New Perspectives on Productivity in the Knowledge Economy

ASIAN PRODUCTIVITY ORGANIZATION

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FOREWORD

Continuous technological innovations have been leading us to new economic horizons, where the productivity of knowledge work determines the competitiveness of individuals, organizations, cities, and even nations. The APO region is no exception; we are observing far more demand for increasing the productivity of knowledge work than ever before. However, it has not yet been fully clarified how knowledge productivity could best be measured, managed, and improved. Unlike traditional resources such as money, labor, and land that are tangible and measurable, knowledge, which is now the most significant resource for productivity gains, is intangible and hard to measure, if not impossible. This is why the APO is expanding its research on knowledge productivity.

I am pleased to introduce the record of the APO-National Graduate Institute for Policy Studies (GRIPS) Special Joint Forum where two world-renowned thinkers, Dr. Laurence Prusak and Prof. Ikujiro Nonaka, shared their thought-provoking ideas on productivity in the knowledge economy. The forum was held on 27 May 2015 at GRIPS in Tokyo, Japan. Dr. Prusak addressed the unique nature of knowledge as a resource and gave practical insights on how we could better manage such intangible assets. Prof. Nonaka, father of the organizational knowledge creation theory, shared his recent thoughts on how leadership based on *phronesis*, or practical wisdom, could facilitate knowledge creation and encourage innovation.

This publication maintains the original colloquial style of their lively presentations and dialogue. I hope that readers will rely on this publication as a compass for their voyages into the knowledge era.

Mari Amano
APO Secretary-General
Tokyo
April 2016

NEW PRINCIPLES OF PRODUCTIVITY IN THE KNOWLEDGE ECONOMY

Dr. Laurence Prusak

PART 1

Good morning. Thank you very much for coming on this hot, hot morning. Thanks for letting me speak in English; I'm too old and probably not smart enough to learn Japanese. I think it's a beautiful language, so you'll just have to put up with English. Also, I'll try to speak slowly. I tend to speak very quickly because I'm from New York City. People talk fast there. So, I'll talk about this. I don't use PowerPoint; no PowerPoint.

Knowledge has always been a great part of productivity. It's not just the 21st century. Certainly, if you look back in history, a country like Holland became the wealthiest country in the world in the 17th century, number one. And they had no natural resources. It's a small country and they didn't have many people, but they had knowledge, they had know-how. Same thing in England. In fact, I recently read a study, which I really found fascinating, and I don't quite know what to make of it, though. The five countries, or regions, that had the highest rate of literacy in the year 1500, are today five of the richest countries in the world, and that includes Japan. So it shows you the relationship between intangibles, like literacy, which allows you to use knowledge, and the growth of wealth and productivity. I'd like to talk a little about some of these things and then give you some concrete examples and maybe some suggestions on how to make knowledge more productive within your organization. It's a fascinating subject, and it's a subject that's not threatened by economics.

Economists really tend to only like to talk about what they can count. If they can't measure something, they feel it's not significant or they can't make a contribution, but all the great advances in the world did not come from counting, they came from imagination. Most of the great advances in productivity through science, through

imagination, through new ways of organizing, have very little to do with things you can measure or count. So people go to universities, they take classes in economics, they take classes in business schools. I've taught at many of these schools; other people here have too. And knowledge, however you'd like to define knowledge, is not mentioned because it can't be easily measured, and people don't like dealing with it because they can't buy it. They can't see the immediate value, but it's made the world go round since the beginning of human endeavour. It's really the most important thing, however you care to define it, that differentiates us from other forms of animal life.

Let's talk a little about this. How did this happen? First off, it might be a good idea to mention what we're talking about when we talk about knowledge. This is a subject that my dear friend, Professor Nonaka, has really made great contributions to. We're not necessarily talking about information or data. We're talking about, probably the best word I try to use now is, know-how: the ability to do things based on practice and participation. Know-how. Some of it can be codified. Some of it you can write down. A good chunk of it, you can't write down. You know how to do it, maybe you can give some ideas, but much of it is either undocumentable or it's so difficult to document it.

I had a very interesting experience about this recently. I live in Boston, and there are a lot of Irish people in Boston. A group of professors from Ireland came to Boston and they said "Would you come and talk to us about knowledge and these sorts of things?" So we were talking about know-how and what people know, and one man gave a great example of this. He told me his brother was a world famous horse trainer in Ireland. He trains horses for jumping. The Irish love horses, they really like this a lot. So he does this and his brother's famous in Ireland. He got a contract to write a book: how do you train these horses? And this man is a

university graduate, he's literate. He took the money to write the book. He couldn't do it. He couldn't write anything but what we'd call banalities, clichés, something everybody knew. He couldn't say specifically what made him a different horse trainer than another man.

That's a perfect example. We talk about know-how, and societies have this know-how. It's a social phenomenon. So when we're talking about knowledge, generally I, at least, talk more about these capabilities and capacities, based on people's accretion of know-how. Japan's a wonderful example to talk about these subjects. I like coming here because this country's a whole country based on this. It's a good country to talk about know-how, and knowledge, and the understanding of it. The problem with this is that it's very hard to measure it. So when something can't be measured, government people, economists, business schools, they tend to either say it's the same thing as information or they just don't talk about it very much. And because of that, it's not taught in the schools. There is not much in the textbooks.

Last month I was talking with a group of people. I was in New York City and I went to one of the last book stores in New York City. Book stores are disappearing in New York City. You still have some in Tokyo, luckily. And I, as an experiment, this bookstore was near a big university, Columbia University, I looked up eight major textbooks on economics. In the index, none of them had "knowledge." Here are books that teach people economics. They then do policy work, they work in business schools, they teach others and there's no reference to knowledge. How could you talk about value, how could you talk about productivity, without mentioning what people know how to do? But try it. Try it in Japan. See if you see the word knowledge in the textbooks. It's a remarkable phenomenon. What happened, I'll give you a brief...

What happened is that, the economists who are a little more imaginative, began to talk about, well, we've always measured land, labor, and capital as what they called the factors of production; land being all natural resources, labor being mostly physical labor, and capital being mostly financial capital. And a man, who lives just a mile away from me, Robert Solow, won a Nobel Prize because he began to say, "There must be something else in making countries and organizations productive, more than land, labor, and capital." And he called this the residual, what's left over when you measure land, labor, and capital, there's something else. He called it a residual. He got the Nobel Prize for doing that. It doesn't seem like that big of an achievement, but he's a very smart guy. After that, a man named Paul Romer, another economist who will win the Nobel Prize one of these years, began to talk about that residual as mainly ideas coming from knowledge.

Slowly, you begin to see the economics of ideas, which is a type of concentrated form of knowledge that's documented. You begin to see it edge into our thinking. One of the problems with knowledge, though, when we talk about it, is that those other things, land, labor, and capital, are independent of context. So if I have a bar of gold and I give it to you, it doesn't matter what country you're in, more or less, the gold is still valuable. Physical labor is the same wherever you go, and so are most resources. Knowledge, and the growth of knowledge, is profoundly social and profoundly contextual. It's different in different places and it needs certain characteristics to thrive, to become productive. When I mentioned Holland and England in the 17th century, what made them wealthy? What made them productive? They were small countries and they had far less money than Spain, which had all the gold they took from Latin America. So when we try to look: well, what made them so wealthy? What made them so productive?

One was for better, for reasons that we don't have the time to go into here. One, they were intellectually tolerant, more than other societies. The Dutch, for example, took in the Jews who were thrown out of Spain. They took in Protestants. They took in all sorts of people because they knew they could help make the country wealthy. England did something similar, became a more liberal society. They founded the Royal Society to study science in 1660. Sir Isaac Newton said these societies were more tolerant. One of the great hallmarks, if you want to have a productive knowledge environment, is toleration. They did not think there was one answer. They did not have one book that gave the answers to all the problems. It was a pluralistic society. See, knowledge really is dependent on those social values like pluralism, for one.

Two, there was open intellectual debate, conflict. You get new knowledge by old forms of knowledge clashing, discussion. There's no other way to do it. You can't just sit in a room and say I'm going to have a brilliant thought. When I was younger, my father, his great hero, one of his great heroes, was Albert Einstein, the world famous physicist, and he told me, when I was about 12 (Einstein died when I was about 12), and he told me that this man sat in a room in Switzerland, all by himself, and wrote five equations that completely changed the nature of physics. A tremendous intellectual achievement. Well, most of that statement was true, but one part of it was not true at all. Einstein knew everybody in physics. He no more did that alone, than building this building, if one man built this building. He knew everyone. His correspondence fills volume and volume and volume of all the other physicists. And they argued, and they discussed things and they would drink coffee in the cafés in Switzerland and argue. That's the way knowledge is developed: argumentation and intellectual atmosphere, toleration of different views. And you can find that throughout. There are exceptions to this here and there, but it's generally, you see, knowledge is dependent on that sort of environment. But it's very hard to measure that.

Economists don't like doing that because they think that's the job of sociologists. The sociologists don't like doing that because they think it's the job of economists, so it's left to people like us to do this sort of work. People don't like talking about these things but they are the key. You don't have knowledge just out of the blue. It doesn't just fall down from heaven. You have to have the right sort of society. So it's really a tricky type of thing.

PART 2

Knowledge has very different characteristics than the other forms of wealth. It's a different thing than the other forms. For example, if I give you some money, I no longer have the money. If I give you some land that I own, I no longer have the land. But if I share my knowledge with you, as I'm doing in this room, do I lose the knowledge? Not at all. I gain it. Having discussions, coming to Japan, talking to people, I gain the knowledge. This is a completely different model of how knowledge is used, than the other forms of wealth. It's a different attribute. And because of that, as we were talking earlier, we don't have exact models yet of how to do that, how to keep the wealth of knowledge inside. How do you reward people? We're still working. This is a new subject. It's a new set; in our lifetime it's occurred. So we don't know everything about it, but certainly when you use it, you gain rather than lose.

Another reason knowledge is a very different attribute, I mentioned this earlier, but I want to reinforce it is that knowledge is profoundly social. It doesn't matter so much what an individual knows. It matters what a network knows, what a community knows, what a country, it's an aggregate social thing, knows. One of the great philosophers of the 20th century, Wittgenstein, a German, an Austrian actually, said that there's no such thing as individual knowledge. There's

only individual memory. But the very categories we think in, the very forms of our thinking, is socially constructed. I may remember my grandparents, many of you remember your grandparents, and they're different people. But the concept of a grandparent is a socially constructed thing. So knowledge is different; it's social. Land, labor, and capital are not. You have a lot of money, it's yours. You have land, it's yours. You have financial capital, you keep it. Maybe you share it, but it's very different than knowledge.

Another way knowledge is a different thing, when you're coming to talk about productivity, is it's damned hard to measure. This is a subject that we can talk about all day but … generally, for most organizations and countries, knowledge is an intermediate good. You use it to do something else. I was introduced, coming in here with a friend, to the man from Toyota, sitting over there. And Toyota does not sell knowledge, it sells cars, very good cars, but they don't make those cars without deep, rich know-how. The same with many of the organizations, any organization. It's an intermediate good and people don't bother measuring it. They can't measure it, but they know they can't make stuff without having knowledge in it. And what people do as default, is human capital ideas. Well this person has a degree, that person has this degree. That's human capital stuff; it's okay but it doesn't get at the social nature of knowledge. We're better off talking about dynamic capabilities, or networks, or communities. And that's yet to happen in terms of measurement.

Where is knowledge an end product? Universities. Universities produce knowledge, they can measure it in books and articles, in conference talks. So universities have been doing this … there's a great debate going on, throughout the world, on what was the first university? When I was young, I was taught the first university was in Italy: Bologna, or Sienna. Then I got a little older and I went to Korea and the Koreans said, no, we had the first. Then I was in India, recently, and I was told Nalanda University, the Buddhist university

up in Northern India, was the first. So who knows what the first was? But ever since we've had universities, they've produced knowledge. So they can do it. Government agencies, you might say, produce knowledge. OECD organizations, we talk about APO, but generally, large organizations are not in the knowledge business, they are in the business of what they can produce and sell, and it's hard to measure that. Very hard to measure that because we don't know quite what to count and how to do it.

Another important thing that's going on with knowledge, which probably brings us here, is it's becoming democratized. This is a remarkable event that is not often spoken about, but it's astounding. You see, if someone wrote a history of the world, let's say there is a world, hopefully there is one in 2500, and they said, "What happened between 1950 and 2050?", and you only have one page to write this. What would you say? Young people would talk about technology, there's all sorts of things that are going on. But I would bet, I'm pretty sure I'm right about this, the biggest event of those years is knowledge went around the world and it became democratized, and it became somewhat convergent. So, more people and more countries know how to do things than ever before, ever. And the things they know how to do are getting fairly similar. This is a spectacular event in the history of the world, and it's never happened before. Never, never, never. The Roman Empire knew how to do things. They had to go to aquaducts and baths and even bathrooms. The Chinese knew how to do things, but they didn't talk. They didn't learn from one another. In between, people didn't know much. You now have convergence and a democratized knowledge world, which means everything you do, other people can do. And it's a very competitive environment, at least to a lot of competition. A very competitive situation, where everyone can do things.

As an example, in 1955, the United States economy, only 22% of it was competitive. Over three-quarters of the economic activity in the United States had no competition because of the Second World War. Whatever they made, people bought. This was not a great thing, because they began to make stuff that wasn't that wonderful because they knew they could sell it because no-one else makes it. Today, the United States economy is 99% competitive. I don't even know what the 1% is. I can't even guess. But that's true for your country, too. And what this does, it makes it extremely important to not be dependent on your own knowledge. Learn from others. It's no longer a type of economy where you can just say we know how to do this, and we can make money doing this, because whatever you know, you can bet that other people in other countries will eventually know it. There used to be a monopoly on what we called useful knowledge. There's a concept called, which historians called, useful knowledge, which is management, technology, manufacturing as compared to, let's say, music, literature, poetry, which is spread around the world. That useful knowledge, there was a monopoly on it, based on military power more than anything else. It was held by the United States, Western Europe, and Japan. From about 1870 to the end of the Second World War, they dominated it. They produced knowledge about technology, management, production. That monopoly broke up. It broke up because Europe and Japan helped destroy themselves by war. The United States didn't, but it cost a lot. And then knowledge began to come out, through the UN, through the World Bank, through the Marshall Plan, through activities in various countries. Other countries began to learn, to have the capabilities of developing knowledge and using knowledge productively.

Personal story: this is so interesting because this happened right during our lifetime, at least my lifetime, and some of yours maybe. When I graduated university, I managed not to have to fight in one of the periodic wars the United States likes to get into. And I went

around the world with two friends. We had very little money so we had to stop every once in a while, travelling around the world, and send a telegram to our parents, begging for money. And some of the places we stopped in astounded us. We went to India, Southern India. I actually went to Bangalore before it was world famous. Just overwhelmed by the poverty and the lack of economic progress, any progress at all, they'd made. And we stopped in Ireland, which was completely dominated by the Roman Catholic Church. When people got college degrees, they left. They went to the United States or England. And we stopped in Malaysia, Kuala Lumpur. You know what Kuala Lumpur was like in 1967? It was a big British rubber plantation, managed by the Chinese. Any of you been to Kuala Lumpur lately? It doesn't look like a rubber plantation. Looks like a little version of Tokyo. Knowledge got out. The capabilities. Ireland is a powerful force in the European economy and I think 78% of all software code is written in Southern India. Knowledge has gone around the world. It makes our life more competitive and it makes the race for knowledge more advanced and it makes the need to understand knowledge better. Especially using knowledge with others.

One of the great themes that I talk about when I talk to countries and organizations is: build knowledge networks. You can't know enough on your own. It's too expensive and you can't do it. It was mentioned earlier that I do a lot of work with NASA. NASA, like other organizations in the United States I've worked with, was a best-and-brightest type of organization. The USA had a lot of these. We know everything, if we don't know it, it isn't knowledge. McKinsey was like this, the CIA, a lot of organizations. Harvard University is like that. If we don't know it, it's not knowledge. It's not worth knowing. Not anymore. No one believes anyone. NASA does all the space work now, I helped them with it, with other nations, including Japan. The space shuttle, the space station was done by a number of organizations. China's going to try and do it on their own because

they like to show the world they can do that. I understand that, but they too will eventually have to collaborate. It's too expensive, too difficult and there's too much knowledge to know, without building networks and structures to allow knowledge to be transferred. You can't go it alone. Einstein couldn't, and organizations can't and countries can't. It just doesn't work that way. It's a hard adjustment for some countries. It's a very hard adjustment for companies. Very hard adjustment. Without singling out organizations, but I worked for IBM for seven years, and they were another best-and-brightest type of organization. Occasionally I'd mention, "Gee I'd like to go to this conference and learn what these other people are doing," and they'd say "We know how to do that, why do we need to go there?" They were very dismissive. A type of arrogance, a type of hubris. That's where they got. They're no longer like that at all. Absolutely not.

So the world is full of knowledge but you have to find out, what do you need, where is it? This is a subject we can talk about, probably for the rest of the week. Knowledge networks, they're really very important. Let me say something a little different than what I spoke about in Bangkok. Let me give you some hints or talks about what organizations do, when they want to do things with knowledge. What do they actually do? It's very difficult for countries, too, by the way, as well as organizations, to try to master all knowledge, everything to do with knowledge. It's a difficult thing. You want to pick the functions of knowledge, and the ones that I would recommend (and I think other people who study this) would be three broad categories of knowledge. So if you work in a large organization:

1. Knowledge development;
2. Knowledge retention; and
3. Knowledge transfer.

Basically, those are three major things organizations do when they work with knowledge. And I would say countries, too, to the extent that a country is interested in knowledge in the first place. A lot of countries aren't. That would be, they would pick some of those activities. How do you encourage innovation, how do you encourage development? How do you retain the knowledge so that the organization can scale it, can make it more productive? And then how do you transfer it within a global organization? This is a huge, huge issue. I've been to all sorts of organizations, and they have people in one part of the organization who know how to do things, but it never reaches the other part.

You know, just two years ago, I was working for a large steel organization in Brazil, Gerdau. And they tried to track what happens when there's an innovation (it's a global steel firm) in one part of the world, how come it never reaches the other parts of the organization? No one's stopping it, no one is saying don't transfer it, but it doesn't reach it. They don't make use of the knowledge that they already have.

So those are the three big sways, the three biggest categories that people use when they work with knowledge. So what can we say about that, what can we do? Well, Professor Nonaka knows this better than me. He is going to talk about this. But knowledge development, most knowledge is really developed from bottom-up, or certainly middle-up down. It's not from R&D organizations, it's not top-down. That's true again, in countries; it's true in organizations. You have to develop processes and routines within an organization to find those innovations, to work with them. People know what they know. Knowledge comes about from participation, from doing things, at the work place. The coal face, you know between the miner and the coal, they call it. That's where new knowledge usually develops. So you really have to look at those ways. Where is the knowledge in the organization, how do we extract it? How

do we get it out and then put it in a form that others can use? Who else knows things? How can we buy the knowledge? How can we form a knowledge network with other organizations? What do we need to know?

I know two large firms that are right now undergoing a strategic analysis of what is the critical knowledge they have and where is it in the organization and what don't they have and how are they going to get it? That's worth doing, you can't master all knowledge. What do we need to know, where is it already and how can we get it? You have to strategize this way in knowledge development. But certainly don't invent things yourself. The world is full of knowledge. You can buy it, you can find it. It's often in your own organization. If you think about it and you work with it. So that's some hints about knowledge development.

Knowledge retention: put in place processes and routines that allow other people to know what you know within your own firm. Retain it: don't go into training in a big way, it's not a great way to retain knowledge, sorry. I don't mind saying this. I once said this in a national training organization, at a speech, and they wouldn't pay me for the talk. It's actually true. But, training is something... I mean, I had a nice dog, I used to have a lovely dog. I trained the dog not to use the bathroom in the house. But people need to be educated, not trained. And how do we do that? Working together. Allow people to teach each other what they know. Imbed the knowledge and routines and processes. Have people work together. Give them time. Give them, especially, space, the concept of *ba*, which again, is Professor Nonaka and his colleagues', great contribution to our understanding of knowledge. Without space, people talking, people working together, that type of social space, knowledge will never get retained. It's really a key thing and we don't do that. Sometimes we do.

Recently, within the last 10 years, there's a very large pharmaceutical company called Novartis, in Switzerland. I think people probably know it here, it's a well known firm. They had 18 very ugly buildings in Basel, Switzerland and they needed to get world class scientists to work in Basel. Basel's not that exciting. It's not like Geneva, it's okay. So they tore down all the buildings and rebuilt them, based on knowledge principles. They used space. They had open spaces and they designed the work in such a way that you can…just hear about what other people are talking about. Now there are private offices, if you have to do private things, but they designed it so that you would deliberately overhear other people talking, and maybe you'd learn something. Maybe you could help someone else. Very interesting thing. Space is a really great way to retain knowledge. There's other ways, too. I just want to give you a flavor for some of these things.

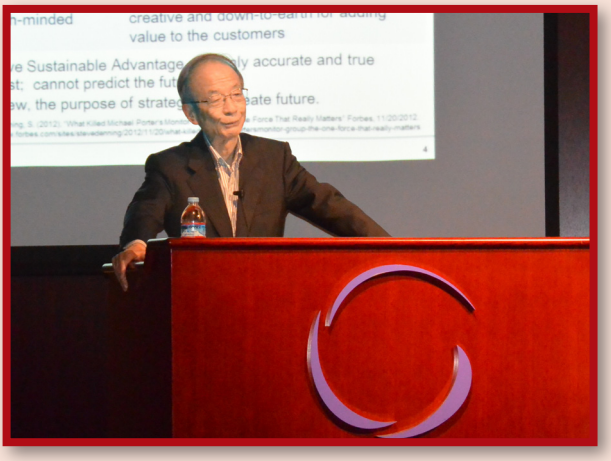
PART 3

And the last point, in terms of activities and knowledge, is… knowledge transfer is the wrong word. You can't transfer knowledge unless you're a Vulcan. You can't transfer knowledge. You can distribute it, disseminate it, incent it, but I can't tell you everything I know. I mean, it's not even possible, and if I did, you couldn't absorb it all. No matter who you are. We're all limited in how much we can know. So you can just move knowledge around and try to get others to socialize it, but it's not transferable the way money is. It's not transferable the way wealth is. It has to be socialized, it has to be internal. You have to act on the knowledge. I mean, you can read a book and learn some of the things in the book, but that's really transferring information. If you really want to know how to do like, let's pick Novartis, if you really want to know how to transfer the processes of cancer and other drug development, you have

to do it. Do it with others. It's participation. It's working together. And it's giving people time and space to do that. Not being dependent on, well, "Here's a document, read this." It doesn't work at all. And also, people don't like hearing this, but you have to be there. Being there is a big function of knowledge. People don't listen to Aristotle. Montaigne, the great French philosopher said, "What you know is dependent on where you stand." Which is really a very true statement. So if you work in a large organization, if you don't let people move around, if the management stays in one place...I remember one time I was in an office very near the CEO of IBM's office, Lou Gerstner, and he was meeting with these reporters from the business press. And I heard him say, he's sort of a gruff fellow, a tough guy, "I know what happens at IBM" and I thought to myself, all he knows is what happens in his office. Because he never left his office, he just got told things by other people. I mean, he did a good job, but it's not a way to know what happens. You have to get out. You have to go talk to people. If you really want to transfer knowledge, you have to transfer people. You have to try and let people go and learn things, and it's expensive. This is not cheap, so people don't like doing it.

Someone called, about three months ago. I got a call from a very senior person from one of the big firms in the United States, and he said, "Can we talk a little bit about knowledge?" and this and that, so I said, "Sure." I spent half an hour on a Skype call and he said a great sentence, "We've already taken care of transferring knowledge because we have SharePoint." And I said that's like saying because I have a pen I'm going to win the Nobel Prize in Literature. I mean it was ridiculous. And I got him to see the truth of that, that you can't do it that way. You have to move, you have to be there, you have to talk. Talk in space. These are real things. We don't have the time to really go into this in detail, but I just wanted to give you a flavor of these subjects. I think I've taken up all my time. Thank you very much, on this hot morning, for listening to me.

LEADERSHIP IN KNOWLEDGE-CREATING ORGANIZATIONS



Dr. Ikujiro Nonaka

Thank you for the kind introduction. I am Ikujiro Nonaka. I just turned 80 the other day. As was kindly mentioned, in November 2013, I received the *Thinkers50* Lifetime Achievement Award. Receiving an award like that makes you wonder how many years you have left. Put simply, I already have one foot in the coffin. It is pretty much the same as having the *Nikkei Shimbun* newspaper ask you to write their autobiographical column, *Watashi no Rirekisho* (My resume)! Larry is 71 and I am 80, so I am quite sure we are well qualified! Larry and I are long-time colleagues, having created the theory of knowledge management together. And so, speaking on this same stage truly means a lot to me. Initially, our model had been about "information processing" rather than "knowledge creation." In the 1980s and 1990s, the biggest challenge was thinking about reengineering and increasing productivity using IT. Since then, we had been talking about the transition from information to knowledge, but it had always been an uphill struggle. In this sense, I feel extremely honored to give a speech alongside him today.

I feel so because our hard work is finally seeing fruition. In recent years in particular, people are starting to discuss the fundamental question of "What is knowledge?" Since Larry's arguments were based in philosophy, I think he spoke about the essence of knowledge. I will try to add to that, talking about what I consider is knowledge.

As you may have noticed from Larry's presentation, he has a dislike for economists. We have talked about how economics only engages in analysis and is incapable of producing new things. In management studies, Michael Porter, a professor at Harvard University, is considered as the father of competitive strategy, who is rooted in neoclassical economics. Porter presented the Five Forces Model and asserted that "positioning" is important in order to create a monopoly or oligopoly to maximize profits in the market. His approach is scientific and quantitative analysis.

His theory contributed a great deal to management studies, but some have criticized it for being too scientific and analytical on the basis of neoclassical economics. One of these critics is Steve Denning, who is also a colleague of ours. He worked at the World Bank, and while the Bank has many analytical economists, Steve was the person who introduced knowledge management to the World Bank. He focused on stories and storytelling on value creation, and Larry and Steve have both written books on storytelling. They are of the standpoint that knowledge can be shared qualitatively and quantitatively in the form of a narrative that has a dynamic flow of plot, such as *ki-sho-ten-ketsu* (introduction, development, turn, and conclusion), which is typical patter in Japanese narrative.

According to Steve's recent article, the essence of strategy is not about winning against competitors, but about creating customers and creating new value. He says it is not about analyzing industry structures and gaining ground, but rather about producing new value in the ecosystem beyond the market. In other words, the essence of new value is about weaving a narrative for the future from the relationships generated between people, or between people and the environment. This is a critical view that says there is the need for not only analysis but also synthesis; and we are of the same standpoint.

Perhaps you could say that Steve's argument captures the essence of Japanese business management, or more broadly, business management in Asia. From our standpoint, knowledge is not something that can be acquired by analysis in your head; it needs the physical commitment of your body. It needs to be a synthesis of body and mind. What is more, knowledge is something you acquire through living, or way of life. And so, objective analysis and other scientific methodologies are not enough. Knowledge creation requires, on the fundamental level, subjectivity, independence,

and the beliefs of what you want to achieve and how you want to live your life. The generalization and objectification of beliefs bring them closer to science. In other words, the important things are beliefs, values, and way of life; but these things cannot be attained from analysis. How we live our life and what we exist for are things that Larry also just mentioned, and I would like to emphasize the importance of this point, too.

In these past few years, however, we are seeing a tendency of people indulging in excessive analysis, that is over-analysis or over-planning. People are becoming more out of touch with reality, getting caught up in ideology. What is important is the conviction of what you want to do in this present reality. It is an extremely important challenge thinking of how to make innovation happen and how to continue creating knowledge in this environment we exist in, in the broad relationships of the knowledge ecosystem of society and industry transcending the market. In order to solve this and put knowledge creation into practice, the subjects of our studies have become the questions "What is the essence of knowledge?" and "What kind of leadership makes it possible to create knowledge continuously at the organizational level?"

Now, another important element is communitarianism. Michael Sandel's "Justice with Michael Sandel," series of sessions at Harvard University, also became very popular in Japan. As opposed to libertarianism (the extreme view of prioritizing universal, individual freedom), Sandel discussed the "individual" and the "group" and which should be more important from his communitarianism standpoint that says we humans cooperate to create communities together. We are also of the standpoint of communitarianism, that we believe that humans fundamentally wish to pursue a better way of life and the common good. Here lies the conflict between libertarianism, which tries to explain individual freedom and justice in a rather analytical, deductive, and logical manner,

and communitarianism, which tries to explain and judge in a more comprehensive, inductive, and practical manner.

But, in fact, both views are needed. This also has the aspect of science versus art, and it becomes the issue of how to balance the two in the midst of reality. The ability to balance the two is, I believe, indeed the essence of wise leadership. What Larry focuses on is this kind of skill, and, with the recent findings of neuroscience, I think it is one of the major reasons why people are starting to revisit the knowledge creation theory.

Neuroscientists recently discovered the existence of mirror neurons in chimpanzees, and it is assumed that humans also naturally have neurons that allow us to read other peoples' intentions by synchronizing our resonance, empathy, and sympathy. The discussion is that humans are creatures that can feel empathy without the use of words, and that we are social creatures. It is also argued that it is impossible to separate the body and mind; or rather, it is being emphasized how the body is also important. This is also known as the "embodied mind." The concept of "mind-body unity" has existed since the philosophy of Kitaro Nishida and Merleau-Ponty, but I think this is also now being proved scientifically. If this is true, it will be something that will overthrow the traditional ideas of scientific management.

What I also find thought provoking are the studies by Professor James Heckman at Chicago University, the Nobel laureate in economics who is referred to in the book *How Children Succeed*. He studied children and their medium- and long-term success, and pointed out that IQ scores may not be relevant to success, that perhaps the belief that IQ scores matter above all else is flawed. Maybe perseverance, self-control, zest, social intelligence, gratitude, optimism, and curiosity are more relevant and important. This, in a sense, became a major issue, and led to various discussions.

In order to develop these kinds of personal skills, what is required, as Larry said, is habitus, family upbringing, and apprenticeship. Tacit knowledge cannot be put into words, and there are things that can only be communicated through apprenticeship. It is the same with education at home. So, this is actually the essence of human capabilities. But by no means is this trying to negate intellect; the important thing is to nurture both cognitive and non-cognitive intellect interactively.

We believe companies have the same tendency. For example, recently, General Electric changed its code of conduct from "GE Values" to "GE Beliefs." The company used to gauge performance with the values of "external focus," "clear thinker," "imagination and courage," "inclusiveness," and "expertise," but they changed them to beliefs of "customers determine our success," "stay lean to go fast," "learn and adapt to win," "empower and inspire each other," and "deliver results in an uncertain world." Values can be assessed objectively, but they can seem as if they have nothing to do with you. And so, the CEO Jeffrey Immelt changed the "Values" to "Beliefs" that emerge from within people. I find this extremely interesting.

Now, this is something I heard in Silicon Valley the other day. Apparently large companies are now acquiring start-ups. As time goes by, even venture companies gradually become bureaucratized and lose their creativity as they grow large, and so they try to regain their entrepreneurship by acquiring start-ups. But things somehow do not go as planned. The reason is that the key performance indicators of the large companies are not made to encourage creativity in the first place. So, for example, borrowing a military command as a metaphor, large companies say, "Ready, aim, fire," in logical order. But start-ups say, "Ready, fire, aim," aiming after firing. The essence of this is also belief.

It can be a rather difficult task to clearly articulate subjective views and beliefs, or in other words, tacit knowledge. But since this becomes an issue of way of life, we need to verbalize and logically analyze this tacit knowledge. We need to have the joint creation of tacit knowledge and explicit knowledge. But then, which is primary: tacit knowledge or explicit knowledge? In Western culture, as it is said "in the beginning was the Word," ("Word" with a capital "w," meaning *logos*) explicit knowledge goes first. But we view it as "in the beginning was the Experience."

Michael Polanyi, the Hungarian chemistry professor, said that "All knowledge is either tacit or rooted in tacit knowledge," and that "We know more than we can tell." And Saint Augustine said, "Unless you believe, you will not understand." They are saying that knowing what you want to do, what you exist for, and what you want to achieve is important. In other words, it is essential for "knowing" to be accompanied by personal commitment. Polanyi wrote a book called *Personal Knowledge*, referring to "whole-person knowledge" rather than "individual knowledge." It is the idea that new things cannot be produced without holistic commitment.

Some have criticized this view that the need for belief sounds like religion. To this, Polanyi has said that "We must have the universal intent of the explorer, who believes in the ultimate truth, and seeks excellence towards achieving the goal. This attitude guarantees that we do not fall into subjectivism, which actually hinders social cooperation necessary to foster innovation."

In December 2014, David Teece of "dynamic capabilities," Henry Chesbrough of "open innovation," and myself of "knowledge creation" got together. We are all graduates of the University of California, Berkeley, and academic colleagues. The reason why we gathered was because we thought, "Why not bring the three concepts together?" And we went to Napa Valley, wine country,

hoping to have an intellectual battle and then eventually drink wine and integrate our ideas. This proved to be quite a successful endeavor, and it was then that we invited a wine sommelier to be our guest speaker. So, Larry's story may have had a trainer in it, but mine has a sommelier!

At that time, I was reading a book written by Shinya Tasaki, a renowned Japanese sommelier, and had discovered that he was saying the same thing about tacit and explicit knowledge. He was basically saying that his judgment of wine is based on having quality experiences of good wine, and verbalizing what he feels subjectively, using his own words, with adjectives and metaphors. So, the more experience and knowledge he accumulates, the more memories he could reference. In other words, you need to increase the number of experiences of the relationship between body and mind, and to do that, you really need to drink a lot of good wine!

He also said he was able to instantly select and describe the wine that would be just right, from brief exchanges with one-off customers. He is able to draw from specific memories any time he wants to because he verbalizes his intuition every day, and clearly and consciously stores them in his mind. This is why, from a simple exchange with a customer, such as "What would you like as an appetizer?" or "What are you having for your main course?" he is able to recommend the wine that would be just right for that person straight away, from the many past memories of pattern recognition. When I related this to the sommelier in Napa Valley, he was very impressed. The point is I want to reiterate that the origin of knowing is, after all, tacit knowledge.

I also went to Hawaii the other day, and enjoyed the hibiscus flowers, pineapple fields, hula dances, and farmers' markets. If that is all I came home with, it would be a story of how Hawaii is a paradise!

But if you also visit the Pearl Harbor USS Arizona Memorial and see the marine corps base, you get to see all the history between Japan and the United States, and the story becomes how Hawaii is a strategic military base in global security.

We collect tacit knowledge by feeling various things with our five bodily senses; but depending on what we focus on, the meanings produced from therein change. Therefore, the quality and quantity of the feelings felt with our five senses make a difference. What is more, knowledge creation is the integration of body and mind. Tacit knowledge and explicit knowledge are continuations of each other, and their relationship is of co-creation and joint-creation.

Moreover, I would like to say that knowledge can be produced organizationally and continuously. It is important for the mutual conversion between tacit knowledge and explicit knowledge to spiral up in the organization. We show this with the SECI model:

- *Socialization*: Empathizing and sharing reality through first-hand experiences;

- *Externalization*: Condensing and externalizing the recognized essence into concepts;

- *Combination*: Systemizing and combining concepts, linking them with reality; and

- *Internalization*: Creating value in the form of technology, products, software, services, and experiences, and internalizing knowledge, while also prompting new knowledge to emerge in the organization, market, or environment to once again lead back to socialization.

This high-speed rotation of the SECI spiral is the capability to synthesize knowledge, which supports the dynamic existence of both creativity and efficiency.

The SECI model is fundamentally different from the PDCA (plan-do-check-act) cycle. The PDCA cycle is a model that pursues efficiency instead of creativity or emergence. Our model does not start with a plan that would be explicit knowledge. It starts with "Socialization," which is about sharing tacit knowledge. In this sense, Japanese companies are our models.

For example, what the leader of Toyota has said for a long time is that it is important for tacit knowledge and explicit knowledge to spiral up. Since a person becomes aware of tacit knowledge once it becomes explicit knowledge, explicit knowledge then inspires further tacit knowledge. Things that cannot be expressed in words are passed on and transferred by sharing experiences, and that is exactly what happens when developing people. Here, it is the leaders who have the role of driving and encouraging the speedy and continuous process of SECI. We have described them as wise leaders.

The other kind of knowledge that encourages tacit knowledge and explicit knowledge to spiral up is "practical wisdom." It is what Aristotle described as *phronesis*, which refers to "prudence," "practical wisdom," and "practical reason." And so, *phronesis* is the practical wisdom for exercising the best judgment for the common good in a particular context. It refers to the ability to find the right response in a particular context, and the ability to synthesize the particular and universal, or contemplated rationale and spontaneous improvisation. It also refers to contemplation in action, contextual judgment, and timely balancing.

Our studies have identified six abilities of wise leadership:

1. The ability to judge what is good and to set a good goal;
2. The ability to perceive reality as it is;
3. The ability to create *ba*;
4. The ability to narrate the essence;
5. The ability to exercise political power to realize the story; and
6. The ability to foster *phronesis* in others.

Since we do not have enough time to go through all of them, I will touch upon the main points. An example of a wise leader would be Soichiro Honda and Steve Jobs. Both of them had high aspirations. Jobs once said that "It's technology married with the liberal arts, married with the humanities, that yields the results that makes our hearts sing."

The ability to create *ba* is also important. There are various ways to create *ba*. In a good *ba*, people empathize holistically and get through to each other by breaking down the walls between them. There needs to be an intellectual battle on the tacit knowledge level for anything to actually happen. If the people come to a session and conduct casual brainstorming, oftentimes there will be no realistic feasible outcomes; people may have enjoyed the session, but this is not a good *ba*.

Honda often holds *waigaya* open dialog sessions that go on for three days and three nights, and participants engage in in-depth discussions. By the end of it, they share ideas of common good, feel they should cooperate and work together, and the leap of the mind occurs. Nevertheless, there are conditions for this open dialog. It is important to provide good accommodation, good food, and a good *onsen* hot spring. So, they are designed as a *ba* where people can interact physically.

And the last and sixth ability of practical wisdom is the principle of "management by all." The abilities from one to five are largely personal, but it becomes extremely important to distribute those abilities throughout the organization, creating a system of distributed *phronesis*. An organization driven by the "management by all" principle is capable of responding to whatever may happen in a flexible and creative manner in real time. It becomes a resilient organization. We call these kinds of organizations "fractal organizations." Several examples of this can be found in Japanese companies. This can be the Honda or Toyota project groups, or more recently the Daihatsu Mira project group. Other examples are the Yamato Transport sales drivers, or 7-Eleven hub stores where all the employees conduct hypothesis testing. In these cases, even one individual can embody the whole company.

Another example is a software development method that is now widespread in Europe and North America. It is advocated by Jeff Sutherland, who is also Larry's friend, who presented the method of agile scrum. This is actually based on the scrum approach, which appears in an article I wrote with Hirotaka Takeuchi, describing how Japanese companies develop new products, and the SECI model. Sutherland's newest book is called *Scrum*, and he says he would like to spread the agile scrum method beyond the sphere of software development and into social movements. I think this kind of thing is the fundamental human way of life. So, people naturally have this habit.

As Henry Mintzberg points out, "Management is a practice that has to blend a good deal of craft (experience) with a certain amount of art (insight) and some science (analysis)." It is important to creatively synthesize conflicting concepts to create a new future.

Meanwhile, today's Japanese companies lack maneuverability. What we lack is the aggressiveness to take risks and the speed to

move things forward because of over-analysis, over-regulation, and over-compliance. Our global HR management also lacks agility, being unable to set things in motion, such as dynamic taskforces, distributed leadership, or temporary promotions. What we need to do is unleash and synthesize the diverse knowledge held by industry, government, academia, and the private sector; and to do so, we need to put our historical imagination to full use to try and realize idealistic pragmatism.

This is the sort of thing we want to advocate. Twenty-first century management must be rooted in philosophy regarding the human way of life and, at the same time, it must have the maneuverability to achieve major innovations, and to practice maneuverable business management and "management by all." Timing, speed, and agility are also important. And we must weave an endless story towards the future. In this ever-changing environment, we must examine our past seriously, identify the good, and while rigorously continuing to develop the good aspects, we need to engage in practice with the high hopes of leading the world.

Knowledge management is something I have spread in Japan, the United States, and the world together with my colleagues, but I believe it will become even more important in the future. I am very happy to have been able to share the same time and space here today with Larry, inspiring each other. I thank you for this delightful time.

And with that, I would like to end my speech. Thank you.

KNOWLEDGE PRODUCTIVITY: THE CLUE FOR INNOVATION

Dr. Laurence Prusak
Dr. Ikujiro Nonaka
Naoki Ogiwara (Moderator)

Moderator:

Now I would like to invite both Dr. Laurence Prusak and Prof. Ikujiro Nonaka on stage for a panel discussion. After some initial discussion, I will ask audiences to ask any question, if you have, so please be prepared.

Thank you very much for giving very inspiring talks,both of you. I'm sure that some audiences have questions to raise, but before that, allow me to ask one common question to both of you. You both raised the importance of socialization or socialized circumstances where people interact and learn from each other. But as Prof. Nonaka pointed out, it's not very easy to justify to do within an organization for, as Larry described, it's very costly. It takes time, people need to travel, and the results are hard to measure. So, where should an organization start? Do you have any recommendations for organizations, or any examples that you can share in terms of how they start these kinds of socialization works, of actually being there and encouraging tacit knowing, so that they can have for-quality collaboration or it would eventually lead to innovation or create a new value?

Dr. Prusak:

Well, you're right. I'd say many of the knowledge activities that we've been talking about go against the grain on industrial production. We're talking now about the knowledge age. I'll give you an example, Henry Ford said "I don't want to pay for the worker's brain, I only want his arm," and he meant it; he was very sincere. So, an organization has to understand that we're living in a different age, that knowledge is more valuable than the other forms of production. Look at a firm like Google, which is worth an enormous amount of money. It's based on an algorithm, it's based purely on knowledge, there's nothing else there. Facebook is worth

as much as all of General Motors. It's hard to believe that, but it's true.

So once you understand that, then you can use many examples. People who are interested in forwarding these knowledge ideas would say, "Well if knowledge is that important, what do we do with knowledge that's different from what we did with iron, steel, and coal, and making things?" And once they get that, I think then we can move onto saying, "Well it's a social activity, the various things we've been talking about." But you have to make that overall story saying knowledge is more important than land, labor, and capital in terms of developing wealth and building a better society. A lot of those industrial practices let out all sorts of pollution and some effects on the planet that aren't so wonderful. So I think it's actually a good thing and it's something we just have to realize that the way we work is generally based on 19th-century economics and we live in the 21st century.

Moderator:

The question was where companies or organizations should start for knowledge creation. Both you and Larry point out that when acquiring or accumulating knowledge, "tacit knowing" is important, which takes a lot of time and trouble. In particular, a lot of time should be invested in people's interactions. So, how can we justify the investment in such interactive activities at an organization? For example, there may be some people who wanted to join today's conference but couldn't because their bosses didn't allow them to go. In other words, they couldn't justify the value of attending this conference in terms of investment in time.

Prof. Nonaka:

The most costly part of knowledge creation is the process of justifying your ideas to put them into action in the organization. This is closely related to our definition of knowledge; knowledge is a social process of justifying personal belief towards the truth. It is particularly costly in Japanese organizations. It's called justification costs. So, how to do this quickly? I believe what you need is middle managers with strong aspiration. For example, it was low-class samurai that drove the Meiji Restoration in Japan.

At the same time, you need a top manager as an enabler who allows middle managers to justify their ideas and realize their aspirations. These senior managers wouldn't take the credit for themselves, but rather, they themselves have big aspirations and commitment to a larger vision, and commit to such an extent that you would sense it by just looking at their faces. It is the top management who should take the initiative to motivate everyone. Based on the commitment by the top management, the middle managers and frontline people can achieve something significant together.

Another important point, the challenge in Japanese firms is the lack of human-resource mobility; the authority to transfer personnel is not so flexible and sometimes not fair. In that sense, once the top management backs up project leaders by delegating authority to transfer personnel to them, the closer the authority goes down to the frontline, the better you understand who is the right person for the right position. All in all, staff at headquarters personnel division rarely go out to the frontline to see what's happening these days, do they? They are just building superficial systems and rules detached from the reality. If they have such time, what they should do is to go and see the actual field to know who is working where, who has what talents, and think about how to mix such people's talent to create new value. I believe that is what strategic personnel management

is all about. This is, I believe, why many Japanese firms lack strategic mobility these days. Top management should take initiatives with unwavering resolve.

Also, when justifying new, innovative ideas, there is a big challenge. All in all, innovative ideas have logically inconsistent and conflicting aspects, and that is why it's innovative. In meetings, logical people may win in pursuing others, but this is absolute nonsense. Logic never solves inconsistency or conflicts. Actions change the situation, which completely renew the contexts and inconsistency naturally resolves. So, if you are determined to strive toward justifying the new ideal, then what you need is to act, act, and act. As the results of your actions, pursuing better, then the inconsistencies are solved in hindsight. Resolving conflicts or contradictions by logic, which is what universities do, doesn't give birth to innovation.

Moderator:

Thank you so much for such thought-provoking comments. Now, I'd like to take questions from the floor.

Audience:

Thank you. I'm a professor at Hitotsubashi University. My question is about creating *ba* and tolerating different views. Dr. Prusak said that knowledge is profoundly social and contextual, and gave the example of the Dutch and the British as tolerating different views. And Prof. Nonaka gave the Honda example of Waigaya, on day one as bad mouthing the boss and also it sounds like some conflict, maybe, and then day two of Waigaya, understanding others as they are. Could you talk a little bit about how Japanese companies could tolerate more diversity and different views, because I think diversity is a very big topic in Japan today, and how can Japanese companies promote the creation of knowledge through tolerance

of a diversity of views. So my question is how can Japanese companies promote diversity and tolerance?

Prof. Nonaka:

That's a good point. At Japanese companies, when they create *ba*, the relationship tends to be homogeneous, and *ba* with cross-functional diversity is hard to build. Typically, in project teams, only R&D staff or only production members get together by themselves. But in the example I mentioned earlier, the Daihatsu case, they formed a mini-company with members from public relations, sales, and product development working cross-functionally. Two keys are that they gathered members with heterogeneous skills and roles rather than homogeneous ones, and that the members had all been transferred from their former departments. It was a ticket with no return. That made them go extra miles. And from what I heard, project leader candidates were developed in a fairly short period of time. When they interacted with other divisions or departments in the company or outside the company, these project members were sent as representatives of the project. This promoted another layer of cross-functionality, while members also kept authority in their fields. They were a mini-company in that sense.

These days, cross-functional diversity in a company is not enough to create innovation. There is a strong need for co-creation on a much bigger scale, like city-planning and management that involves other various related companies. This brings up a leadership issue. What kind of leadership do we need here?

Let me use the example of Eisai, a pharmaceutical company, which realized that they should have a bigger concept. Instead of just selling "medicine," they focused on providing "care" that includes family members taking care of patients, and even local communities providing care systems, which in fact leads to co-

creation in the community. In this context, Eisai is in the city planning and management business, in which they build a community or ecosystem by spreading the platform of a relationship beyond doctors, pharmacists, and patients.

Furthermore, Paul Romer's concept of a special district has been thoroughly applied, so the project should work as "combined arms," or a heterogenic mixture where a cross-functional team works as one community.

Another good example is 7-Eleven's "Seven Premium" products, whose manufacturers' names are always printed as co-developers. The products have been highly successful since they established a win–win relationship through the co-creation, which competed on quality over price. There are examples like these, and I believe the systemization of co-creation is going to be even more important.

Moderator:

Thank you very much. Larry, would you have some comments?

Dr. Prusak:

I would just add one concept to what I think you are referring to, and this is cognitive diversity, which is becoming a hot subject. In the past, law firms and consultant firms sent 10 people out to their clients to solve a problem, and if they couldn't solve it, they would send another 10. But the other 10 know what the first 10 do, so what all you are getting is more energy but not new ideas. This was a great racket for law firms and consultant firms, and they made a great deal of money by doing that, but you didn't get better answers. You talked about Honda doing this differently and some people recently have formalized the idea that, people who bring diverse tool kits to a problem almost always come out with

a better solutions than 10 people who agree completely. There's a French word *bricoleur* which is like a handyman, a person who comes with a box full of tools and does different things. We all bring a tool box to problems, I do, you do, all of us do this, and if we all know the same thing you're not getting much activity. And I don't mean diversity of gender, of color, of nation. I mean cognitive diversity. A very quick example: I worked for McKinsey for about six years. McKinsey would have just hired MBAs, that's all they hire. These MBAs may be from Tokyo University, may be from Harvard. But they know the same things more or less. They learn the same accounting, operations, and technologies. They began to realize that the MBAs have become a commodity, that it's not worth that much as everyone gets this degree and learn the same things. So, they began to move away from that and hire people who are just innovative, hire people who are clever, hire people who can solve problems, who build social capital, not just IQ at all. And now they only hire the new classes, only have 25 or 30% of MBAs, the rest are PhDs of music and people who study Hindu iconography and widely different things, and they are very successful. I think this could be applied to a lot of other organizations. Don't have people who just agree all the time. What's the point? It's nice. It makes you feel good, but people with different views, cognitive diversity, that's good. A lot of firms are picking this up.

Prof. Nonaka:

I've just got back from Silicon Valley. People say that the essence of Silicon Valley is that it's full of diversity with diverse firms there. But when you get into deeper discussions, you understand that people share the same ideas at the management level. As everybody constantly changes the companies to work for, they well know about other firms, too. They are so well connected. In this regard, we can say that Silicon Valley's true quality would appear in the evening when people drink and socialize, when people can articulate

tacit knowledge over drinking and talking. On the surface, there are many easily noticeable companies, but people there all know explicit knowledge. There is a deeper aspect where you share tacit knowledge through talking about your life stories, etc. That is the essence of the place, and people there mentioned that you should not lose sight of that side.

Dr. Prusak:

If you'd like to learn more about that very thing, there's very good book called *Regional Advantage* which compares Silicon Valley to the Boston area. And Boston has none of those things, people are cold, they don't talk, they don't go drinking at night because it's too cold. They aren't friendly, they're not like California people, and all those firms in Boston, Prime Computer, Wang Laboratories, Polaroid, they are all dead. Silicon Valley has Apple and Google, and it's thriving. So it's an interesting geographical comparison. That's about space, absolutely right it's about spaces, so it's a real living example of what we've been talking about.

Moderator:

Thank you very much. I would like to pick one more question from the gentleman over there.

Audience:

Thanks very much both of you. I work at Terumo, which is a medical-device company. One of the things we struggle with now is R&D for new product development. Would you say that it is much easier to go somewhere like Silicon Valley and acquire start-ups to get new technologies and develop new products? But if we start doing that, we would lose some of our internal R&D capabilities. So I would like to get your views on this, and how you would see the long-

term effects on a manufacturing company like Terumo if we keep focusing on acquiring start-ups and new technologies that way?

Dr. Prusak:

Well, we would both think the art of being wise is making judgments in context, so there's no one rule. I mean, I would agree, you can't just say never acquire new firms or only acquire new firms, there's obviously a balance. You're absolutely right, if you just acquire new firms and don't bring their knowledge in you are going to become a super hollow shell. Well, you have seen this happen in other firms, but if you don't do it you won't have fresh blood. I think it's a matter of balance, I really do. And that is not the only way to learn new things. You can learn new ideas and teach people internally. There are other ways of bringing knowledge into an organization besides buying firms. There are many, many examples we can give of that. So remember to try to think, what knowledge do we need to buy versus what knowledge do we need to find, or what knowledge do we need to develop by ourselves? It's all a matter of balance, you're going to lose something and win something. I think that's what executives do really, just try to balance things like that.

Prof. Nonaka:

I completely agree with Larry. In essence, when you want to scrap and build knowledge speedily, M&A becomes very important. But M&A is often done almost only from the financial perspective that overlooks the key question whether the M&A really contributes to the creation of knowledge in the organization. When you try to make a new business model through M&As, you should include the engineering and R&D people in addition to the finance people in the dialogue so as to incorporate their ideas into the business model. If you don't include them in the business model discussion, M&A could demotivate people in the company.

In this sense, as Larry said, some companies that have done M&A successfully thoroughly investigate what their core knowledge is, what categories their technologies are in, and what kind of new things brought in could create new relationships through business-model planning. If you don't do such things but instead just keep thinking about improving ROE and looking through the financial lens only, which could be said to be "shareholder populism." Not having a vision to invest in particular areas, would be one of the most dangerous new kinds of populism.

Moderator:

Thank you very much. Well, time is running short but perhaps we could pick a final short question.

Audience:

I'm a PhD student in the Science, Technology and Policy Program in GRIPS. My question is about the concept of common scientific literature on knowledge production, which is the knowledge production function, which is mainly a kind of regression where we try to or take independent valuables like how much money the firm puts and how many scientists work, and then try to see how this influences production, the knowledge it produces. The question is, what is your impression of this kind of analysis? Is it good, is it outdated, can it be better somehow? Because, as time goes on, more motives include more factors into this equation. Thank you very much.

Dr. Prusak:

Well, I am familiar with that and I think, maybe, its day has come. I would say that firms are so different, to apply one model to a large industrial firm like GM and to a small consultant firm is just

pointless. Not only that, it doesn't allow for things that play a big role in life: luck, emotions, imagination, passions, politics, conflict, it doesn't allow for any of those things, all of which truly play a large role in these things. Again, I go back to that contextually, if you're in a 20-person consulting firm it's very different than attempting to find new knowledge in Mitsubishi. It really has virtually nothing in common.

Prof. Nonaka:

A business model is often described entirely in figures, but these figures themselves don't mean much. What is important is how you illustrate the model with a story, or rather a "narrative;" add a timeline, use your imagination of history, and think about how your company wants to be. There are various ways to draw such plots or storylines, but a romance drama or some kind of exciting story that faces difficulties that will be eventually overcome are good choices. It needs to be based on optimism. Of course there are also tragic plots, but it will only end up making things gloomy. Romance is the key for a good story, and the top management should commit themselves to narrating a story with the figures they eventually would want to achieve. Without the integration of these two factors, figures and narratives, you can't motivate people; people cannot be motivated by the figures only.

Moderator:

Thank you very much. I wish we could have more time, but it seems the time is fully running out, so let me close the session. Once again, Prof. Ikujiro Nonaka and Dr. Laurence Prusak, thank you so much for joining us and sharing your great insight.

CLOSING REMARKS

Kiyotaka Yokomichi

My name is Kiyotaka Yokomichi and I work for the National Graduate Institute for Policy Studies (GRIPS). I would like to thank everyone for taking time out of their busy schedules to attend this forum today. It was a pleasure to listen to the inspiring presentations of the two eminent authorities on knowledge economy, Prof. Nonaka representing the East, and Dr. Prusak representing the West.

I would like to make just two quick comments. The first is that Dr. Prusak's presentation reinforced my belief that we ought to once again recognize and appreciate the merits of Japanese-style management. According to Dr. Prusak, knowledge is created on the ground; to keep new knowledge coming, we need discussion and communication, including drinking sessions with colleagues. It is equally important that people work together to ensure that knowledge is widely shared. This observation strongly suggests, in my view, that it is time we reevaluate Japanese firms' traditional practices, such as hands-on management style, on-the-job training, and the apprenticeship system. Of course, we cannot simply bring back the old practices in their original form; Dr. Prusak, the leading expert on knowledge management from the West, taught us anew that we need to review and adapt to meet the new environment and new contexts.

Second, listening to Prof. Nonaka, I had the same thoughts I had while working on the joint-research project on Asian-style leadership management in which our institute has been involved, in partnership with Prof. Nonaka and the Japan International Cooperation Agency (JICA). Let me explain what I mean. For the past 20 years, Japan, along with other countries, has adopted the concept of New Public Management (NPM), mainly in the public sector. This model heavily emphasizes control for the sake of goal management, incorporating such practices as the PDCA cycle, assessments, policy evaluations and, more recently, KPIs. I doubt other countries do everything precisely by the book, but in Japan,

we take it very seriously, following the prescribed procedures meticulously. We go overboard, implementing strict KPIs, elaborate assessment systems, and extensive goal management. I think this is a dangerous trend, and Prof. Nonaka's presentation drove home the message. He said, "That is not the right approach. Yes, perhaps some of it is necessary, but the more pertinent question here is how we should go about solving problems or, for businesses, how they should go about initiating innovation to drive development. And we need to think about the kind of leadership or management style that facilitates that process." This is a valuable lesson not just for businesses but also for the public sector in particular.

Finally, if you would please give me a few more minutes, I would like to make one more point. In the joint-research project I mentioned, our institute and ASEAN countries explored the possibility of developing a leadership or management style using Prof. Nonaka's knowledge creation theory, and presented our findings in a forum held at this venue in last March. Our study essentially concluded that knowledge theory is useful in ASEAN countries, namely the Philippines, Indonesia, Vietnam, and Thailand, as well as in Japan; and that it is effective not just in enhancing productivity but also in resolving issues facing each country. In fact, our findings are already being put to use in these countries, with efforts underway to nurture talent and leaders by applying the knowledge theory. All in all, today's forum proved to be very fruitful, providing an opportunity for us to appreciate Japan's strengths while inspiring us to revitalize those strengths in a new form. Prof. Nonaka and Dr. Prusak, thank you very much for taking your precious time to speak at this forum today. I am also grateful to our guests for taking time out of their busy lives to join us today.

Thank you.

APPENDIX

PROGRAM

9:40 –10:00 **Registration**

10:00 –10:05 **Opening Remarks**
Mari Amano (Secretary-General, APO)

10:05 –10:45 **Keynote Speech 1**
New Principles of Productivity in the Knowledge Economy
Dr. Laurence Prusak (Executive Advisor to NASA and The World Bank)

10:45 –11:25 **Keynote Speech 2**
Leadership in Knowledge-Creating Organizations
Dr. Ikujiro Nonaka (Professor Emeritus, Hitotsubashi University)

11:25 –11:55 **Panel Discussion**
Knowledge Productivity: The Clue for Innovation
Dr. Laurence Prusak
Dr. Ikujiro Nonaka
Moderator: Naoki Ogiwara (Director, Research & Planning Department, APO)

11:55 –12:00 **Closing Remarks**
Kiyotaka Yokomichi (Vice President, GRIPS)

SPEAKERS

Dr. Laurence Prusak is a leading authority on knowledge management and was the founder and director of the Institute for Knowledge Management. He has been researching knowledge and learning in organizations for the past 25 years. He has extensive international experience in helping both private and public organizations such as McKinsey, NASA, and the World Bank manage their knowledge resources. He has lectured at numerous universities including Harvard and Columbia. Dr. Prusak is the author of many books including *Working Knowledge* (1998, with T. Davenport), *In Good Company: How Social Capital Makes Organizations Work* (2002, with D. Cohen), and *What's The Big Idea* (2004, with T. Davenport).

Dr. Ikujiro Nonaka is Professor Emeritus of Hitotsubashi University and Xerox Distinguished Faculty Scholar of the University of California, Berkeley. He was ranked among the top 20 in *The Wall Street Journal's* Most Influential Business Thinkers list in 2008. He is known internationally as the "guru" of knowledge-based management for his organizational knowledge creation theory. He has published widely in both Japanese and English. Selected publications include *Managing Flow*: *A Process Theory of the Knowledge-based Firm* (2008, with co-authors), *Enabling Knowledge Creation: How to Unlock the Mystery of Tacit Knowledge and Release the Power of Innovation* (2000, with co-authors), and *The Knowledge-Creating Company* (1995, with H. Takeuchi).

ASIAN PRODUCTIVITY ORGANIZATION