subordinates but they kept the information. We wanted to get them to change their attitude, their mentality, that for the good of the company they must help their subordinates have the information or knowledge to do their jobs better. Eventually, they learned to adapt to their new role as mentors and coaches. I think that what we experienced is a real issue anywhere.

Question: Capable individuals tend to avoid documenting their experience or wisdom, and sharing it across organizations. **How do you encourage documentation and the sharing of knowledge in government organizations?**

T.S. Rangarajan: I think it is a question of mindset. Making people document their experience is a very personal thing. People who write diaries at home, they have a habit of documenting everything for the day. In research, you may say that if you do not publish, you perish. Now, we are saying, if you do not document, you perish. So there are benchmarks being set for people in which unless they document, they do not get recognized. You can include these in the performance appraisal system: how many documents they created, how many things they shared, etc. You can track who asked for documents, how many documents from your repositories were taken, how many calls were made for some useful purpose—these can be measured and put into your performance appraisal. How do you bring this to government organizations? In private organizations, you can force such things but I believe you cannot force such things in government organizations.

Additional questions after the Session

Question: **How does Buckman Laboratories set up and sustain its communities of practice?** How many CoPs are there and how are they managed?

Martha Seng: Communities on our portal are still in the process of development. Communities within our online forums fall into two categories—global (about 30 in number) and teams (unlimited number.) Global forums are centered around core businesses, international departments and demographics, and some are of general interest. Team forums are dynamic and normally single-purposed, such as for a specific customer or area of problem solving or research. Access to Team forums is restricted to their respective team members.

Question: **Beyond simply trusting people, how can you make sure that proprietary information, trade secrets, etc. are not taken out of the company or stolen?**

Martha Seng: Proprietary and other sensitive information and discussions involving such information resides within restricted areas with restricted access, for example, within Team Forums instead of Global Forums.

Question: (1) **How do you come up with the CSS 25-items questionnaire?** Are they the same for all groups and for all Buckman offices? (2) How often do you send it out? (3) What are the most **important factors in creating a learning environment?**

Martha Seng: (1) We work with our customers to let them come up with the items/categories; we use the same questions globally. (2) Bi-annually. (3) Knowing how our customers rate us in the 25 different areas enables us to recognize where our strengths are and where we are lagging and need to keep working for continued improvements.

Question: In large government organizations, capable individuals tend to avoid documenting their experience/wisdom and sharing it across the organization. **How can documentation of knowledge in government organizations be encouraged?**

Martha Seng: Create a knowledge-sharing environment; reinforce the importance of knowledge sharing by incorporating it into the performance appraisal system; promote knowledge sharers and those who collaborate toward the organization's common goals; encourage capable individuals especially mid-level officers toward new behaviors (e.g., becoming mentors versus information gatekeepers); link knowledge sharing to government/organization's strategy, vision and mission; build on visible support by top leadership; and lead by example.

Question: Knowledge is power; this concept is still prevalent. (1) Do you have any **means to encourage your people to share their tacit knowledge?** (2) For those who do not want to share their knowledge or their experiences, **how do you persuade them?**

Martha Seng: (1) You have to work at culture change, getting people to change their mindset from hoarding knowledge to sharing knowledge. You have to convey the potential benefits to individuals in a compelling way, explain how it will be good for them personally, give them courage that they can do it, and provide ongoing feedback and support. (2) Make them see the objectives of collaboration and teamwork toward your company mission, corporate strategy and common goals that will benefit themselves and the people they work with. Use top management support to convince, drive, enforce and encourage.

Question: It is accepted that in the presentations so far, leadership is the key to the success of knowledge management implementation, but **how do you sustain knowledge management when there is change of leadership**, which is increasingly common in today's world?

Martha Seng: Sustaining knowledge management through leadership change has to happen before the change. In other words, if new leadership is not on board with knowledge management, then it will fall apart unless the culture of the company sustains it.

Question: How did you build trust? What was the situation before and after? What were the **barriers to building trust?**

Martha Seng: Through our statement of values/code of ethics and other fundamentals; involve everyone in the organization when creating, updating our mission statement; focus on nurturing a culture that encourages and allows people to express their ideas and opinions openly but responsibly; leadership's example. Gradually, people begin to see the benefits of sharing their knowledge and experiences. The biggest barrier is getting people to shed their fears, embrace change and change the way they do things. Another hurdle is getting the technology to work well with people. Practice the "KISS" (keep it sweet and simple) rule; remember that technology is only an enabler.

Question: Is it true that **we can capture knowledge, but not the experience?**

Martha Seng: No. Is not knowledge considered in most cases to be experience? If we are capturing the experience of one person in the form of solving a customer problem, that is capturing both.

Question: (1) Why do you say that each individual needs to have a learning mindset before he or she can participate in knowledge sharing? **Many people are keen to learn, but not keen to share.** Why do you think so? (2) To me, **keen to learn is the demand side of the knowledge management equation**, but how about the **supply side** of the equation? (3) To you, what is the **difference between information sharing and knowledge sharing?**

Martha Seng: (1) Learning and sharing are interrelated, like breathing in and out. The inhaling of learning expands our capacity to exhale knowledge. A standard pedagogical technique is to have class participants share what they just learned, adding their own perspectives and experiences, and thus building on the foundational knowledge provided by the instructor and further growing knowledge in each other. People are sometimes hesitant to share because they lack the confidence in their knowledge. However, if you cultivate a learning/sharing environment, people can approach sharing with the humility of a co-learner. This helps create a "safer" environment for people to openly exchange ideas and build synergy. (2) This again relates to building the habit and expectation that learning and sharing are all part of the same process. (3) The difference is in an example of which I can hand you a newspaper and I am sharing information. I can read you an article which I know something about or have had an experience with and I am giving you knowledge.

Question: What are your **keys to management for knowledge management success?**

Martha Seng: Leadership and culture manages our success. Increased sales is a measurement for this in Buckman as knowledge management is embedded in our culture. We use it in our day to day business.

Question: How do you **avoid an impressive looking portal, full of useless information that no one uses?**

Martha Seng: Start by asking people what they want to have on their portal so that you do not put up irrelevant information and features that nobody needs; build on it steadily one bit at a time, adding to the strengths (e.g., useful sections) and eliminating the useless stuff as you go along; emphasize on helping individuals and teams do their jobs better and what brings value to the company and the customers; focus on increasing the level of communication and collaboration and improving the flow of information and knowledge exchange.



Innovation and Intellectual Capital Management Set the Agenda

Rory L. Chase
Managing Director, Teleos

I would like to thank the Asian Productivity Organization and Thailand Productivity Institute for inviting me to speak to you this morning.

My presentation will consist of the following:

- History of knowledge management
- Characteristics of a knowledge-driven organization
- Studies conducted by Teleos looking at some of the Most Admired Knowledge Enterprises (MAKE) winners and characteristics that they displayed to become winners
- Regional and global trends in MAKE winners, and a study of the MAKE winners
- Business case for knowledge management
- How organizations are adopting knowledge processes and activities to become competitive in the knowledge economy

History of knowledge management

Knowledge management, as a business practice, began about 15 years ago in the United States. At that point in time the rapid introduction of IT, together with globalization and workforce issues, prompted a number of American companies to think long and hard about how they could successfully compete at the global level. These pioneering companies included Hewlett-Packard, IBM, Ernst & Young, Arthur Andersen and Buckman Laboratories.

“...leading knowledge-driven organizations outperform their competitors in creating wealth by two to one.”

Unlike many business strategies which originated from academic or consulting activities, knowledge management was a business-driven activity. By the mid 1990s, knowledge management concepts had spread to Europe, where companies such as British Petroleum and Siemens also became pioneers in creating knowledge strategies to align with their business strategies. By the late 1990s, knowledge management had arrived in Asia. Japanese companies and companies such as the Samsung Group adopted formal knowledge strategies to enable them to compete at a global level. Over the past 15 years we have seen this business-led management strategy spread across industries and across the world.

Characteristics of a Knowledge-driven Organization

About 10 years ago, Teleos looked very carefully at what characteristic create a knowledge-driven organization. We studied successful companies and looked at various models, theories and frameworks that were being developed at that time. We concluded that there were eight criteria present in all highly-successful knowledge-driven organizations. I would like to discuss these eight criteria to give you an understanding of their importance. These are the activities, characteristics or criteria that set the leading companies apart from their competitors.

Eight knowledge performance criteria:

1. Creating a knowledge-driven enterprise culture
2. Developing knowledge workers through senior management leadership
3. Delivering knowledge-based products/services/solutions
4. Maximizing enterprise intellectual capital
5. Creating an environment for collaborative knowledge sharing
6. Creating a learning organization
7. Creating value based on customer knowledge
8. Transforming enterprise knowledge into organizational wealth

Today I will mostly be talking about for-profit businesses. I want to make it very clear that knowledge management is also applicable to small and medium-sized enterprises, non-profits and government agencies. The framework and approach are slightly different for each sector or type of business, but the principles are the same.

1. Creating a Knowledge-Driven Enterprise Culture

The first characteristic that we found is the **culture** of the organization. Many organizations are very old. For example, Siemens in Germany is over 150 years old; the Tata Group of India is over 100 years old. They were created in an industrialized age, so there is a certain culture that has evolved over those periods of time. Newer companies like Google, Yahoo and Microsoft were formed in different times with different characteristics. The first point is to look at an organization's organizational culture. For example, how does an organization hire people? What are the attributes one is looking for? What are the behaviors, attitudes and skills? Does the organization have a knowledge sharing, collaborative environment already in place? How innovative is the organization? Does the organization listen to customers? Does the organization reward people for sharing knowledge? Again, the culture is very, very important. So for many organizations the first step in looking at knowledge management is to ask: Do we have the type of organizational culture which rewards knowledge-driven activities? If we do not, then how do we create that culture?

2. Developing Knowledge Workers through Senior Management Leadership

The second characteristic is the nature of the **leadership**. I think in yesterday's session it was very clear that most highly-successful organizations have senior management teams which are devoted to knowledge-driven activities. They are the leaders; they are the inspiration. For example, the CEO of this year's winner in the North American MAKE study talks about knowledge management at his organization within the first two minutes of any public presentation he gives, because he wants to show very clearly that he is committed to creating a knowledge-driven organization. Inspiration from the top is very important. Many organizations have created a post called the "Chief Knowledge Officer," which acts as a focal point and a way by which organizations can vividly demonstrate that knowledge is a critical activity within the business.

3. Delivering Knowledge-Based Products/Services/Solutions

The third area is **innovation**, which takes many forms. It could simply be new product development that is taking current products, ideas or solutions and changing them slightly. Alternatively, an organization could actually be very innovative, spending 4 to 5 percent of its annual sales on research and development. Companies such as 3M are well-noted for their research and their innovation capabilities. Siemens is another company which has spent many years working on its innovation capabilities. We find as a characteristic that leading companies in the knowledge economy are also innovative companies. It is not necessarily

just products and services they sell; they could be innovative internally. They can for example create innovative processes for logistics. One of the reasons why Dell is such a great company is because it was very innovative in its ability to use the Internet and logistics services to build computers for customers on demand. Innovation is an important area, and certainly within the last two to three years is one of the key areas which differentiate knowledge leaders from knowledge followers.

4. Maximizing Enterprise Intellectual Capital

The fourth area is **maximizing enterprise intellectual capital**. This is a very difficult issue. Most organizations are struggling with this type of management capability. Intellectual capital can be the value of an organization's brand or brands. It can be patents, copyrights, trademarks, proprietary processes or those core abilities of an organization which separate it from its competitors or from other organizations. Companies are still coming to grips with what intellectual capital they have. Those companies which are able to manage it will be very successful in the future.

5. Creating an Environment for Collaborative Knowledge Sharing

The fifth area is creating a **collaborative environment**. Many companies spend considerable resources to create IT platforms and ways to transform tacit knowledge into explicit knowledge. Much of this particular area deals with technology, although there are very simple tools such as After Action Reviews, which Buckman Laboratories uses, which are very powerful ways in which to learn and share best practices. In the early days of knowledge management, this was an area where many companies worked very hard to differentiate themselves. Today, it is almost a given that if an organization is not able to collaborate, share and re-use knowledge effectively it will not be able to compete in its marketplace.

6. Creating a Learning Organization

Organizational learning is also a key characteristic of leading knowledge-driven organizations. Organizational learning is on one hand the corporate memory, the accumulated knowledge of how we do business. Moreover, it is being able to give employees skills and competencies that allow them to be innovative, to be creative and to deal with customers intelligently. So what one is trying to do in this case is not to follow the learning curves but to actually anticipate them by having a workforce ready and able to deal with the next problem or the next opportunity, and able to create the next product.

7. Creating Value based on Customer Knowledge

The seventh area is **creating value based on customer knowledge**. This is more than just customer satisfaction and customer information. This is an ability to create relationships with customers, much in the way that Toyota Motor Corporation or Sony does. It is being able to understand how customers use a product, what their needs are and what their expectations are. Creating value based upon that is difficult, so if one can sell them a product one may sell them another product or a combination of products. Creating value is that ability to understand the customers' needs and to create a large income revenue stream from a customer or customers.

8. Transforming Enterprise Knowledge into Organizational Wealth

The seven criteria above are the input criteria we find within knowledge-driven organizations. The eighth area tends to be the output. It is the overall ability of the organization to transform the knowledge and capabilities of its people and processes into either shareholder

wealth or some similar form of **wealth creation**. Many organizations are good at several of the seven characteristics I have named. They might be good at marketing, they might be good at product development or they might be a learning organization. But it is extremely difficult to integrate all seven of those such that the output of an organization's abilities is maximized. Further on I will show some metrics which will give some indication of how those organizations are able to exceed their competitors and create a holistic knowledge-driven organization.

This is the framework we used for MAKE. These are the characteristics that we believe are essential for any company to compete in the knowledge economy. In addition, beneath these eight criteria is a set of 150 different processes and sub-processes that we have identified as contributors, so it is much more complex than just the eight that I am talking about today.

MAKE Studies

In the studies that we conducted, we looked at the macro processes as the key drivers. So, how did we conduct the MAKE studies and how do we use the information?

The MAKE studies are nine years old. The MAKE research program was established in 1998 by Teleos in association with the KNOW Network, to identify and recognize those organizations which are leaders at creating intellectual capital and shareholder wealth (or in the case of public and non-profit organizations, increasing societal capital) by transforming enterprise knowledge into superior products, services and solutions.

This will be the 10th year of conducting the study. We attempted to create a method of identifying and recognizing those organizations in the knowledge economy that were outperforming their competitors or their peers in ability to create wealth or shareholder value. The Internet enabled us to conduct our studies electronically, and to use pools of experts. Unlike traditional benchmarking studies which require significant resources and time to reach a result, the methodology that we chose provided a rapid means to identify the leading organizations.

The following process was used:

- Delphi research methodology
- Panel of experts consisting of senior executives and knowledge management or intellectual capital experts
- Three rounds of consensus-building to identify the MAKE winners:
 - Round 1: Nominations
 - Round 2: Finalists
 - Round 3: Winners

We use the Delphi methodology, which was developed in the 1950s by the Rand Corporation in the United States. It is essentially a tool for reaching consensus. By putting together a group of experts in a particular field and asking them a series of questions, they will be able to come to a conclusion through discussions, insights, and their own expertise.

When this was applied to the MAKE studies, we put together large global or regional panels of business leaders and experts in knowledge management, intellectual capital and organizational learning. A typical panel is made up of 750 to 3,000 individuals. We then go through three rounds of the study. In the first round, we ask our expert panel to nominate organizations which they believe are the very best in the knowledge economy. We show them the eight main criteria that we use and we ask them what the leading organizations are to the best of their knowledge. We also ask them to provide us with some background information, whether personal experience or case studies, and financial results.

Typically in this first round 50 to 150 organizations are nominated. We then move to the second round, in which we ask the experts to look at all of the background information and to each select their top three organizations from the list of nominations, based upon their own experiences and all of the information available to them.

We find that typically one-quarter to one-third of the organizations will then reach the third round, because when looking at the background information in the case studies and the financial information, there tend to be certain organizations that stand out as superior to their peers. In the third round we then ask the expert panel to score the organizations on a scale of one to 10 for each of the eight criteria. We then use weighing and composite scores to determine the winners. Typically for regional studies, whether in Asia, North America or Europe, we have between 10 and 15 winners. For our global studies, we have 20 winners. So the methodology allows us to quickly and precisely identify those organizations which their peers consider to be the very best at knowledge-driven management.

Professor Nonaka yesterday used the term “knowledge-based management.” Although I tend to use “knowledge-driven management” it is still the same thing. It is creating a knowledge strategy which is aligned to the business strategy to achieve success in both financial and non-financial terms.

I have outlined the methodology we have used for nine years. Together the global studies, the Asian, European and North American regional MAKE studies and a growing number of national studies from countries including India and Japan form the world’s largest database for the analysis of knowledge management trends.

We find that over time we can actually see companies’ scores improving and in some cases declining. This allows us to analyze the capabilities that drive the business sector, and to compare the performance of certain regions against other regions.

Regional and Global Trends in MAKE Winners

The next thing I would like to discuss is the trend whereby knowledge management has moved from the West to the East.

As I have mentioned, US companies started knowledge management in 1992 to 1993. By 1997 to 1998, the first Asian organizations were adopting formal knowledge management policies.

Region	Global MAKE Finalists		Global MAKE Winners	
	1998	2006	1998	2006
Africa	0	1 (2%)	0	0
Asia	2 (4%)	12 (25%)	0	6 (30%)
Europe	9 (20%)	11 (22%)	4 (20%)	2 (10%)
North America	33 (74%)	19 (39%)	16 (80%)	8 (40%)
Global	1 (2%)	6 (12%)	0	4 (20%)

The left side of the table shows that when we conducted our studies in 1998, there were only two Asian companies in the finalist group at the global level. There were nine from Europe, 33 from North America and one global. What I mean by “global” is that we have found that some organizations, especially in consulting professional services, entertainment and some energy companies, are becoming almost global in nature. They no longer have a single headquarters. They operate as an international business.

As the table shows, when we completed our study last year there was one African organization, 12 from Asia, 11 from Europe, and 19 from North America, while six were global. This illustrates the fact that Asian companies have caught up with the rest of the world. More companies are becoming global in terms of their viewpoint and how they actually operate as companies.

The right side of the table shows the locations of MAKE winners. Again, it shows that when we conducted the first study in 1998, 20 percent of the winners came from Europe and 80 percent came from North America. In last year's study, 30 percent came from Asia, 10 percent came from Europe, 40 percent from North America and 20 percent were global companies mainly based in North America. Again, this shows a shift whereby in some ways Europe has lost its early lead and is being replaced by Asia. The number of North American companies has dropped significantly, while there is an increase in the number of global companies.

One of our observations is that at the moment much of the innovative knowledge-driven activity is occurring in Asia. There is a certain level of innovation in knowledge management. European companies are finding that it is very difficult to compete on a global stage for a number of reasons. In addition, we again observe the globalization of businesses.

To summarize, the most visible trends over the past nine annual global MAKE studies are:

- A growing number of organizations are taking on "global" characteristics, especially in consulting and professional services, and energy, entertainment, financial services and media sectors. These "global" organizations tend to operate as "independent" companies within a *federal* structure and without the traditional corporate head office.
- The capability to innovate and create new products is seen as *the* competitive edge across a wide range of business sectors.
- Although starting later, Asian knowledge-driven organizations are competing on an equal knowledge footing with their European and North American counterparts.
- European enterprises appear to be failing to effectively create and manage their intellectual capital. While North American enterprises maintain a lead in this area, Asian organizations are rapidly narrowing the gap and may surpass North American firms as regional wealth generators within the next three to five years.
- A number of global MAKE winners, including BP, General Electric, IBM, Intel, Nokia, Royal Dutch Shell, Siemens, World Bank and Xerox, have fallen out of this year's top 20 winner's circle. These organizations—all pioneering knowledge management enterprises—appear to be failing to continuously push their knowledge-driven strategies forward, allowing rivals to match them or indeed gain a competitive edge in areas such as innovation, intellectual capital management, collaborative knowledge sharing and organizational learning.

Studying the MAKE Winners

Now I would like to discuss some winners this year to give you an idea of who they are and also how they vary from region to region. The list of 2006 Asian MAKE winners is as follows:

BHP Billiton	Samsung SDS
Canon	Satyam Computer Services
Honda Motor	Sony
Infosys Technologies	Tata Consultancy Services
LG Electronics	Tata Steel
Nissan Motor	Toyota
POSCO	Unilever Indonesia
Samsung Advanced Institute of Technology	Wipro Technologies

The winners are concentrated in Japan, South Korea and India. We tend to find that these are the most dynamic parts of Asia for innovative knowledge management. In Asia there is a preponderance of manufacturing companies, as well as automotive and electronic companies. In India there is a high proportion of IT solutions companies. The leaders within the Asia environment tend to be electronics, automotive, computer and IT solutions companies.

In Europe the mixture of companies is slightly different:

BMW	Schlumberger
BP	Siemens
British Broadcasting Corporation	Telefonica
Novo Nordisk	UBS
Repsol YPF	Unilever

There is a better balance between service companies and manufacturing companies. In Europe and North America there are more service companies that are using knowledge management as a key competitive edge. There is diversity in the types of companies in Europe.

The North American winners are more in professional services, IT and computers:

Apple Computer	Hewlett-Packard
Caterpillar	Microsoft
Fluor	Raytheon
Google	3M
Halliburton	US National Aeronautics & Space Administration

Apple rates very, very highly in innovation with its iPod, iTunes and perhaps the iPhone. Caterpillar is a very traditional manufacturing company that has used knowledge management and knowledge sharing very successfully in terms of new product development and working with customers. Google is perhaps the most knowledge-driven business in the world today if one looks at the way it is constructed for knowledge workers. It has an extremely innovative and creative environment. In some ways Google is what Microsoft was 20 years ago.

The top company this year for North America was Raytheon, which is an aerospace and defense corporation. Raytheon is quite interesting because up to about five years ago it was a fairly poor-performing company and it was a target for possible takeover by one of the largest US aerospace companies. Raytheon then decided to adopt knowledge management. They combined it with Six Sigma and some other approaches for lean manufacturing, and they have turned the business around. Rather than being an average defense company they are now one of the most profitable defense companies in the United States. So again, it shows that using knowledge management as capability leverage, within three to four years it is possible to go to the top of one's marketplace.

NASA is the only government agency on the list. One-third of its workforce will retire in five years' time. Most of the individuals who developed the US space programs in the 1970s and 1980s are going to retire, so knowledge is going to leave the organization. One of the reasons it was selected this year was that NASA spent the past three to four years developing very sophisticated programs to mentor and coach younger engineers and scientists and to transfer knowledge into corporate databases. It is a very interesting case study.

Following is the list of 2006 global MAKE winners, who are the best of the best for this past year:

3M	PricewaterhouseCoopers
Apple Computer	Raytheon
Caterpillar	Samsung Group
Fluor	Sony
Google	Tata Group
Halliburton	3M
Hewlett-Packard	Toyota
McKinsey	Unilever
Microsoft	US National Aeronautics & Space Administration
Novo Nordisk	

It is very difficult to compare one organization against another. They may be in different industries and they may have different approaches, but what the expert panel has told us is that these companies are outperforming their peers in their ability to transform enterprise knowledge into shareholder wealth.

There are a large number of consulting companies, professional service companies and manufacturing companies. There are large diversified conglomerates like the Tata group of companies and the Samsung group of companies, and then there are very specialized companies. This year Toyota Motor Corporation was the overall winner for the second year in a row. Our congratulations go to Toyota for its outstanding activities in the areas of knowledge-driven business activities.

What we found when we did our studies is that certain industries seem to be the drivers because of their knowledge intensity. Companies working in the areas of IT, electrics, electronics, motor manufacturing and IT solutions are in a group where there is intense competition and pressure to use knowledge management and knowledge tools to gain competitive edge. There have been only 144 MAKE winners over the nine years we have done our studies, so it is a very small group of businesses. We have found that once an organization has achieved a competitive edge in knowledge management it tends to retain that competitive edge.

The following are the industry or business sectors of MAKE winners:

- 9 winners – Computer hardware, software, IT solutions
- 6 winners – Professional services/consulting
- 5 winners – Electronics and electrical manufacturing
- 4 winners each – Diversified manufacturing; oil & gas exploration and services
- 3 winners each – Financial services; motor vehicle manufacturing, pharmaceuticals
- 2 winners – Chemicals
- 1 winner each – Construction and engineering; consumer products; Internet searching services & portals; mining & mineral extraction; networking equipment; public sector; research; retail; semiconductors & equipment

I believe this shows that any organization in any business sector can use knowledge management to gain competitive edge. Some industries are more knowledge-intensive and so there is greater pressure for them to adopt knowledge management activities.

Business Case for Knowledge Management

One of the key questions that organizations ask is whether there is a financial benefit to knowledge management. It is a difficult question to answer because knowledge management as a management strategy is only one of the many activities that an organization uses. A typical organization will have innovation activities, process activities and supply chain activities, and even factors such as their hiring of knowledge workers can be critical. So it is very difficult to say that because an organization has a formal knowledge-driven

management strategy everything can be attributed to this. However, if one looks at those organizations which are, time and again, rated highly in knowledge management as well as in other areas, there are characteristics that are quite apparent. The following are some of the metrics that Teleos uses to look at organizations that are MAKE finalists and winners:

- Total shareholder return
- Return on equity
- Return on assets
- Return on revenue
- Market capitalization
- Value added
- Brand value
- Research and development expenditure

We look at total shareholder return-share price appreciation including dividends-over a 10-year average period because we find that shorter periods are influenced by business cycles. A 10-year period will show how efficient the company is in generating wealth.

Metric	2006 Global MAKE Winners	Fortune 500 Median
Total return to shareholders (1995-2005)	24.2%	10.8%
Return on assets (2005)	11.0%	3.5%
Return on revenues (2005)	11.5%	5.6%

For the 2006 Global MAKE winners, the total shareholder return for the 10-year period ending in 2005 was 24.2 percent, which means that if one purchased stock in such a company one would expect on the average every year to receive 24.2 percent return on investment. The median for Fortune 500 companies is 10.8 percent. Over the nine years we have conducted our global MAKE studies we have found that the leading knowledge-driven organizations outperform their competitors in creating wealth by two to one. Year in and year out they are twice as successful at making money, and there are very few companies that would provide such a return on stock investments.

So, we have found that as a result of pursuing knowledge-driven management practices companies do generate more money or more wealth than their competitors. Returns on assets were 3.5 percent for Fortune 500 companies last year, versus 11 percent for the MAKE winners, over triple the returns. We find that knowledge-driven organizations in the new knowledge economy do not have physical manufacturing plants and equipment. Rather, they are built more on ideas, creativity and innovation, so there is a much higher return on assets. Their traditional return on revenues was two to one, so again, companies that pursue knowledge-driven management strategies are creating twice as much money as their competitors.

Value added is a statistic only available in European countries. It is the way that European financial statements are written. Value added is the actual value increase. This is not market capitalization of the shares of stocks but the actual increase in the value of the business from one year to the next. It is interesting that out of the top 800 European companies, the 12 companies recognized as European MAKE finalists in 2006 accounted for 13.5 percent of all the wealth creation in Europe. I think the fact that a small group of knowledge-driven organizations are responsible for over 10 percent of all wealth created in Europe today is a very strong indication of how important knowledge-driven activities are.

Another metric is research and development expenditures. Over two-thirds of the MAKE winners spend above the average industry amount for research and development. It is a characteristic of knowledge-driven organizations that they spend more money on research

and development and innovation. They are willing to invest in the future, and that investment pays off.

How Organizations are Adopting Knowledge Processes and Activities to Become Competitive in the Knowledge Economy

The table below illustrates some of the differences in regional approaches to knowledge-driven activities. The table shows the average scores of the MAKE winners in Asia, Europe and North America in each of the eight categories. Each category has a maximum score of 10.

MAKE Winners' Scores in 2006

Knowledge Dimension	Asia	Europe	North America
Organizational culture	7.96	8.00	8.45
Knowledge leaders	8.00	7.97	8.22
Innovation	8.14	8.02	8.68
Enterprise intellectual capital	7.82	7.69	8.37
Collaboration	7.92	7.66	8.11
Organizational learning	7.98	7.65	8.44
Managing customer knowledge	7.78	7.93	8.37
Transforming knowledge into wealth	7.92	8.01	8.44

The table shows that North American companies, primarily in the United States, scored very well last year. They are putting a lot of time and resources into building up their knowledge capabilities. About three or four years ago the North American scores were actually lower than some of the Asian and European scores. We found that in 2002 North American companies decided that they had to compete in knowledge in a much more intensive way, and as a result they invigorated many of their activities, put more money into research, put more money into intellectual capital management and trained their knowledge workers.

Looking across the board there are some gaps forming in certain areas. European and Asian organizations will need to close those gaps to remain competitive with some of their North American rivals. We found that the Asian MAKE winners have reached parity with Europe even though European companies had a three-to-four-year head start. From that point of view the leading Asian companies are equally successful in transforming knowledge into shareholder wealth. After several years of declining interest, we found that North American companies are putting a lot of time and effort into research and development not only internally but through creating external research and development networks such as those formed by Procter and Gamble and BOEING. North American companies have realized that they have to compete on innovation and creativity.

In the area of intellectual capital we found that Asian MAKE winners are becoming more aware of the issue. However, it tends to be focusing on patent protection and intellectual asset management, whereas in Europe and North America they have a much broader view in terms of brands and processes. Therefore, I think that although Asian companies are becoming more aware of intellectual capital they have still a long way to go to reach North American and European standards.

Knowledge sharing and collaboration are now understood to be core abilities. Most large software vendors have collaboration tools in place. Whereas five years ago companies may have had to create their own bespoke knowledge-sharing systems, they can now be purchased.

We found that Asian and European MAKE leaders have to focus more on the leadership aspect. I think that unlike North America, Asian and European MAKE leaders expected leadership to happen automatically. However, I believe it requires more senior management leadership to talk about knowledge management and make it visible.

We also found that although some Asian companies are very good at customer management, many are still learning. North American and European companies are spending a lot of time and effort in building customer relationships, and that is very critical.

We tend to find knowledge management activities are not progressing at a steady pace, but are actually accelerating. Companies that have not yet begun knowledge-management activities need to think about doing so very quickly. And even if knowledge management activities are in place it is going to require even greater time and effort to build up skills and capabilities.

I would like to conclude with a question organizations often ask me: How long does it take to organize knowledge-driven business activities? It depends on the size of the business and on the business sector. Typically for a large organization or a large multinational organization with more than 10,000 employees and sales of above US\$10 billion it can take anywhere from seven to 10 years to create a truly MAKE-winning knowledge-driven organization. It can take a year to build the strategy for becoming a knowledge-driven organization and to integrate it with the business strategy. That requires a lot of thought process and selection of the right people.

Phase one can last for one to two years, starting the program and communicating it, moving it forward and having some early successes. Usually by year three or four there is some resistance as people begin to tire. They often believe that the process has been successful, so there is no need to go any further. At this point the program needs to be re-energized.

Some of the key people might have left or transferred by this point, so new people need to be brought in to run the program, which can last for two or three years. By then the project is in its seventh or eighth year and should be integrated into the whole business and the leadership—divisional leaders and managers—should be thinking about knowledge-driven activities not as a separate activity but as part of the business.

I think for smaller companies of 100 to 1,000 staff their communication lines are closer so the program might take three to five years, but it depends upon leadership and resources. Regardless, it is not a simple project that is finished after three months, nine months or a year. It is actually a way to do business now and in the future. Investments have to be made to create an environment that allows such business practices.

Thank you very much.

Question and Answer Session

***Question:* How do you relate the eight knowledge performance drivers you mentioned to measurement of knowledge management?**

Rory Chase: When we looked at the eight knowledge performance drivers we found that different companies have different approaches. We found one company that had a four-step approach and another company that had a 22-step approach. But when we looked at how the various activities were grouped, they tend to fall into the eight categories that form the MAKE framework.

I think in terms of measurements, one can measure at two different levels. One can measure at the project level, which is simply return on investment: How much money has been invested in training and education? How much money has been invested in IT systems to allow collaboration? How much money has been put into research? Then typical returns on investment can be measured, such as improved process efficiency, reduced costs, more products per year and so on.

At the company-wide level I think it becomes much more difficult to differentiate the contribution of knowledge management from that of other initiatives such as improvements in the supply chain or manufacturing processes. What I usually suggest to organizations is that rather than creating a separate set of knowledge management metrics at the organizational level, what they should do is use a balanced score card approach that includes knowledge management metrics as part of the company's balance score card, because business leaders do not want to see four or five different sets of metrics—that is confusing to them. They want to use simple sets of metrics that they are comfortable with and that do not change. If a balanced score card has a section on customer satisfaction, employee satisfaction and innovation, knowledge management metrics can be built into those rather than having separate ones created.

Question: Some people believe that knowledge management is not suitable for an agrarian economy. What do you think?

Rory Chase: I disagree. I think that it is suitable for any sort of business activity. Very simply, what one is doing is creating more efficient processes using knowledge—improving the varieties or yields of rice, for example. It can be applied in any situation. I was talking to some people at Unilever's foods division who wanted to improve a product that was based on tomato sauce. They found that if they did not understand how to grow a tomato they could not make a proper sauce, so they went all the way back to their farm people to improve the way they grew tomatoes. They ended up growing a different type that was juicier and with a different sort of skin. So, when one goes back to supporting basic processes, whether it is in mineral extraction or agriculture, there is a place for knowledge management.

Question: How does the MAKE framework fit social and community service organizations?

Rory Chase: My presentation was basically discussing businesses but it is equally suitable for government agencies and non-profit organizations. However, there are some slight differences to the eight-step model. Wealth creation has no place there but if it is substituted for societal improvement then that makes perfect sense for a government agency. The aim is to improve the activities of the agency or the department to allow it to improve people's standard of living, to improve educational capabilities and to improve quality of life.

For example, we have worked with a regional development agency that for a long time kept all of its knowledge to itself. When it made loans to countries to build infrastructure projects, it did not actually tell the countries how it came to the decision and the best ways to use the money, whereas now it is actually creating relationships with its host countries, working with governments and development leaders to share its knowledge and its understanding of how to develop infrastructure projects or schools.

It requires a slightly different view but it still has the same characteristics. An agency has to have a culture that is collaborative in nature, have leaders who are supportive, and be innovative in the sense of ability to create knowledge such as documents, products and successful projects. The agency has to make certain that staff are well-educated, with the skills and competencies to do their jobs correctly. The agency also has to understand what

its customers want. If its customers are citizens, for example, a website can be built to provide them with information on taxes or education, and thought has to be given to how the citizens use the system. All these factors are still applicable to a non-profit organization. The emphasis is on creating effective, efficient government units that deliver improved standards of living to their citizens.

***Question:* The knowledge management trend is quite strong in recent years but do you think it will last and what will come next?**

Rory Chase: That is a very interesting question because when I decided to get involved with knowledge management over 10 years ago, I said to myself that I wanted to do something that would last me the rest of my life, and I personally believe that competing on knowledge is going to be essential during the 21st century.

Many of the successful Japanese companies such as Toyota, Sony, Canon and Honda, or companies such as Google or Microsoft, have these activities built in. They do not necessarily have formal knowledge management programs; it is the way they do business. For many companies though, they have to work very hard at knowledge management. My experience based on 30 years in business is that we sometimes forget more than we learn, so that some of the business management tools that were used in the 1980s and 1990s almost have to be re-learned. So I think there will always be a reason to have knowledge management tools and techniques. I think that organizations need to work at continuing to improve and innovate and if they do not they will slide. There were a number of organizations that were MAKE winners but are no longer MAKE winners; they have actually either gone out of business, have been acquired by other companies or are no longer leaders in their fields. So unless one continuously practices collaboration, innovation and learning, I am afraid that in this very competitive global world one will lose out. The question is not whether knowledge management will last but how well one continues to do it.



From Knowledge Management to Operational Excellence

Dirk Ramhorst
Siemens IT Solutions and Services
Germany
Former Chief Knowledge Officer
Siemens Business Services

Good afternoon, ladies and gentlemen.

Knowledge management is about different perspectives: from management on one side, from the employees on the other side and perhaps from shareholders on the outside. It is important to change perspective for knowledge management implementation to be successful, and this exercise is about a change in perspective. One can look for things that work in the outside world that can be copied and made one's own.

The most important factor for anything we do in the knowledge management arena is that we are spread globally. Siemens has subsidiaries in more than 190 countries. Globalization means different perspectives, different tools and methodologies, and also different cultures. The way a subsidiary does business is affected by both the global corporate culture and local behaviors or local tribes. This is very important. My presentation will not show any knowledge management tools, nor will I talk about intranets or search engines. What is most important is the human aspect of knowledge management.

What is Knowledge Management?

We have initiated a knowledge management program under my leadership, which we call "KnowledgeMotion." We wanted a knowledge management framework that would provide the basis for effective knowledge sharing within and between projects, and for helping to optimize projects.

There are some background issues surrounding any knowledge management initiative like this:

- Does an initiative remain forever? Is knowledge management like a catalyst in a chemical reaction, moving the organization to a higher energy level? If so, and if the catalyst is removed after reaching a higher level, what is left?
- Alternatively, is a knowledge management program something that is put into the business process? This is always an important question because it costs money to have an overhead function that drives people to share their knowledge, so the benefits must be justified.
- In addition, do people need incentives to share their knowledge?

These issues form some of the background to this presentation. I will give some examples of the remaining elements that were developed during the knowledge management initiative but have now become part of day-to-day business.

When talking about knowledge management, this is again a question of perspective. It is very important to define the concepts that are related to knowledge.

So what is knowledge? Information in a certain context might be knowledge for me, but may not be knowledge from another person's perspective because they have different requirements. Therefore what are more important are the business results (Figure 1.)

Figure 1: Definition of Knowledge Management

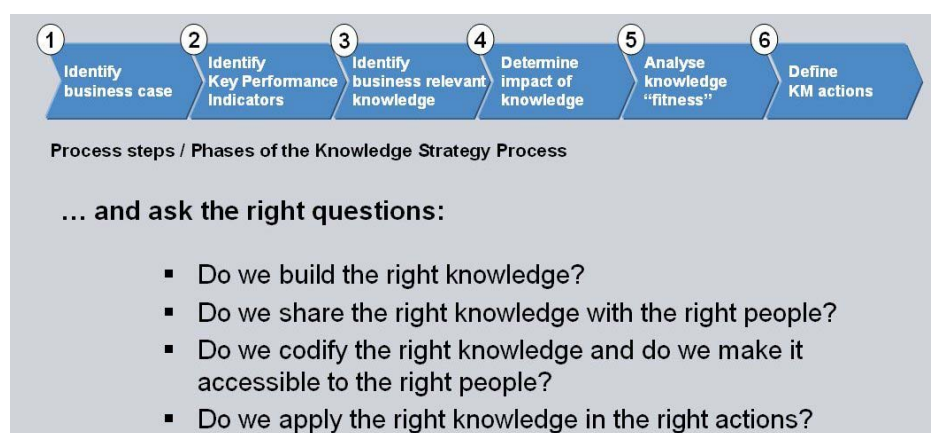


Results definitely depend upon the nature of a business. For example, results will be different for public administrations or for businesses such as service centers or call centers. Yesterday we had a couple of discussions about key performance indicators and measurements. Different areas will have different key performance indicators to measure the impact and results of knowledge management. In our definition, knowledge management consists of systematic activities for the creation and sharing of knowledge that can ultimately produce business results.

Linking Knowledge Management to Business Strategy

The first step is to start with the business case (Figure 2.) If business results and targets are not clear, key performance indicators and improvements cannot be measured. For example, the business case for sales persons working in a sales area is definitely to sell more in their area. For a call center, one key performance indicator that can be measured is the response time of call center agents.

Figure 2: Making Knowledge Management Part of the Strategy



The next step is to identify the knowledge relevant to the business case. The impact of knowledge management can be measured by measuring key performance indicators within the business.

Applied to projects, a library for example has hundreds of books, but the books have no value unless people access and read them, and use them to reduce a project's risks, to deliver the project on time and within budget and so on.

I was in a team connecting knowledge management to project management. In this profession or in this kind of business, I can manage only two kinds of assets: my people and the projects those people are working on. I do not have any factories or any kind of machinery that people work with. But in the end, to do knowledge management on projects in the right way is very similar to what I learned this morning in the Toyota presentation, except that we manage not physical but intangible assets. Knowledge is worthless if it is not used to achieve results.

Managing Knowledge Within and Between Projects

In any organization, projects play an important role. It does not matter if a company's or organization's business involves many projects, or projects are only used internally; those projects are an unparalleled source of knowledge.

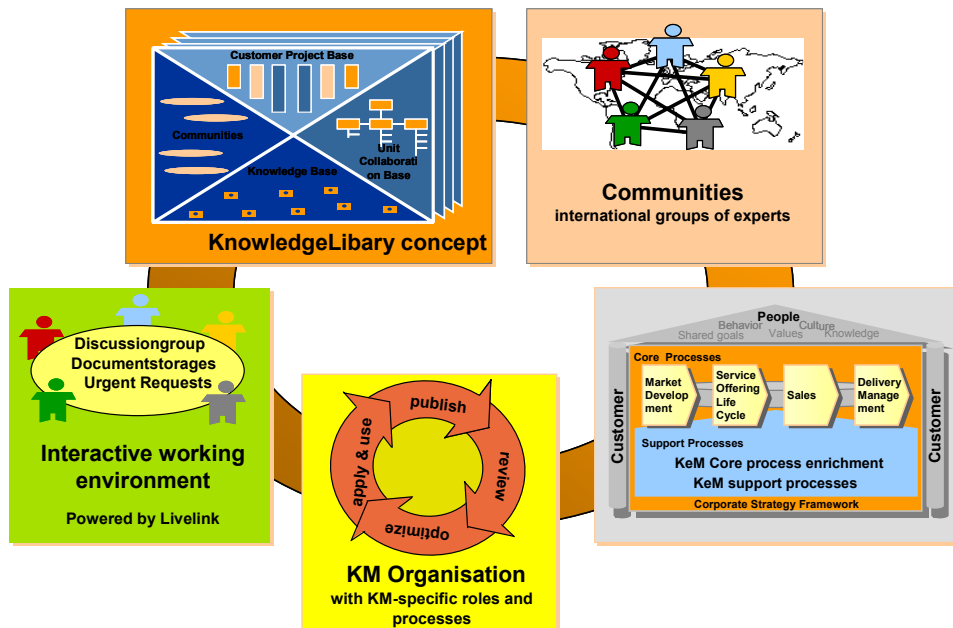
The use, management and leverage of this source are the challenges of knowledge management within projects. But to understand the instruments and the right tool set, it is quite important to take the elements apart and to structure the way we look at them systematically.

The knowledge within projects can be structured in different clusters, so-called "knowledge domains." Those domains could be knowledge about customers, partners, competitors, methodologies, technical or non-technical solutions, components and so on. Following the perspective of the knowledge management pioneers Nonaka and Takeuchi, the knowledge within the knowledge domains follows different criteria. The most important differentiation could be made based on the distinction between implicit (tacit or personal) and explicit knowledge.

While the described or explicit knowledge of a Mozart violin concerto is its musical score, which can be easily transferred, stored and so on, to play a violin requires certain experience, a good deal of practice and most importantly a certain level of talent, which is tacit or implicit knowledge. In addition, recordings of music by a single composer sound different under the direction of different conductors, because the original score still provides room for interpretation. Transferred to our context, this means that in each project there is plenty of virtuosity and many pages of "score" to manage. This example also indicates that knowledge management is more than just an IT-based system. Knowledge within projects is not restricted to only being stored in documents or document management systems. Knowledge management is also a socio-technical system with a holistic view of processes, roles, structures, organizational issues and IT system support such as collaboration or document management systems.

As an example, the following diagram illustrates "KnowledgeMotion," Siemens Business Services' knowledge management framework (Figure 3.)

Figure 3: Knowledge Management Framework



What are the essentials of a knowledge management framework that can provide the basis of effective knowledge sharing within and between projects? And how will they help to optimize projects?

I will explain the project-specific tool set, and introduce methods of implementation as well as key performance indicators to measure the success of the tool set.

The Toolset for Knowledge Sharing Within and Between Projects

1. Use and Creation of Knowledge

The most important point within this phase is that before anyone starts preparing any solutions for customers or to address problems, it is necessary to check whether there is already an existing solution. The answer to this question could prevent people from reinventing things (such as the wheel) and from wasting time and resources because possible solution paths have already been evaluated.

While this sounds logical, one of the two major barriers to knowledge management is already arising: the so-called "not invented here" phenomenon. Besides the possible problem that a person is not aware of somebody else working in the same area, they may ignore existing solutions due to a lack of trust, perhaps based on bad prior experiences. Therefore, reflecting on new findings or combining existing knowledge and experiences is another important part of this phase. Reflection should take place in "lessons learned" sessions during the project, either as part of weekly "jours fixes," on a milestone-oriented basis or at the end of a wider project debriefing session (Figure 4.)

The result of this project reflection might be knowledge assets and re-usable material. Both types include added value, because they follow certain templates, standards and formal criteria such as classifications, and could easily be identified and re-used. The range stretches from simple templates that have been created during a project to very complex models, such as business model descriptions of a whole industry (Figure 5.)

Figure 4: Lessons Learned Workshop

One example: Lessons Learned Workshop

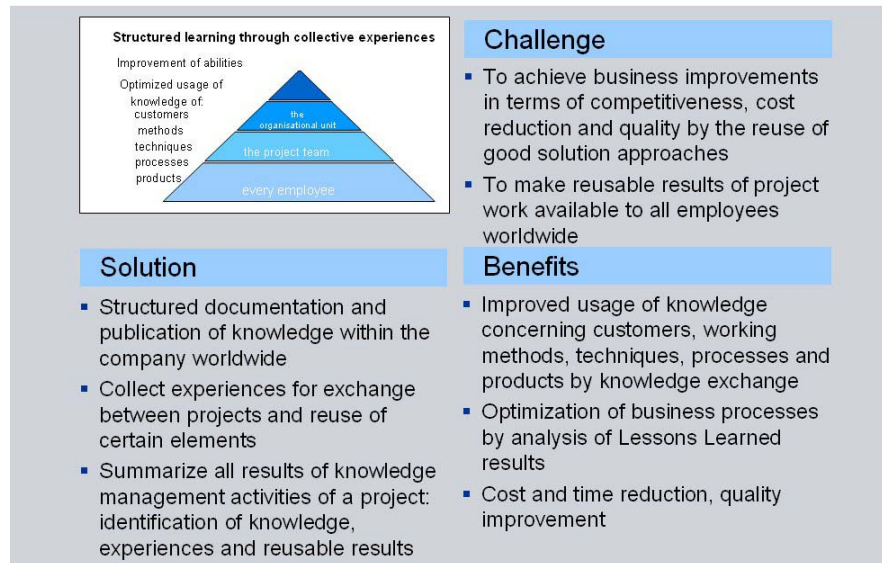
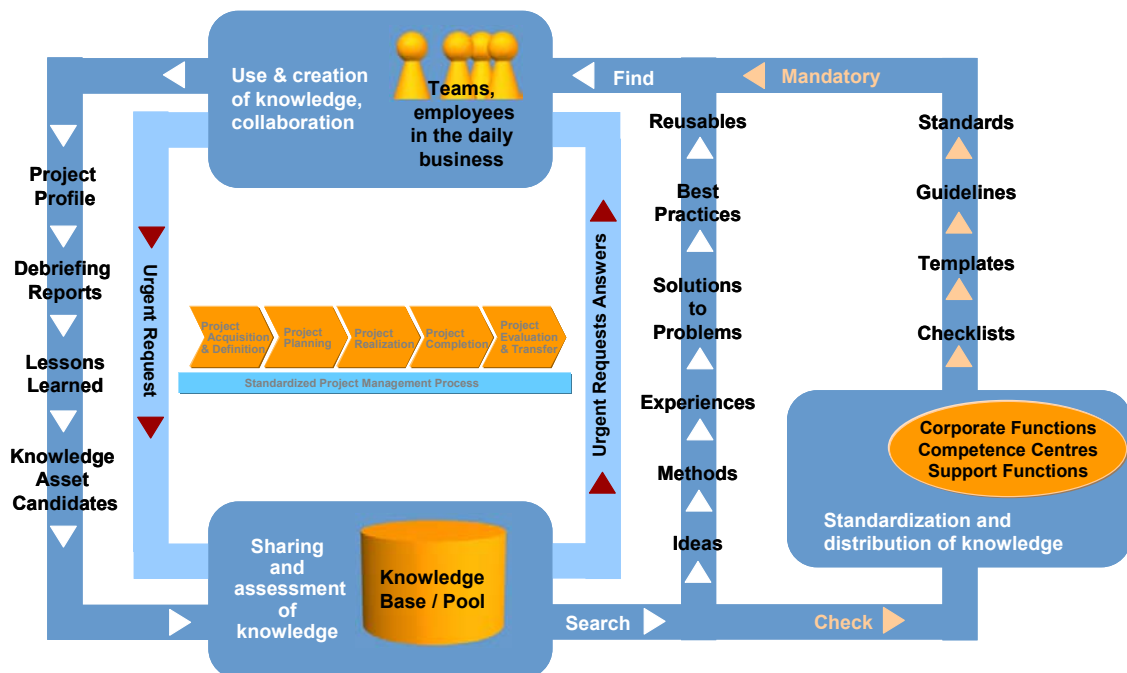


Figure 5: Knowledge Flow in a Learning Organization



2. Collaboration

Another important driver for the establishment of knowledge sharing is the reduction of barriers within a team. Therefore, knowledge sharing within a project starts with collaboration within the project. Transparency about the status of the project concerned, a common base of knowledge about the customer requirements, customer-specific decision making processes or a stakeholder landscape might be essential to the project's success.

On a global basis this requires a great deal of standardization (Figure 5.) This standardization includes standardized project file structures and the provision of templates. To enable this collaboration, organization-wide multipliers have to be trained to support the operational projects.

While knowledge sharing on an organizational basis has to follow centralized concepts, the provision of a collaboration base or platform is decentralized.

3. Sharing and Assessment of Knowledge

The phase of sharing and assessment of knowledge is the second major milestone in the framework. Based on the results provided by reflection, the so-called “knowledge assets” are made available to everybody in the organization or to specific groups only. These specific groups could be either special interest groups or “communities of practice.” The most important aspect is that the results are not limited to explicit knowledge, such as documentation and records, but that the method of sharing also allows pointers to the experts and competencies behind the documents. If for any reason (e.g., contractual or legal,) full sharing is not suitable, it is important that as a minimum requirement a project overview—like a door sign—is created that shows some basic project information.

The content of the different knowledge domains is now stored in the technical basis of the holistic framework, which could be a document management system or a groupware solution. It is important to note that the storage is itself a challenging process, because the “use” phase is related to the fact that project team members identify the document as possibly coming from different contexts or being in different languages.

Assessment of the content happens via feedback from the people that have reused a document, by communities, and perhaps by corporate functions that are responsible for a certain knowledge domain. Without this check, members of project teams still have to invest time in their own checks and validation of the documents they have found. However, after checking by a community or corporate function, the documents are standardized, condensed and their quality improved, and perhaps packaged at standard or guideline level. They show the direction to move in.

4. Urgent Request

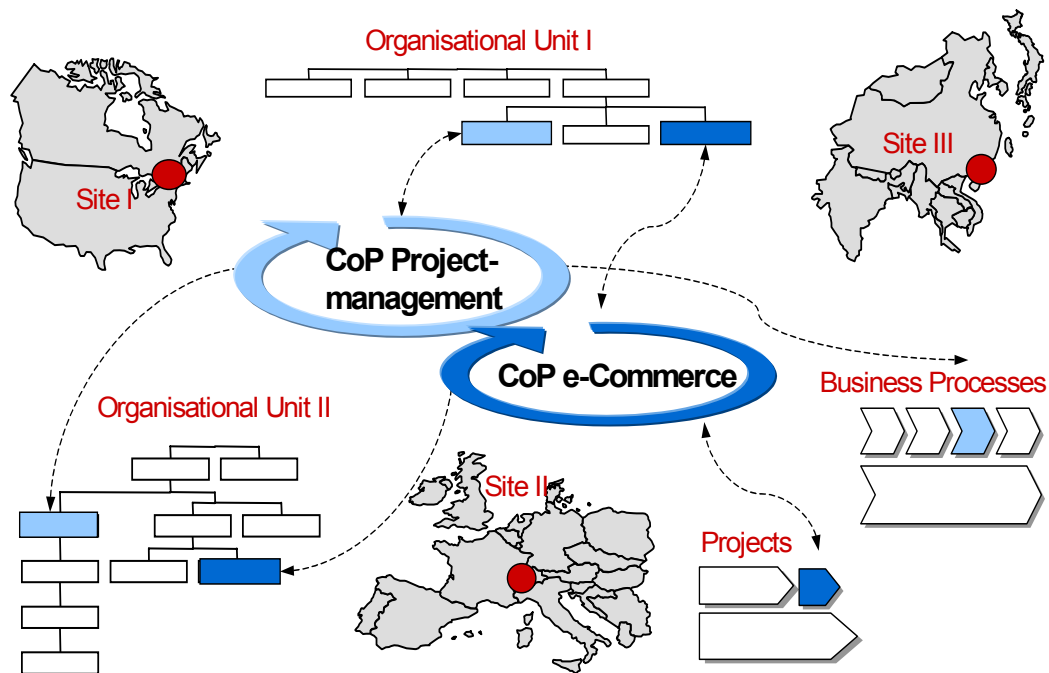
The “urgent request” can be a very efficient additional instrument to create trust and to achieve sustained success of the loop already described (Figure 5.) The urgent request works like an emergency call, but one does not have to know who one should call. It is a marketplace (with electronic support) that people within the organization can use to ask questions, as they may already have searched the knowledge base or their personal network unsuccessfully. The questions might take the form, “Who has done this before?” “Do we have experience of this?” “Who know something about this product?” The answers are in many cases not exactly what the people looking for, but they point out people within the organization with the required competence or experience. Once the marketplace is established and people have understood the benefit, the response time goes down to a couple of hours. Ideally, if people ask a question in the evening, the mechanism “follows the sun,” so that those returning to the office the next morning have an answer from overseas colleagues who are at work during the period concerned.

The urgent request process is also an example of a process with a sustained level of energy from the outside; i.e. to keep the response level up, moderation is necessary that facilitates the marketplace and brokers the “in-time” creation of answers. Once this external effort is reduced, for example due to restructuring, the usage of the urgent request forum goes down.

5. Community of Practice

A “community of practice” or “community of interest” is a group of persons who, based on a shared interest in a subject area of relevance to the business, exchange and develop knowledge and provide mutual support beyond the boundaries of organizational units. The participants pursue both individual and business goals through forms of cooperation that are not subject to any time constraints, and may be either virtual or face-to-face in nature. Communities of practice affect an organization’s projects in various ways (Figure 6.)

Figure 6: Logic of Communities of Practice (Own Source)



A community comprising all project managers or other specific roles within a project organization is the clearest case of the application of the community of practice concept in the area of project management. If many projects are involved, for example standard software implementations such as SAP, the establishment of a SAP community will certainly make sense. In addition one will find communities of people in the same organizational role, such as commercial clerks, working in distributed organizations or firms.

It is most important to understand the role of communities within the area of project management. While the role relating to the validation of content has been described before, another important role is to connect projects with the “outside world,” in many cases other projects or groups of experts outside the project. The benefit is that the project team can act as the interface between an organization’s entire knowledge resources and its customers (Figure 3.)

To establish trust in the organization is a major challenge that takes years, but to establish trust in a community can be achieved at short notice.

Cultural Issues

Besides the “not invented here” syndrome, the second important barrier could be distilled down to the claim that “knowledge is power.” The experience gained from a project,

incorporated in the person of the project manager or any individual project team member, might help to win the next assignment. This might be true at first glance, but is not if examined in greater detail. To share knowledge and experiences shows more competence than any experience which is kept confidential and treated as a secret. Any experience shared with the organization or other project teams that prevents the organization from making the same mistake or misjudgment twice empowers the organization.

Is any Additional Incentive Necessary?

As in many chemical reactions, a catalyst may be helpful in getting the knowledge marketplace started, because at the outset sharing knowledge means investing additional time, while taking into account that the marketplace is empty.

In the long run, any method that helps to control a project and reduce the project risks should be considered by the project members and their team. To avoid making the same mistake again, or to learn from others, saving time and budget should definitely be part of the basic toolbox of successful project managers. Knowledge sharing should therefore be covered by the incentives for the project manager, which is related to the project's success.

These examples show the sustained impact of knowledge management methodologies within a project-oriented or project-based organization.

A second example is the shape of organizations supported by communities of practice.

The Organizational Design Supported by Knowledge Management Elements

The community of practice methodology described above is essential to the success of today's organizational design.

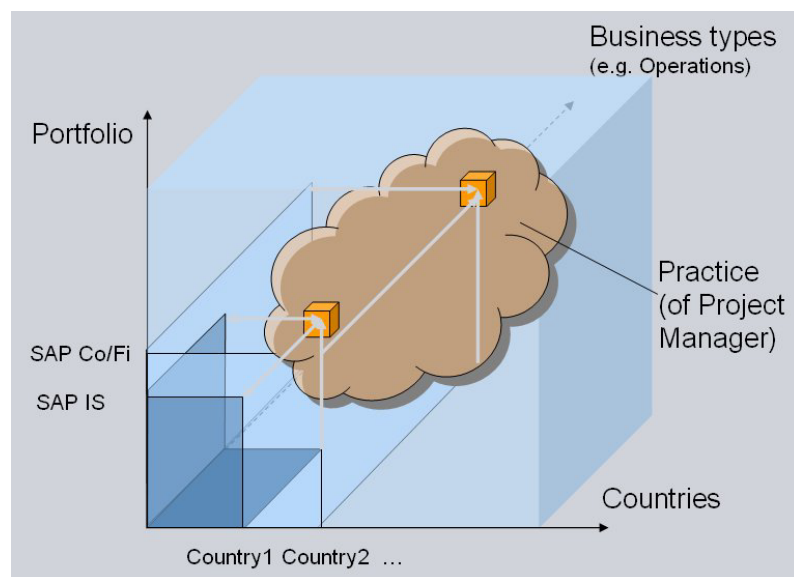
The design of the organization of internationally operating companies has to consider certain aspects:

- Organizational department structure, business areas (e.g., sales, procurement, etc.)
- Countries (e.g., Thailand, Germany, United States, Russia) or regions (e.g., SEE, EMEA, ASP)
- Projects
- Competencies (e.g., project manager, SAP consultant)
- Roles (e.g., assignment manager, information security officer)
- Content areas (e.g., portfolio-related)
- Industries (e.g., automotive industry)

The consideration of all aspects will result in a multi-dimensional matrix, which is difficult to communicate to and be understood by employees due to its complexity. It is therefore essential to reduce the complexity without losing any of the above-mentioned aspects. The basic model of a 3D matrix—the cube—should be the basis for communication (Figure 7.)

The three dimensions could be the countries, the business areas and the practices, consolidating all other organizational aspects, because not all employees automatically belong to all practices.

Figure 7



Reporting

The goals of any knowledge management activity within or between projects are to:

- Optimize the project processes
- Improve the efficiency, effectiveness and quality of all project participants
- Reduce costs and risks
- Improve customer satisfaction
- Minimize internal transaction costs and interfaces
- Avoid reinvention within projects

All of the goals mentioned above could be used as key performance indicators for the implementation of knowledge management within a project environment.

It is important to speak the language of the organization and report the key performance indicators that the organization (particularly a commercial organization) understands. Any knowledge management program should only help the organization to understand what should be a natural behavior and should disappear once a critical mass of content or level of collaboration, for example, has been reached.

Conclusion

The success factors for a sustainable knowledge-sharing culture are:

- Make it part of everybody's daily routine:
 - By process extensions of existing process models
 - By shaping existing incentive systems
 - By reduction of perceived "extra" efforts
 - By interaction with other business programs such as project management
- Knowledge sharing should become a natural act, not anything artificial
- A platform is an enabler, but nothing more
- Knowledge sharing can be enabled by the organization design
- During the implementation, ensure a personal continuity
- Document the developments using key performance indicators that management understand
- "Do good things and talk about them"—communication is key

One will at first glance not find any logical barriers to implementing a culture of knowledge sharing. Nevertheless, one's colleagues or employees will give hundreds of excuses for not sharing. To implement a knowledge-sharing program or to establish knowledge sharing in projects is highly complex, and will require much longer than initially estimated.

Therefore, it is important to start with a "friendly environment," to first create a pilot, and to communicate the results. Success stories and real project successes are the key to the success of a knowledge management story.

Based on these successes, a roll-out can expand the knowledge management idea across the whole organization. It is important for knowledge sharing to become a natural activity rather than an extra action. The instruments or methods of knowledge management should subsequently be made mandatory by means of a guideline.

In addition to the discussion of incentives, it is also important to escalate situations in which project managers have obviously ignored existing solutions or known risks and have made the same mistake again.

The main remaining elements of successful knowledge management programs are:

- Process extensions
- Intranet (collaboration) extensions
- Special aspects in for example performance management
- Organizational design criteria (as mentioned previously, communities of practice)
- Additional organizational roles such as knowledge broker

But bear in mind that success will only be obtained when a knowledge management program become "invisible," and staff share its knowledge because they have subconsciously understood the benefits to themselves and to the organization.

Or, as a German newspaper once said: *"A good knowledge manager makes himself or herself redundant."*



Integration of Knowledge Management and Learning for Innovation

Mr. Chaovalit Ekabut
President, Siam Pulp and Paper
Public Co., Ltd., Thailand

Introduction

Thank you and a very good afternoon to all the participants, ladies and gentleman.

I am proud to be here today, to share what we are doing in the Siam Cement Group (SCG) in our attempt

to be more innovative and to drive innovation. The topic of my presentation today is "Integration of Knowledge Management and Learning for Innovation."

We are implementing this program in the context of a company in Thailand, where in many respects we have some differences from the companies or cases presented previously. Each country has its own culture and limitations and each company within a country also has some differences.

Here is the agenda for my talk. In summary I will be talking about three main areas. The first is innovation at SCG, something that we are very much focused on and are trying to do. I will be focusing on the knowledge management activities at SCG. At the end, I will give you case examples of the knowledge management practices in our paper business.

Agenda

- Who is SCG?
- What is innovation?
- Why do we need innovation?
- SCG – Paper case
 - Designing and implementing knowledge management
 - Building the workplace learning

Who is SCG?

Let me first briefly introduce our company, SCG. The company was started 94 years ago in 1913 by King Rama VI. At that time its business was solely cement. Nearly a hundred years ago Thailand was developing and we were in need of construction materials, so King Rama VI started the project with management and engineers from Europe who built and operated the company over a period of 50 years. So we are a Thai company that was managed by European managers for a very long time.

About 30 years ago, Thai managers began to take over the companies, but we were still very much focused on cement and later on building materials related to construction.

About that time, we started to diversify further with the growth of the country. We entered into the paper business, chemical business, electrical business, automotive-related business, steel business and so on.

"To become an innovative organization, we need people to learn by themselves, not just having us train them....People will learn what they like to learn."

Everyone in Thailand and its neighboring countries remembers the pain of the so-called “Tom Yam Kung effect” in 1997. The Thai baht depreciated and caused much turbulence in the area. It led to great suffering at that time because Siam Cement was investing a lot, and was engaged in a very high level of foreign debt. Our US dollar debt, when calculated in Thai baht, increased by around 200 percent overnight. It was a big challenge for us.

Summary

- Founded in 1913 by King Rama VI
- Listed on the Stock Exchange of Thailand since 1976
- Historical roots in cement, and expansions to include building materials, distribution, paper and chemicals
- Widely renowned for the quality and reliability of its products and its professional management, especially HR development
- Faced by the 1997 crisis we needed big shifts in thinking in several areas just to survive and build a platform for future growth

However, we did many things to restructure the business. We had to let go of some industries where we were not the best owner of those industries. As of today we are more focused and we have recovered from the impacts of the economic crisis.

The businesses we are into today comprise of five business areas. The first one is chemicals, including petrochemicals. We then have paper, cement, building materials and distribution businesses. However, we are no longer involved in the steel industry, automotive industry, electrical industry and many others. The chemical business is the largest, constituting about 40 to 45 percent of the group. It produces basic plastic materials such as polyethylene, polypropylene and some other plastic products. The paper business produces paper for packaging, printing and writing use. We are still producing cement, the company’s very first product, and have a strong market share. In building materials we have various products such as roofing materials, ceramic tiles and sanitary products. Lastly, our distribution business basically distributes our building materials and cement products, and is diversified into serving other industries as well.

That is Siam Cement today. We have changed; we have started our business anew.

During the last few years, there was a big discussion about what was next for us. Our company has learned from experience that although when we try to grow and expand the business we have been very much focused on operational excellence, that alone does not enable us to guarantee long-term success. We therefore tried to look at what else is necessary. Thailand can still produce lots of cheaper products but we see that the trend is changing. New economies like China are coming in very strongly and today people see that China can produce much cheaper products. So the top management of the group thought about this simple word, “innovation.” We have heard about innovation many, many times and knew it should be the way to go, but we were unsure how far Thailand could go into this area. In Thailand most of the companies get technology transfer from others and try to do their best in production and operational excellence. Innovation to create something new rarely happens in Thailand. However, we feel that innovation is unavoidable and is the way that the company can sustain growth in the longer term.

What is Innovation?

So what is meant by innovation? Innovation in our context is very simple and yet very broad. We consider innovation to be anything that can be done, whether it is a new product, a new process or a new business model. The keyword here is something “new”: new to us, new to the market, new to the customers. Another keyword is “valuable.” It should create value for the company stakeholders. So in our context, innovation may not necessarily be a big

invention; it could be small or even incremental improvements that combined together can create value for our customers.

Innovation in our case could be incremental, could be virtual and again it could be a product, process or business model. In many cases we can come up with a very simple idea that could be a big hit in the market. Besides the output we can give to the customers, internally innovation means a lot to us. It means that we are working in a new atmosphere, have a new type of interaction among people and also have new thinking processes in the organization.

Innovation: Novel + Valuable

- Both incremental improvement and breakthroughs
- Not just new invention of products; it could be a new work process or new business model
- Includes a new atmosphere, people interaction, a thinking process that enables our creativity and allows us to try doing things differently
- Creates value for our customers, partners, shareholders, and employees

I would like to take you back a little bit in Siam Cement's history. We have a strong manufacturing culture at best. As in the army in the past, the Thai manager can give orders that the workers will follow very clearly and efficiently. But for innovation to occur we must allow people to initiate, to create new ideas. It is not very easy to change overnight, and we understand that this is a big job to do. So there should be a lot of attention to this, the soft side of innovation.

We see that innovation is unavoidable. The world-leading companies are producing innovations in order to survive. For example, Siemens created something new a long time ago, and still today they continue to create new things for the world. In our businesses at SCG in the last 20 to 30 years, the level of technology we have had for production has been, I would say, on par with other leading companies in the world. So if we cannot innovate, and we cannot develop our own technology further, we will always be behind the leaders and unable to some day become the leader. SCG had already fully recovered and had made very good profits in 2004 to 2005. Then the management said, "Hey, we are not safe. We have to do more. And the way we have to do more is to be more innovative."

Four Keys to Successful Innovation

We have identified four keys to successful innovation. The first is to have a clear business direction. The second is of course the need for an innovative culture. We need structure and process that will support innovation. Finally, the most important element is the people, the human resources. I will briefly touch upon each of these elements.

First Key: Clear Business Direction

Business keeps changing all the time and it is important to let our people understand where we are going today so that they can know what they want to achieve in, say, three to five years. The message that we sent out to the people in the organization and also to those outside the organization was very clear and simple. As of today, we have two basic objectives or directions.

Business direction one: **ASEAN**. We are going to grow our business in other ASEAN countries. We used to export products to many countries but had no operation based outside Thailand. A lesson we learned in being quite successful in Thailand is that when Thailand collapsed, we collapsed as well. One way of diversifying is to use the experiences that we learned here to go outside Thailand. ASEAN should be our home as well because we have lots of things in common in the ASEAN region. We have a sufficiently large market. The combined population of all ASEAN countries is over 500 million. It is not a small place, yet

people somehow overlook the region. People are focusing more on countries like China, which obviously has a big market, and India, which is also growing strongly. But we believe in ASEAN. There is a lot of potential and there are a lot of good people that we can integrate into the organization to grow together from being a Thai company to becoming an ASEAN company.

Figure 1: Four Keys to Successful Innovation



Business direction two: **Innovation**. The other very strong message is innovation, which I have talked about. These are the two messages that we send out to our employees and our management, that these are the things we are focusing on and are doing in the next five years.

Second Key: Innovative Culture

After the clear and simple business directions we are then targeting the soft side, the culture. In culture, we have to look into the mirror to see ourselves. We applied various tools, such as 360-degree feedback, and we found lots of ideas on what we should do to be more innovative. Very simply, we must look at people and understand their behavior and how they can improve.

The first people are the unit leaders. What are the qualifications of an innovative leader? We call them **"Inno-Leaders."** From our analysis of ourselves, which came from the feedback of our organization's people, we identified that in order to be more innovative we need a leader to be a **change leader**. We cannot continue doing what we used to do; we need to change.

To be a change leader, instead of dragging people along they have to be a **change supporter** as well. Lastly, and this is very important, they have to be a **role model**, because especially in Thailand, people look up to their elders and see how they behave. If one keeps on saying that innovation is important, one has to be open and listen to the idea. If one does not do that, and every time a subordinate suggests something, one says, "Oh, forget about that. We already did that 10 years ago; it won't work," then it destroys everything.

So these key areas look very simple, but we need to communicate very deeply with the people. An example shows how serious senior management is. My boss, the CEO of the group, my colleagues, some senior executives and myself—about 35 people in total—all attended a course on developing innovative leaders and manager, conducted by an institute we had hired. The course lasted about three months because it was not every day but on an

irregular basis. We had to study, do case studies and have discussions. We even had to go to Singapore for certain projects. People were aware that even the CEO of the group had to attend the course and had to open up. This is what we really have to do to show that we are serious about innovation.

After we looked at ourselves, we found that there are five key qualifications in which our people—not only leaders but also group members—are not good enough (see box.)

If one wants to be more innovative then one can easily use this simple test to identify what one is good at and what one should focus on and cultivate.

Five Qualifications of **Inno-People**

- Open minded
- Thinking out of the box
- Assertive
- Risk taking
- Eager to learn

Figure 2: Internal Communications



There is a lot of communication with our people regarding innovation. The gentleman in this picture is Mr. Kan Trakulhoon, the president and CEO of SCG. He is the one who really initiated the innovation project. He himself spent a lot of time talking to people inside and outside of SCG about the importance and necessity of innovation. There are various means by which we communicate with our people regarding the innovation and the culture that we want to drive the company.

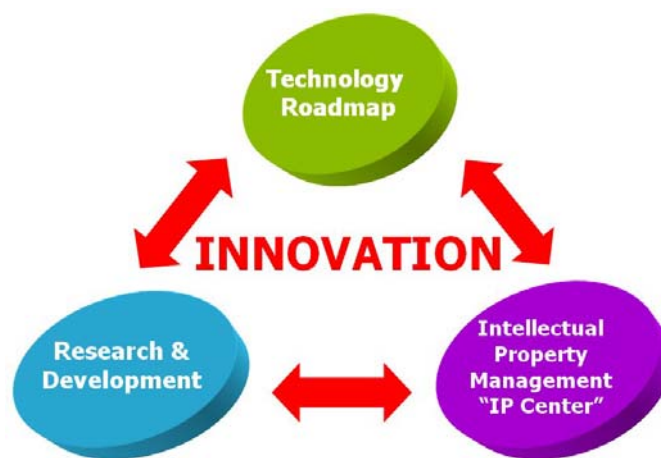
Third Key: Structure and Process

The next key is about the structure and process of implementing innovation. Knowledge management is one of the first areas we identified that we need to improve a lot, and I will talk about that specifically later on. Besides knowledge management, **technology management** is also vital to us. In our manufacturing companies we have to produce many new products, but we found that certain areas are very new. The world-leading companies today have very strong **research and development departments**. We have tried to set up research and development facilities, but frankly speaking they did not succeed very well. Therefore we sent groups of people to learn from other companies like Toyota and Siemens. We also sent people to observe the practices of Ciba Chemicals and try to learn what they do in terms of technology development.

We found that we are lacking in a very important area, which is the **technology roadmap**. This is not very important for a company that only manufactures products. But if we want to develop new things and create new technologies, we need to lay out a path to where we want to go. We found that we do not have the knowledge and experience to develop that. When we researched technology roadmaps, we found that they could be anything. The field is so large and growing so fast that we do not know how to select which area we should be in. It is something that we need to learn from others, and today we are starting to do that.

I happened to have a chance to talk to my Singaporean friend who is working in a research and development unit in Singapore. He said that when he joined the research and development unit 10 years ago, he also faced the same kind of problems. As of today he has a very well defined and focused technology roadmap. We hope that we will follow the same path.

Figure 3: Technology Management



On the right-hand side of figure 3 is **intellectual property management**, which is really new to us in Thailand. People talk about technology transfer and about creating and patenting, but people really know very little about intellectual property management. We see that it is something that is coming into this region very fast, and we need to step up our ability in intellectual property management. Our people should have what we call "intellectual property literacy" or "intelligent property literacy." It means that they should be able to see how the world is moving. They should be able to look up the patents available around the world in order to know what advances have already been made in relevant fields, so that we do not have to reinvent the wheel in Thailand. We can look at the wheels in the United States, the wheels in Japan and then try to do it better.

We use the **innovation award** to promote innovation. The award was first created in 2006 and is very exciting for the group. The basic idea is that any group that creates or develops anything can submit their stories to the management. In the first year there were more than 300 topics selected and submitted to the committee in each business unit. The winner receives an award of 1 million baht, which is unprecedented in Thailand and in SCG. It is important to stimulate interest, and of course we want people to understand that innovation has a very big impact on the business' profitability, so we are ready to share the benefits with the developers of innovation. The award received a lot of interest from our employees.

Last year the group that won the award was from the ceramics company. They developed a product that we called *Pimai*, which is basically a set of ceramic Thai products that uses the concept of ancient Thai stone castles. In Thailand we have the Pimai Castle which is similar to Angkor Wat in Cambodia and is about the same age. The concept that they developed is a

set of products that when put into buildings give the touch and feel of an ancient castle. It was very successful not just in the Thai market but also overseas, so they won last year's award.

There are many other innovation projects that got minor awards such as the simple ideas I mentioned earlier. We have a ready-mix concrete business, in which construction sites make an order and we pre-mix concrete and deliver it in a large truck. Large trucks cannot pass through small city lanes, and some customers need only small construction and re-modification of their small houses. So the idea was to make and deliver ready-mix concrete in small trucks. Through cooperation with CP Seven-Eleven, a convenience store company, we provided benefit to customers in that they can just call Seven-Eleven to pay their bill, and we deliver the concrete to them. This kind of idea is very innovative. It utilizes what we already have in place but we can provide better services to our customers.

Figure 4: Small Ready-Mix Concrete Truck

Small RMC truck: an innovation for better services to valued customers



Redesign the delivery tools

- Changing customers' perception:
CPAC is serious about delivery of small orders
- Eliminating the constraints of the typical truck to serve every customer
- *unable to go into small city lanes* -



Last year we set up our SCG **Intellectual Property Center**. We are developing a good framework for our intellectual property management and we are promoting a lot of intellectual property activities in our business units. At the moment we are not spending enough in terms of research and development compared with leading firms. We believe we need to do more, so we are recruiting more people. We are trying to train them and of course at the same time we are trying to support them with intellectual property management. Surprisingly, just as we just set up the SCG Intellectual Property Center, we found that it is the first intellectual property center in Thailand for a private company. Our country is lagging much behind other countries, so we need to do a lot more work and this is an area in which I believe we can share and improve together very quickly if we all work together, including the private sector, the Department of Intellectual Property and other governmental units that manage and support this.

Fourth Key: Human Resources

The last and most important element of innovation is people. We can see how other companies work and learn from them; we can read books; we can employ the same software as other companies; but the people are an element that is different. We have to understand the Thai people and we have to come up with our own scheme to boost our organizations together with our people.

From the very first year, we organized the innovation projects into five **innovation teams**, starting with the knowledge management team that I am now heading. We also have teams in the areas of award and recognition, communication, intellectual property and the people system which determines how we set targets, measure performance, assess behavior and so on in line with what we want to be or not to be. The five teams carry out work and make reports for the innovation committee, of which I am currently a member.

Figure 5: Five Teams under the Innovation Committee



Knowledge management is one of the key areas in which we try to be active in order to support innovation. Shown here is the draft of the framework created by our knowledge management working team. The framework has to consider that various practices are already present to certain degrees in numerous organizational units within SCG, which have different processes and also very different scales. For example some companies have focused on Total Quality Management for a long time.

Total Quality Management has an excellent framework that starts from identifying the objectives and moves to the action plans. So we decided to have a framework plan for knowledge management in the same way that Total Quality Management has, so that any unit that would like to proceed in knowledge management has a direction or pattern to follow.

The knowledge management workflow is as follows:

- Clarifying and defining the objectives and benefits of knowledge management.
- Building objectives and benefits: What are various areas of knowledge that a company would like to have in place? Each company will have different needs. In our case for example, in the paper business, we found that technical knowledge is one of the key areas that we like to improve. So we select only the technical areas that we will be starting in implementing knowledge management.
- Identify knowledge map: in each of the knowledge map areas, we have to identify the objectives we want to achieve and then compare them against the current level, which shows the knowledge gap. This is somewhat similar to what Mr. Ramhorst talked about at Siemens. We follow a similar pattern in identifying the gap in each area.
- We can then proceed on easily to actions and performance measurements (Figure 6.)

Another way of looking at knowledge management is to look at it as a whole process (Figure 7) where the inputs are the things that one can find and the outputs are the things that one wants to achieve for the knowledge system or the output in terms of the business such as cost reduction or the profit one wants to achieve.

Figure 6: Knowledge Management Workflow

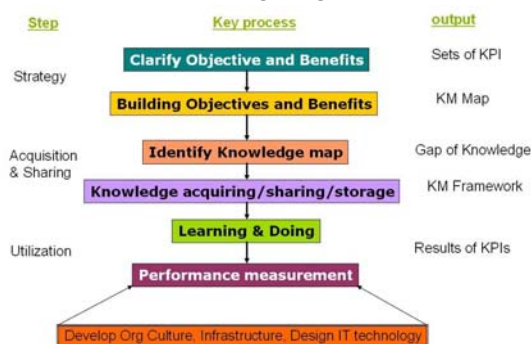
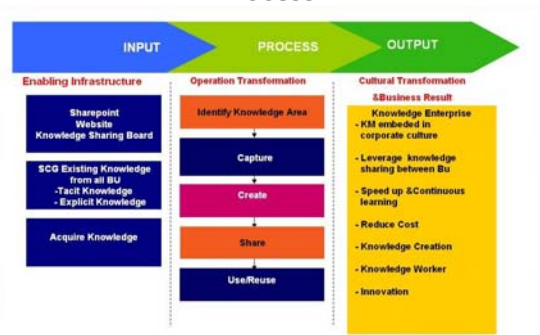


Figure 7: Knowledge Management Process



We have different businesses in SCG but there are certain areas where we can have a common knowledge that we can apply or use. We set up a small organization called the **Knowledge Management Center**, which is responsible for handling all of this common knowledge. For example, long ago we set up a committee called the Best Practices Committee, where people in various areas such as accounting, human resources, procurement and production from various business units such as cement, paper and chemical can share what they have done with other business units. We just brought together what we already had, and put it into a common portal so that it is now easy for people to see what others are doing (Figure 8.)

Figure 8: Knowledge Management Center Portal



Lessons learned are also documented and placed in the Knowledge Management Center. We used to have some accidents in one of the workplaces, and we paused to ask why and how they were happening. These simple things can be a lot more useful if the information is not kept localized but rather is made available to people in other business units.

Other information that the Knowledge Management Center provides is in relation to our expansion into ASEAN. All the business units are trying to look into neighboring countries. For example, Vietnam is one of the countries we are focusing on and information about Vietnam such as the cost of utilities, tax system and so on can be posted here so that anyone can quickly access and retrieve the information. Again, this is simple organizing of information so that people can share and learn quickly. Another thing provided at the

Knowledge Management Center is the **Web Board** where people can chat and discuss topics of interest.

Additionally, “eager to learn” is one of the desirable characteristics that we defined for Inno-People. A very important, small pet project that we did last year was to try to promote this characteristic by introducing to employees at the supervisory level a very famous book, *The World is Flat*. The story in this book was very well publicized last year, so we thought it would be a good idea to let our people learn about it. We decided to purchase about 2,000 copies in English, distribute them to our supervisory people and ask them to read it. We also had to arrange for them to read it, because it is very difficult for Thai people to read such a thick English book. English speakers will find this book very easy to read, very fun and enjoyable. But for Thai people, when they read these sentences they will open a dictionary and after another few sentence they will open the dictionary again; it is quite difficult.

Today the project is done and I guess about 20 percent or 30 percent of the people might have read it. But the important thing is that they were aware that the company is serious and tries to help them to read. We organized a session where people who knew about the story would come and share with those people who were not good readers. At the end of the program, we also had a small competition among the core group (Figure 9.) The people who loved to read liked to demonstrate how much they knew about the book and how they could apply it to the business. After the small competition, there were winners and a small amount of money was presented. So the case of the “The World is Flat” has energized and stimulated a lot of interest among the SCG people.

Figure 9: Contest on “The World is Flat”



We told them that this book has two implications:

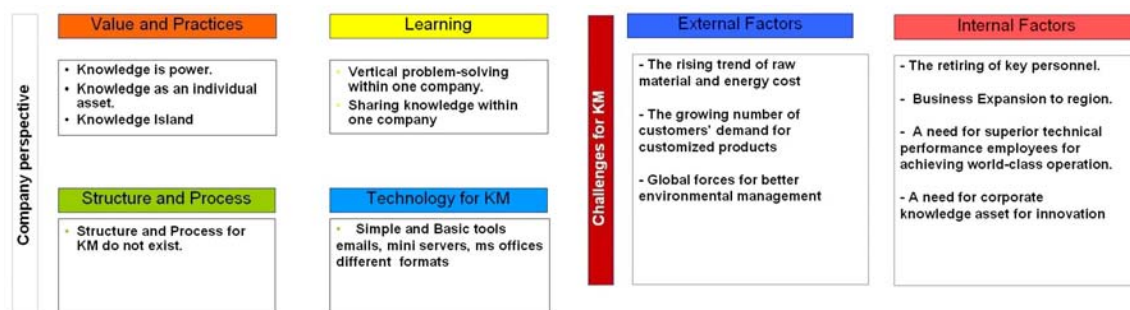
1. The world is changing. We want to make sure that they know that the world is changing. They have to understand how Americans can perform their tax calculations. Right now, someone in the United States will send their data to India for example, where they process all the calculations and send them back to the United States the next day. These things are already happening. A customer of a hotel in the United States will call its call center that might be in the Philippines. So the world is changing and we want to make sure that our people know that. We want them to challenge our status quo and how we deal with that.
2. Another very important message is that this is an English book. If we want to go out of Thailand and to our neighboring countries, we have to use English. Unfortunately in this area we all use different languages. In Thailand we use Thai; in Vietnam they speak Vietnamese; in Malaysia they speak English and Malay; and in Indonesia they speak many languages. So English is the language that we have to master. If we want to have more flexibility in growing along with the organization then English is unavoidable.

Case Study: SCG Paper

SCG Paper is Thailand's largest integrated pulp, paper and packaging manufacturer. It produces pulp and paper for printing and writing—the raw materials and paper for magazines and for office use—packaging paper and business-purpose packaging. Last year, our group had annual sales of over US\$1 billion, while SCG as a whole had annual sales of about US\$5 billion to US\$6 billion. Today we have about 6,700 people and we estimate that in about five years' time we may have about 9,000 people. This implies that we need a lot of knowledge transfer and we need a lot of communication among the people who, in the future, will be both Thai people and also people in other ASEAN countries.

The situation before we implemented the knowledge management system in our business unit is quite typical in any company (Figure 10) where people understand that knowledge is important and knowledge is power. Knowledge is very much attached to an individual who has worked in the organization for a long time. The knowledge is very important and mostly isolated. We have improvements in problem solving, but the knowledge is very much limited to one organization or one unit. In my paper group we have a company, Thai Paper, which won the prestigious Deming Prize in Japan and also the Thailand Quality Award. So we have good communication sharing within the company but sharing outside the company is not that effective so far. Another example from the group is in corrugated box plants, two of which received the Total Productive Maintenance Award from the Japan Institute of Plant Maintenance, and they are trying to share those experiences with the other plants. In the past however the situation has been that all of these things would be very limited to the local area, the organizational unit itself, and there has been no means or structure to support broader sharing of knowledge.

Figure 10: Situation before Implementing Knowledge Management



In addition, we have a lot of pressures coming from both outside and inside. There is more strong competition. We entered the paper business about 30 years ago, and the people who were young at that time are now starting to retire. We need to do something to retain the knowledge that we have.

Designing and Setting Up the Knowledge Management System

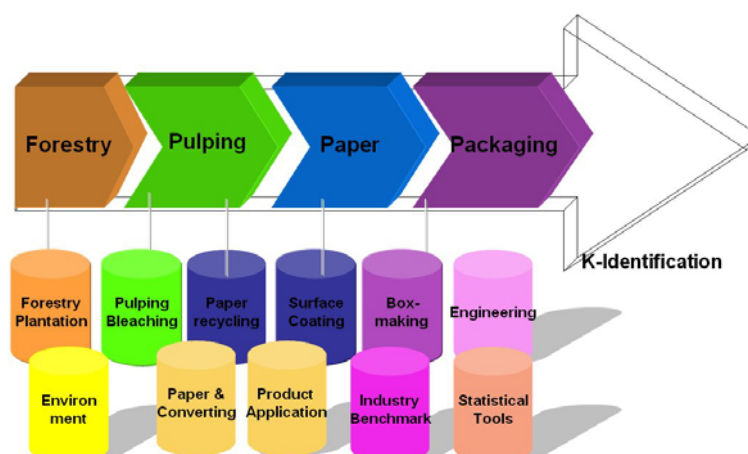
We identified the key areas that we need to address first as being on the technical side. So we set up a technical development committee whose work is in part to develop the knowledge management system. What is important here is that we had to pick a leader who was highly technically-oriented and was not very happy with the current status, because if he was happy with the current status then he could not challenge himself more and become committed to the knowledge management system.

We defined the objectives of the project. We wanted to have a center through which people can access and share the know-how in certain areas, and we wanted to have a place where

we can systematically input, store and retrieve information. Once the objectives were defined, they could be developed into operations for the organization. The objectives of SCG Paper's knowledge system are:

- To be an online center of SCG Paper technical knowledge: training materials, standards, patents and best practices from both inside and outside sources
- To systematically store widespread technical knowledge in the same portal for easy access, to enhance knowledge sharing
- To capture tacit knowledge and disseminate employees' wisdom in business for enhancing the organization's learning and competitiveness
- To provide a virtual space for businesses to use IT to share their knowledge among the members via communities of practice.

Figure 11: Identification of Corporate Knowledge Assets



We then divided the area of our business into 11 modules. In each of the modules we defined the scope and the objectives that we wanted to achieve, and developed a knowledge map. We subdivided each module into smaller areas where we defined how far we wish to go.

This project started in 2004. We started to purchase the software package, which is not very expensive. We invested less than 2 million baht to provide access to about 700 users. We put the servers in two areas to ensure that people working far away can have good response times. Simple things like poor access due to slow response times can discourage people from utilizing the system. The following is a summary of the knowledge management system implementation:

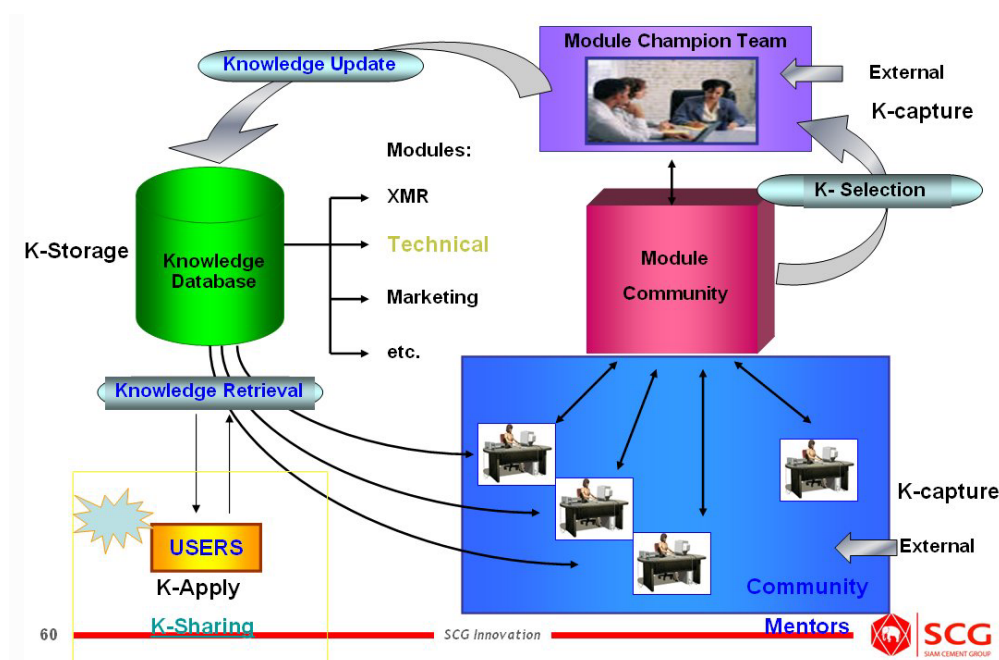
- Started: 30 April 2004
- Software: IBM's Quick Place Team Learning (personalized web portal/collaboration/security/search)
- Investment: 1.56 million baht
- Users: 700 licenses (supervisor 4 to manager level); 3 types of users: general users, registered users and compulsory
- Location: Two servers in Bang Sue and Ban Pong (500 Gigabytes)
- Service area: SCG Paper Group of Companies
- Unit responsible for function: Technical Information and Training Center (under the supervision and direction of the Technical Development Committee)

In each module, we assigned a Champion. The Champion has an assistant or Associate Champion. They form what we called the "Module Community," a group of people who have a common interest in the technical areas of the module and who will try to seek knowledge from anywhere, both inside and outside the organization. Together they try to select the key

knowledge that they want to keep and store. The Champion manages all of this. The responsibilities of a Champion are to:

- Foster knowledge creation from internal and external sources and validate correct and high-quality information before storing on the site
- Promote members sharing knowledge on the site
- Authorize membership according to the security codes
- Terminate membership for prevention of site violation and security of information
- Manage the site in compliant with the Paper and Packing Business Knowledge System (PPB_KS) technical excellence regulations.

Figure 12: Establishing the Knowledge Management Process



Once we have knowledge stored in the database, this knowledge can be shared immediately within the community as well as with those outside the community as far as they have the authority to access it. This is a very simple concept but it is highly organized. The Champion and Associate Champion play very important roles. The duties of the Associate Champion are to:

- Manage, coordinate and act as an assistant to the Champion to promote members sharing knowledge on the site.
- Join the mission of knowledge verification before storing in the knowledge base

These are assigned jobs, not voluntary. Assigned people do not always deliver or produce good results so we need interested people who really go to work and know about the area. These people are called Mentors. A Mentor is someone invited to join the community because they are knowledgeable about the technology and are willing to share with others.

We have 11 modules, so we have 11 Champions. The Champion selected is the manager who is responsible for the functions related to the module; for example the paper pulp production manager might be the Champion for the paper production process module. The Champion has to take the leadership role in their area, encourage members to share knowledge, and also help them to organize. The help of Associate Champions is required because we subdivide a module into many topics and we need a lot of people to work together. Again, this is based on job functions or job assignments.

Mentors are people who are highly experienced and knowledgeable in the area. The Champion and the Associate Champion invite one or more Mentors to join the community. Mentors will usually be the people responsible for obtaining knowledge or answering members' questions. The members of the community know who they can turn to if they have doubts or questions, and together they can learn and provide input. In brief, the responsibilities of the Mentors are to:

- Answer questions on the community site related to their own specialist areas and skills, providing active responses
- Recommend sources of knowledge for extensive study
- Encourage questions and answers on the site

As of today, we have a quite number of Mentors already in the group. In the paper production area alone we have about 160 people now working as Mentors.

A Site Administrator is needed for each module. This role is different from that of the technical site administrator, whose responsibility is managing the IT system, including security and virus protection, monitoring and allocating server usage and assigning passwords. The responsibilities of the Site Administrator are to:

- Create and manage rooms compliant to the PPB_KS technical excellence regulations
- Ensure knowledge security
- Communicate news and events and screen information posted on the site

The members are also assigned, because in the past we allowed people to volunteer to share but this was unsuccessful so we had to try something new. However, assigning people to a group does not mean that we force them to do anything. We just let them know that they belong to a particular group because they work in a relevant function and have a responsibility to work with their colleagues in the community. Over time, with the help of the organizer, I think they learn and they begin to appreciate and to contribute, and are happy to be a part of the community. As of today, we feel that it is acceptable to manage the knowledge management system in this way instead of just letting it happen naturally.

The following are our knowledge management concerns:

- Reliability of information and knowledge for business
- Security of information and knowledge shared
- Systematic storage and fast retrieval of knowledge
- Reliability of servers
- Knowledge-sharing culture

On the servers we post not only technical knowledge but also monthly management performance reports and business performance reports, detailing how we achieved results as well as profitability and costs incurred for the month. So we are utilizing the infrastructure for other purposes as well.

Building Workplace Learning

With all the activities I have explained the learning atmosphere is very important. We have long emphasized training activities in the company, especially when we promoted Total Quality Management. At the same time, to become an innovative organization, we need people to learn by themselves, not just having us train them. They should be able to learn what they want to know according to the concept of learning called "constructionism." We integrated the concept of constructionism into the programs, through the so-called "Constructionism Learning Program."

The basic concept of constructionism is that people will learn what they like to learn. It is simple concept, but not familiar to everyone. Initially we had this program about five years ago on a pilot scale with a group of people at the operations level. Together with universities

and with other units of SCG, we organized a small class. Each class had 12 operators selected from various units, who were taken out of their work and placed into this class. They worked with facilitators—we do not call them teachers but facilitators. We first conducted basic training, after which the operators came up with their own projects and they started learning, searching for information from the Internet and books. These operators had basically closed their books after graduation over 10 years ago, books that were only in the Thai language. Now we asked them to open books that were on advanced topics and in English. Nevertheless, this group of people did very well because they wanted to learn and understand the topics. Over the past four to five years, about 60 people have passed the course and they are working in a much-improved manner.

We are now expanding this program to a larger scale because we have good seeds in place. We have people attend the program then go back to their units. We are now trying to organize what we call a “cell system,” whereby those people will try to spread what they learned into the small units in which they work. We are going to see the results of this in the next few years.

This kind of environment is an important thing to build together, while at the same time we try to capture and store the different knowledge. How we can encourage people to learn is a very important issue. We need to develop together and integrate what we have created into the business practice, which we call “horizontal learning.” In the past all the learning was very much focused within very small, closed units, but now we can share the knowledge horizontally and achieve higher value-added innovation.

Many new things might be developed and we plan to introduce a lot of new products into the market starting this year. Not only that, we can develop people to be good leaders. The atmosphere that we would like to have of being open-minded is there.

That ends my presentation about integrating knowledge management and learning for innovation in SCG. The work is not yet complete; it is ongoing and I think that we still have a long way to go. I hope that what we have done and what we have tried to share with all of you will benefit to some extent all of you here.

Thank you very much.



Knowledge Sharing Session Day 2

Resource Persons:

Mr. Rory Chase

Mr. Dirk Ramhorst

Mr. Chaovalit Ekabut

Moderator:

Ms. Pornpip Kanjananiyot

Question: **How do you measure value added, and how do you get the value?**

Rory Chase: There are actually many organizations which measure this very statistic both for clients and for the general public. One can actually look up for oneself much of this information from the public domain. For example, the UK Department of the Trade and Industry has for a number of years compiled value added statistics of the top 800 UK companies as well as the top 800 European companies.

Very simply, to get **value added**, take the annual sales of the company, subtract all of the input costs such as labor costs, equipment costs and research and development costs, and the result is a net value. In some cases there is a positive value and in some cases a negative value. That is the value added to the business. It is different from the market capitalization because that value is based upon the stock value. Value added is actually the wealth created or destroyed by the business, as measured in any given currency.

Besides the value added there is something that is called the **value added efficiency number** that shows whether the company has been creating or destroying value. As part of the MAKE program, we monitor the increase or decrease in the value added. We found a strong correlation between increasing the value of the business and improvements in rankings in the MAKE study, such as in the cases of Siemens and Nokia.

With regard to **brand value**, Interbrand of the United States uses a special formula which basically asks, if they were to sell a brand name such as Coca-Cola, Siemens, Nokia or Sony, what its worth would be in the open market. It considers all the patents, all the trademarks and the proprietary rights of a company. One can then track those companies from year to year, and see which are increasing brand values and which are decreasing.

In 1998, at the time of the Asian financial crisis, many companies suffered including Samsung and Sony. At that time, the Samsung Group said that they wanted to increase their brand values so that they would have a greater brand value than Sony. That was their goal. In 2001, Sony's brand ranking was 20, while Samsung's ranking was 43. In the subsequent five-year period, Sony dropped to number 26 while Samsung rose to number 20. This was achieved through strong advertising. Almost every large airport has a Samsung advertisement. Most sporting events have a Samsung logo, including the Olympics. They have actually created a business strategy to build their brand value so that it can be easily recognized, much like Siemens. One knows exactly how Siemens works, and that is the most wonderful thing about international brand values. The sales people and the marketing people do not have to knock on doors and explain what the company does. People know the company is respected, is a good company making good products, and that gives the marketing people an easier job.

Question: What is the driver of new products at Siemens? How is the innovation process maintained in such as a large company that could have a tendency to become bureaucratic?

Dirk Ramhorst: Let me answer the first question. There are two ways to manage innovation: the first is management by luck where one just explores something and the second is systematic development of innovation. The latter is definitely the one we are going for. One of the major drivers for Siemens' corporate innovation is global challenges. For example, cities have a tendency to crowd a lot of people from the countryside into a city area, resulting in all the associated challenges. For example, the sky train in Bangkok has been introduced by a Siemens team. It is not a train for the sake of having a train, but a train for public transport in order to serve transportation challenges in megacities.

Rory Chase: Many organizations believe that research and development and innovation are creative and are therefore very difficult to control, so whatever happens, happens. But certainly with Siemens, with Samsung Group, with 3M in the United States, they practice this as a very serious businesses management strategy. It is process-driven and very few things are left to chance or luck. It is actually a very strategic capability. Their objective is to get the highest rate of return when it comes to the development of new products and services.

Chaovalit Ekabut: We are less like a global company compared to Siemens but we had a similar case when previously we could not deliver so-called highly rated products such as the green and red paper and white card paper suitable for pocketbooks and magazines. The driver behind this move actually came from the business competition. Some kinds of paper are commodities and people combine papers from any suppliers in the world. We noticed that in Europe and America, they produce a pocketbook paper which is very light. But suitable raw material from Europe has to be used for that application which we do not have here. So we needed to innovate and come up with certain products that were different from the available paper in the market yet having similar characteristics to the paper in those areas. We then tried to develop it until we came close to something suitable for pocketbooks. Now the product is very popular and we can differentiate this product in the market. We can sell at a high price even though the production cost is similar. Some customers asked me why it is so expensive and I said it is because nobody else makes it. That is true; it is how innovation can help the business move away from what we called the "red ocean," a term from the book "Blue Ocean Strategy." Many companies that only compete on price will fail eventually, so if one can move to the "blue ocean," one will be much happier.

Dirk Ramhorst: I want to answer the second question about bureaucracy. When we talk about innovation, we definitely talk about time-to-market, where we make sure we are the first to market. Another goal is to be able to add to the price, because a systematic process is definitely something that costs money. What definitely works against bureaucracy is pressure from the market. If there is desire to be the first in the market, there is definitely no room for bureaucracy.

Question: How can we draw a distinction between information that we can share and information that we wish to keep highly confidential?

Dirk Ramhorst: Knowledge management does not mean making all information available to everybody. This is not only to ensure information security but also to reduce the amount of information that people have to manage. The security issue is just something that goes along with the individual document type.

Rory Chase: This is where IT comes into play because a screen can be set up that is visible only to authorized individuals, or various levels of access can be set up to prevent access by those individuals who do not need to see certain information. I know there are some

companies that do not allow their employees to see marketing information to a certain level, and employees can see only certain information in their own personnel files. I think only information that is sensitive to the business itself needs to be restricted because the more one engages the employees at all levels with as much information as is appropriate to their needs, the more prepared they are in the organization to create the knowledge-based products and services that the organization needs to compete.

Question: It appears that knowledge management is the domain of big business; is this true? How can we make it easy for small and medium-sized enterprises to follow? What are some practical guidelines for implementation by small and medium-sized enterprises? Can it be implemented without sophisticated tools?

Chaovalit Ekabut: The example I showed is not very sophisticated software. It is very simple. Even if one does not have this software, I think standard software available in the market such as Excel can be modified for use. We used to do that before we put another kind of system in place. So I think small and medium-sized enterprises can do it. The infrastructure is not the difficult part; the more difficult part is the people. How can people be motivated to share knowledge? How can the right leader, who has the passion to try to build the knowledge system for a small or medium-sized enterprise, be selected and motivated?

Dirk Ramhorst: Based on my personal experience, knowledge management is not based on the size of an organization. For a group of maybe 20 people that are working from two different locations or two different places in the same building, the need is for a systematic approach to sharing knowledge without physical meetings. If part of the group is in Bangkok and another part is in Shanghai, they need a coordinated exchange of experience in order to be successful. The challenge is the same for big or small business groups.

Rory Chase: From my point of view, once the size of an organization is so big that it is not possible to have face-to-face meetings with everyone, that is when knowledge management comes into play in the ways we talked about for larger organizations. In a sense, the very small organizations have the culture, they have the leadership. The issues for small organizations I believe are less communication issues or department issues but actually more about creating relationships: working relationships, relationships with customers and those important relationships that allow a small or medium-sized enterprise to differentiate itself. For example, the medium-sized companies in Germany are some of the greatest companies in the world. They have generations of expertise in particular areas of manufacturing, whether it is automotive manufacturing, textile, electronics or so on. It is generations upon generations of knowledge build-up that creates the craftsmanship of the companies. Even when those companies face generational changes or competition from outside, they are able to reinforce their customers, their products and their services.

Question: What is the conceptual linkage of knowledge management to productivity?

Rory Chase: If one thinks in terms of knowledge processes, there are always steps which add value to the process or in some cases add no value to the process. I think one of the strengths of knowledge management is that it allows individuals or organizations to see those non-value-adding steps. If these steps can be eliminated then time is saved, efficiency is improved, effectiveness is improved and resources can be released for other projects. It is very much a way to look at processes and to improve or link processes in a way that makes them more effective to the business.

Dirk Ramhorst: Take a call center agent as an example. The agent will be able to handle more calls if the knowledge management system enables him or her to find answers much faster. Then there is definitely an increase of efficiency in the process.

Chaovalit Ekabut: I agree with the two gentlemen. In addition to that, through knowledge management once knowledge is in place the number of times that something has to be retried is reduced. Existing knowledge can be built upon to reach a high level of productivity very quickly.

Question: What kind of organizational structure could provide the most effective results—embedded into formal organizational structure, having specific personnel assigned full-time, committee work or anything else?

Chaovalit Ekabut: I think the question is trying to address whether it is necessary to hire full-time staff when building a knowledge management system. In our experience at SCG, we have different kinds of companies and businesses. Each kind of company has a different definition of success in terms of the knowledge management system. When we sent our people out to learn from successful companies like Siemens and Samsung we could see how they organized their companies, but the most important difference between them and us is the people. The people are the key factor determining whether knowledge management is successful or not. So I think the question is not whether the organization should assign especially dedicated personnel or should embed knowledge management into their day-to-day operations. The question is how to help people adjust into the learning environment so that they will be willing to share and capture knowledge together. In reality if the organization is large then a few people will be needed to work full time. Certain people need to be hired for technical website administration. A lot of people are needed who are already working in their functions and who have knowledge in the field to contribute, but one cannot simply pull them out of work and have them maintain the knowledge system. From our experience in SCG, we say that there is no single best style of organization to be effective in knowledge management. Each company has to find the best way for itself.

Question: Does that mean knowledge management still depends on the culture of the people?

Rory Chase: I will answer the question differently. The ultimate goal is for each worker to be responsible for their knowledge activity. What we found in our MAKE studies is that most organizations start with a core knowledge management team. Even in a large company, three, four or five people make up the knowledge management team. They act as the coordinators and facilitators, and sometimes they assist in the early stages of the training. It is very important that early on there is a visible group of individuals that people can refer to, that they can see working with the knowledge management strategy. Typically after maybe five to seven years many companies disband their knowledge management team because they say that they have distributed the functions to the line of business leaders, to the traditional leaders, and now it is their responsibility. The interesting thing from what we observed is that often when the core knowledge management team is dissolved the company loses focus. They say that as the company has disbanded the team and spread it around the business, knowledge management is no longer important. It is a perception but it is very true. Often we actually see companies' scores go down after the knowledge management team has been disbanded. What I suggest to an organization is that while they do not have to have a knowledge management team forever, there is a need for someone at a senior level, perhaps from the strategy department, the innovation department or associated with the president's office, who still has the knowledge management title. Then the business unit leaders, the line leaders and the workers say that knowledge management is important as there is someone there who is looking after the interest of knowledge management activities.

Question: Knowledge is power, so employees are reluctant to share their tacit knowledge with other employees. What other measures have you taken to encourage your employees to share their knowledge with other fellow employees?

Dirk Ramhorst: Siemens conducts a kind of staff dialogue once or twice a year and part of that is a 360-degree assessment to find out how individuals have performed in knowledge sharing with their bosses, colleagues and team members. This is something that can be measured. It is based on feedback. The individuals' colleagues are saying that the individual has performed knowledge management well. It is not how many documents they have uploaded or how many downloads they have made because they can make a routine of this and maybe get to the year's top 10. Staff feedback shows more of the value to colleagues that has been sustained or created.

Chaovalit Ekabut: In our case, in the Thai context, people do not want to share knowledge, not only because they feel they want to keep power; I think this is probably less of the reason. They do not want to share knowledge because they are shy about the fact that they know something. This is somewhat related to our culture. Secondly, they do not know how to share; they have no experience of sharing. The way we are taught in school does not make us very good at writing reports. We are not well trained to summarize daily activities in simple reports. I used to work with some Japanese people, who are on average very good at writing, and some of them write reports, but we are not accustomed to that. Taking these factors into account, Thai people are probably not considering the power of knowledge so much as feeling uncomfortable about sharing knowledge. It is our duty to try to promote an atmosphere and an environment in which they can be freer to share what they have learned. We have found that community practices in which they try to help to organize are very helpful. We have found that people who might not be good at writing can still talk, and so they can provide their knowledge which others can better summarize. So I think this may help as well.

Question: In order to be successful, should the organization use a top-down, bottom-up or mixed approach?

Dirk Ramhorst: At Siemens we use a bottom-up initiative that meets the top-down strategy. Both kinds of initiatives take place. From the top comes the strategic relationship between knowledge and innovation, and the understanding of management. At the bottom are the teams that experience problems. Problems need to be addressed at the workflow level. But a lack of resources must certainly be met with the top-down approach. From the top a budget and a sponsor is required. The approach must therefore come from both sides. The mixed approach from both sides is, in my understanding, the best option.

Rory Chase: In my experience it is very difficult to launch a knowledge management strategy at a very low level. If a small group says that they want knowledge sharing, but the organizational culture and history of the group is not one of sharing, then they will not be able to convince the organization as a whole. There are a few examples of companies where knowledge management started at the divisional level or the company level and then became so good that they came to the attention of the rest of the company. It is almost leading by example, by showing the sharing and exchange of best practice. Often, knowledge management starts because a company is in crisis: it loses market share or it has new competitors. The company leadership is forced to think that they need to do things differently to how they were done in the past. This is true with many older manufacturing companies as businesses shift to Asia and as new products come along. It comes as a crisis, and as we know, crisis and opportunity go together. In many cases companies may want to change, but they lack the reasons to change. When facing a crisis such as downsizing or losing market share, it brings out an ability to concentrate. Facing a crisis, companies will often use knowledge management, and it becomes both a top-down and a bottom-up approach. However, if the thinking is only focused on a department or a small group in a business, it is very difficult to engage much further than that. A critical mass is required.

Chaovalit Ekabut: May I elaborate a little bit more on the approach that we are using. On the question of “top-down,” I would like to make the qualification that what we did was to initiate and emphasize the importance of knowledge management to our people, who then helped organize and manage the process. However, we could not simply give the order to our staff that knowledge management should be completely set up in their department within six months; that is not the way we work. Having initiated and communicated knowledge management to them and having helped to organize the process, we then applied the top-down approach if that was appropriate. But the most important issue is that we need to manage attention to the process. We cannot let people do whatever they are used to doing, especially in the beginning. There are lots of questions and unknown areas that we have to face, and we have to step in and help. For example, in the 11 modules that I explained, some modules made good progress while some modules did not. So the leader may have to step in and ask what is going on and why the process cannot be progressed. However, there is no penalty applied. We try to understand what they need and we have to support them further. They will need to exchange ideas with the other groups or they will need more resources, so those are things that we would like to help them with.

Question: How do we maximize enterprise intellectual capital?

Rory Chase: A company able to do that will be a world-leading company. Most organizations still have difficulty understanding what intellectual capital is. There are some models available such as the Skandia navigator model and models created by some individual researchers. There are the concepts of structural capital, customer capital and human capital, but until one has a good definition of what they are or how to measure their growth or decline they are difficult to manage. I think at the moment the best examples are the companies that are managing their patent portfolio, because there they can actually say that they have a certain number of patents under filing and are earning a certain amount of money based on those patents, so they can manage that. Alternatively, a company can look at the number of products that they created over the previous three years, and the percentage of the company’s total income that comes from these new products. It is very specific to the individual company. In a traditional manufacturing company a lot of the capital is going to be in the processes, in the way that business is conducted, or how the company works with its customers and suppliers. In a consulting or professional services company the intellectual capital is mostly in the workers’ heads, so one has to know how to keep turnover low and how to extract workers’ tacit knowledge and put it into some sort of codified enterprise knowledge. Companies like McKinsey are very good at taking individual consultants’ knowledge and putting it into templates. They build templates, for example, on how to win contracts more frequently. They have lots of templates available so that when they go and talk to their customers they have already done a lot of their homework. They know the industry; they know the type of competitors; they know the issues being faced. They built these up year on year; it is almost like a corporate memory that is going back generations of workers. That is the advantage many companies have; they have this great corporate memory that sits behind their workers so that they will not start from scratch each time they meet a new customer or when they are thinking about a new product.

Question: Please provide your own perspective on learning organization versus knowledge management.

Dirk Ramhorst: I think there is no difference. I am working on a project-based environment where the learning by an individual consultant is part of the day-to-day operation. It is what we have to capture within our knowledge management process. Learning also means one has to be up to date with what products one is going to sell, one is up to date with trends and technology developments, one is focused on customers and so on. Maybe learning organization is for the individual, and knowledge management is for the organization, but in theory they should go hand-in-hand in order to be successful.

Question: As a follow-up to this conference, what activities do you think our knowledge management organizers can do next in order to encourage others?

Dirk Ramhorst: Those people who showed interest in knowledge management can go back to their home countries and to their own organizations and try to apply some of the things that they have learned. They can discuss and get feedback on information that is missing. Then, if the APO provides a platform there can be a continuous exchange of experiences among people while applying these things.

Rory Chase: There are two things that I would suggest. One is that there is no right way or wrong way to approach knowledge management. One actually has to have a knowledge management strategy that works for one's particular business. So if one is at the stage of thinking about implementing a knowledge management strategy, one has to think about it in the context of one's own business, one's own products and services. Secondly, too often I see organizations wanting to start knowledge management and they do not think clearly through the planning stage. This is a major activity which deserves all the planning that is needed to launch a new product. There needs to be branding activity, communication activity, awareness activity and training activity. So be sure to provide the time and the resources needed to ensure that the activity is successful. Think about it as a large-scale implementation project.

Chaovalit Ekabut: I agree with Dirk that the benefit from this conference is that one gains friends; one has people willing to share. People have different experiences—good ones and not so good ones—and these are the things that people can learn from their colleagues. Keep this networking alive. Try to learn how to share, especially if you will put a lot of effort into the system. I think the planning stage is very critical, and in the preparation, try to learn from others. We know a lot in our business but we may not know enough about how to use that knowledge in useful ways, so I ask people to please open their minds and learn from others.

Question: What emerging developments in knowledge management should we capture?

Rory Chase: What I found in our research is that many Western companies were built on legacy IT systems. A lot of effort was put into codified knowledge; individuals spent a great deal of time collecting best practices and other knowledge, and putting them into the systems for the information to be extracted. That was done partly because my generation was the first to use computers, and we wanted to have an intermediary there to help us such as a librarian or documentation person. We wanted structured information with assistance built in. So some companies' web pages and knowledge portals today have libraries, tools and similar things. But young children using computers today do not think that way any more; they think of social networks such as MySpace. They are more likely to talk to friends to get an answer than they are to use a codified system. Before going down the route of codified systems, which can cost a great deal of money to both create and maintain, I would suggest watching how younger people are now using computer technology. Perhaps one actually wants to create knowledge management systems around how the next generation will work. People like me are nearing retirement age, and one does not want to build a system for my generation; one wants to build systems for young workers and how they are going to use computers.

Dirk Ramhorst: The key phrase is "social network." Even in university, it is more and more important for one to show that one has done something for the team. This team orientation is a key driver in knowledge management. It is a key to successfully facilitating informal or formal networks. I feel that this opening of company internal networks into cross-industry networks is already the next step, because for example in many areas Siemens works

together with competitors to move to the next level of innovation. Once one has partners then knowledge sharing is also involved as part of the partner processes.

Chaovalit Ekabut: There are lots of technology changes that we need to follow, but I like the idea that it may be better to follow the pattern of our children: what they are doing, what they like and what they do not like, and in that way we can see the future trends. I like the idea.

(End of session)

BIOGRAPHIES OF RESOURCE PERSONS

Professor Ikujiro NONAKA

Professor Emeritus
Hitotsubashi University ICS

Ikujiro Nonaka is Professor Emeritus, Hitotsubashi University Graduate School of International Corporate Strategy, and also Xerox Distinguished Faculty Scholar, University of California, Berkeley, and First Distinguished Drucker Scholar in Residence at the Drucker School and Institute, Claremont Graduate University. He received his B.A. (Political Science) from Waseda University, M.B.A. and Ph.D. (Business Administration) from the University of California, Berkeley.

Professor Nonaka had been Professor at the Institute of Business Research, Hitotsubashi University (1982-1995,) and Director at the Institute of Business Research, Hitotsubashi University (1995-1998.) He has also been Professor at Japan Advanced Institute of Science and Technology (JAIST) and became the Dean of the School of Knowledge Science in 1997 at JAIST. His academic career also includes Professor at the Faculty of Management, Nanzan University (1977-1979,) and Professor at the Faculty of Social Science, National Defense Academy (1979-1982.)

His main research interest is to build a new theory of organizational knowledge creation. He has been conducting comparative research on knowledge-creating processes in companies around the world. He has also been conducting research on the characteristics of strategic and innovative activities in Japanese companies.

He has published many books and contributed many articles to management journals and newspapers both in Japanese and in English such as *The Essence of Strategy*, Nihon Keizai Shimbun-sha, 2005 (with co-authors); *Hitotsubashi on Knowledge Management*, John Wiley & Sons, 2004 (with co-authors); *The Essence of Innovation*, Nikkei BP-sha, 2004 (with co-authors); *The Knowledge-Creating Company*, Oxford University Press, 1995 (with H. Takeuchi); *Enabling Knowledge Creation: How to Unlock the Mystery of Tacit Knowledge and Release the Power of Innovation*, Oxford University Press, 2000 (with co-authors); *Strategic vs. Evolutionary Management: A U.S.-Japan Comparison of Strategy and Organization*, Amsterdam: North-Holland, 1985 (with co-authors.)

In spring 2002, Professor Nonaka received double honors: (1) he was conferred with a Purple Ribbon Medal by the Japanese government, and (2) he was elected a member of the Fellows Group of the Academy of Management in the United States (he is the first Asian scholar among the members.)

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Ms. Martha SENG

Knowledge Transfer Manager
Buckman Laboratories (Asia) Pte Ltd., Singapore

Martha Seng has been an associate of Buckman Laboratories Asia since April 1992. Her responsibilities over the years have included Administrative Director and Knowledge Transfer Manager. In her role as Knowledge Transfer Manager, Martha has focused on knowledge transfer support and training, product rollouts, and facilitating a knowledge-sharing environment and culture in Buckman Asia. The local Knowledge Transfer Department has been very instrumental in getting the Asian workforce to integrate effectively into the global

knowledge-sharing network, helping its associates embrace knowledge sharing and teamwork as a way of life in Buckman Laboratories for continued progress, innovation and competitive advantage for success in the global arena.

Martha's role includes working with management, sales teams and support divisions to create value added for the company's intranet, and managing the Asian community portion of the global portal to realize proactive team collaboration and knowledge sharing with the extended Buckman family. By drawing on her experience championing knowledge sharing in Buckman Asia, she continues to facilitate communication and building of trust among associates, motivating their participation in the forums and coaching the effective use of the global knowledge base.

Martha has presented the Buckman story at conferences in Singapore, China, Taiwan, Malaysia, India, Australia and Korea.

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Mr. T.S. RANGARAJAN

Head RFID Solutions and Principal Consultant
Tata Group, India

T.S. Rangarajan (Ranga) heads the RFID Solutions practice at Tata Consultancy Services Ltd. (TCS) (<http://www.tcs.com/rfid>), the largest software services company in India. Ranga has been with TCS Ltd. for the past 18 years. Prior to taking up his current assignment he was the Retail Practice Head of TCS based in New York. He has worked on a large number of consulting engagements spanning manufacturing and service sectors. Ranga is a Certified Management Consultant (CMC) and a Fellow of the Institute of Management Consultants of India. Ranga has been a member of IEEE (Institute of Electrical and Electronics Engineers, United States) for 18 years and is currently the Vice Chair of IEEE Madras Section.

Ranga has been closely associated with knowledge management both as a user of knowledge management tools and practices at TCS and as a consultant advising clients on knowledge management worldwide through his consulting engagements for over a decade.

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Mr. Rory L. CHASE

Managing Director
Teleos, United Kingdom

Rory L. Chase, Managing Director of Teleos, is an international consultant, author and researcher in the development and implementation of knowledge management and intellectual capital strategies and approaches. He is active in both formal and informal knowledge networks. Teleos is an independent research firm specializing in knowledge management and intellectual capital management.

Teleos conducts the internationally recognized Most Admired Knowledge Enterprises (MAKE™) research program. MAKE is an established benchmark for the identification of organizations which are leaders in the knowledge economy. Global, Asian, European, Japanese and North American MAKE studies are conducted annually.

In 1999, Teleos founded the KNOW Network, a web-based community of leading knowledge-based organizations dedicated to networking, benchmarking and sharing best knowledge practices leading to superior enterprise performance. Over one-half of the 2006 Global MAKE winners are members of the KNOW Network.

Rory Chase is Editor of the *Journal of Knowledge Management* and the *Journal of Intellectual Capital*. In 2001 he received the Outstanding Editor of the Year award from Emerald Publishing Group for his contributions to these journals.

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Mr. Atsushi NIIMI

Senior Managing Director
Toyota Motor Corporation

Responsibilities:

Strategic Production Planning Group (Chief Officer)
Manufacturing Group (Chief Officer)
TQM Promotion Division

Atsushi Niimi joined Toyota in 1971 upon earning a degree in aeronautical engineering from Nagoya University. He has fulfilled various responsibilities; however, production engineering has been a consistent theme in his career at Toyota.

In 1995, Mr. Niimi became the general manager of a production management team responsible for putting new models into production. He became the general manager of Toyota's Production Control Division in 1997. Two years later, Mr. Niimi moved to the Production Engineering Management Division as a general manager. In all of these capacities, he always exemplified the Toyota tradition of commitment to optimizing the flow of activity in the manufacturing workplace. In June 2000, he was made a director, a title that was changed to managing officer in June 2003. He was also the President of Toyota Motor Manufacturing North America, Inc. (TMMNA) from June 2002 to June 2005. He was made a senior managing director in June 2004.

Mr. Niimi was born in 1947, in Aichi Prefecture, where much of Toyota's history began. He spent 10 of his boyhood years growing up in Miyazaki Prefecture. His favorite pastimes away from the workplace include golf, swimming and driving. The Niimis have two sons.

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Mr. Dirk RAMHORST

Siemens IT Solutions and Services, Germany

Dirk Ramhorst is Senior Manager at Siemens IT Solutions and Services currently based in Germany. He is Program Director and head of Vertical Practice Management.

Until March 2005 he was Managing Director of the Professional Service Business of Siemens Business Services in Scandinavia and from 1999 to 2004 Siemens Business Services Chief Knowledge Officer and head of the project management founding a global initiative called "KnowledgeMotion."

In addition, Dirk Ramhorst was one of the founding partners of the Siemens Corporate Knowledge Management Initiative.

His main research interest has been the integration of knowledge management concepts into daily operations. In particular, the concepts of the management of knowledge in projects and the virtualization of an organization based on the concepts of community of practice have been his focus areas.

Dirk holds a diploma degree in Business Administration (Controlling and Innovation Management) from the University of Kiel in Germany. Based on his research he has worked with many universities around the world. His research base is the Technical University of Berlin.

He has published a couple of his speeches and articles about communities of practices, the Siemens Knowledge Management story and knowledge management within projects/project management. Currently more than 150 hits/publications (e.g., presentations, white papers/articles and interviews) are accessible on the Internet.

In 2002 Dirk and his teams won an award for the most successful knowledge management implementation provided by a group of business analysts and US IT magazines in the United States.

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Mr. Chaovalit EKABUT

President

Paper Business of Siam Cement Group
(SCG Paper,) Thailand

Mr. Chaovalit Ekabut, 48, is President of the Siam Pulp and Paper Public Co., Ltd. which is the holding company for the Paper and Packaging business of Siam Cement Group (SCG.) He received his Bachelor of Mechanical Engineering (First-Class Honors) from Chulalongkorn University in 1980 and a Master of Industrial Engineering and Management from Asian Institute of Technology in 1982.

In the same year, he was a productive team player at SCG as Analyst of Computer Services Center. He was then gradually promoted, to become Managing Director, Thai CRT Co., Ltd. and Thai CRT Display Technology Co., Ltd. by January 1999.

In November 2002, he became Managing Director of Thai Paper Co., Ltd., Thai Union Paper Co., Ltd. and Siam Cellulose Co., Ltd. He also strengthened his management skill by attending the Advanced Management Program at Harvard University, United States, followed by the Directors Accreditation Program, Thai Institute of Directors Association.

In 2003, he put a strategic emphasis on the Total Quality Management plan, which led Thai Paper Co., Ltd. to win the prestigious Deming Prize and the Thailand Quality Award.

In July 2004, he was appointed to be Executive Vice President, The Siam Pulp and Paper Public Co., Ltd. He is a new-generation executive with versatile experiences in business management and administration.

From November 2005 to the present, he has been the President of the Siam Pulp and Paper Public Co., Ltd. and also Chairman of Pulp and Paper Industry Club, the Federation of Thai Industries.

He is also Chairman of the Knowledge Management Committee of SCG and he strongly promotes the concepts and practices of learning organization by setting up the Constructionism Learning Program (CLP) where employees are encouraged to learn and to share their knowledge with others.

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Moderators



Mr. Prasit TANSUVAN

Former FTPI Executive Director, Thailand

After retirement in 2001, Mr. Prasit Tansuvan has been serving a number of non-profit and business organizations in the capacity of either board member or advisor. Prior to retirement he had worked for several well-respected organizations, including Esso Standard Thailand Ltd. (1961-1963 and 1967-1983,) International Labor Organization (1963-1964,) IBM Thailand Ltd. (1964-1967,) the Siam Cement Group (1983-1997,) and Thailand Productivity Institute (1995-2001) in which he acted as its first Executive Director.

In his employment spanning over 40 years, Prasit considers himself extremely fortunate to have had opportunities to be rotated or move on his own to a variety of professional and managerial positions covering sales, research, (system) engineering, public relations, human resource management, quality management and others. However, he has developed himself to be well versed in two areas in particular, namely, "human resource management" and "quality of management."

In his working career, the contributions of which he is most proud include the following:

- He was one of the members who were instrumental in introducing and implementing Total Quality Management in the Siam Cement Group in 1992
- He was one of the members who helped establish the Thailand Productivity Institute in 1995
- He was one of the members who helped establish the Thailand Quality Award Program for Thailand in 2000

In the course of his work career as well as currently, Prasit has been active in participating in civic activities, especially in sharing his knowledge and skills with others in business and non-business circles alike.

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Ms. Porntip KANJANANIYOT

Executive Director

Thailand-U.S. Educational Foundation (Fulbright)

Ms. Porntip Kanjananiyot has worked as Executive Director of the Thailand-United States Educational Foundation since October 2003. Before that, she was a director of the International Cooperation Strategy Bureau and Higher Education Standards Bureau, Commission on Higher Education (formerly known as Ministry of University Affairs.) Throughout her career, she has worked in several ministries, including Education, the Prime Minister's Office (Office of the National Education Commission) and University Affairs.

She also serves as an assessor, since the inception of the Thailand Quality Award in 2002 (modeled after the Malcolm Baldrige National Quality Award of the United States,) and an external assessor for higher education institutions of the Office of the National Education Standards and Quality Assessment.

She received her Bachelor's Degree with Honors in Education from Chulalongkorn University and holds two master's degrees from Columbia University (New York,) one in International Education Development and one in Educational Administration.

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Conference Rapporteur-Editor:

Dr. Serafin D. Talisayon
Professor
University of the Philippines

Dr. Talisayon teaches Knowledge Management, Innovative Processes and Information Technology and Organizational Change at the University of the Philippines. He wrote a book entitled *99 Paradigm Shifts for Survival in the Knowledge Economy: a Knowledge Management Reader*.

He is a co-founder and Chairman of the Knowledge Management Association of the Philippines, and Vice-Chairman of the Society of Knowledge Management Practitioners of the Philippines.

In 1999, he co-founded a non-profit, non-government organization, CCLFI.Philippines, which has become a leading knowledge management service provider in the Philippines. Among its clients are the UN Development Programme, Shell Malampaya MMT, PNOC Energy Development Corporation, United Laboratories, Asian Development Bank, AusAID PAHRDF, Baganuur JSC in Mongolia and the World Health Organization. CCLFI.Philippines offers on-line mentoring courses in knowledge management through its kMentor website.

Dr. Talisayon has been appointed Chief Expert by the Asian Productivity Organization, to lead its project on survey of knowledge management experiences and good practices in nine selected APO member-countries. He has served as knowledge management consultant for the World Bank, House of Representatives of the Republic of the Philippines, Asian Development Bank, CIDA, WHO Western Pacific Regional Office and the NPO of the Philippines, and the Development Academy of the Philippines.



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