

Developing a Knowledge-Based Theory of the Firm

Conversation with Professor Georg von Krogh University of St. Gallen St. Gallen, Switzerland, July 15, 1999

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Claus Otto Scharmer

C.O. Scharmer: Professor v. Krogh, what do you see as the main accomplishments of research in knowledge, change, and leadership over the past decade?

I. The First Stage of KM: Capturing Knowledge

Georg von Krogh: I think we have come to better understand what knowledge management is all about. We have seen the first wave of knowledge management, focusing on initiatives that started locating and capturing knowledge. It's been very content focused, trying to capture knowledge before it was too late, and the focus was very much on the technical systems of knowledge management in the organizations.

COS: What would be an example of that?

Georg von Krogh: Let's say the knowledge necessary to build a food processing plant—to really get the engineering going, get the right people, make sure that we identified the key human capital, and transform that into something like structural capital, containing engineering documents, flow charts, or whatever you want to have. These are the first very rudimentary attempts at knowledge management at which some companies then obviously succeeded; other companies did not. Those companies that did not succeed threw knowledge management overboard.I think those companies that have thrown knowledge management overboard are companies that really couldn't develop the correct approach at this stage.

COS: Can you give an example of a company that succeeded in this first stage of knowledge management?

Georg von Krogh: Hofman-La Roche was very successful in creating business information systems to capture knowledge about competitors, about new scientific trends and developments—to really build knowledge bases, in a sense.

II. The Second Stage: Sharing and Transferring Knowledge

The next challenge, the second wave, focused much more on sharing and transferring knowledge. This focuses more on knowledge which has been captured locally in the organization. If you want to share knowledge, you have to establish infrastructure and trust, the kind of trust that can develop between people in organizations, or perhaps with partners in companies. It was very important here to look more closely into what motivates people to share knowledge. How do we build strong relationships for that knowledge-sharing to take place? Some companies also had negative experiences with knowledge-sharing and [moved] away from knowledge management. Chevron and Dow Chemical, with their best practice sharing and best practice transfers, are good examples of companies in the second stage. Another company is ABB with its competency centers that facilitate technology and knowledge transfer across business units in local countries. So that was the second phase.

III. The Third Stage: Generating New Knowledge

The companies that survived this might move into the third stage of knowledge management, which is really about generating or creating new knowledge. Companies say what they have is not sufficient for doing business in a knowledge economy. There is also a much stronger focus on processes. Gradually we see a movement from IT-based solutions to a focus on organizational structures and processes, and finally to new values. That's the last stage of knowledge management, and I think this is really the exciting phase that we're moving into.

COS: Whom would you consider a good example of a stage three company?

Georg von Krogh: Of the knowledge creating companies today, I think I would emphasize Nokia as a very impressive example; also Skandia. Skandia, with their future center, really takes the issue of creating new knowledge and visioning what kind of knowledge we need for the future seriously.

COS: Could you elaborate on how companies exemplify this third stage of knowledge management?

Georg von Krogh: **These companies exemplify the third stage by focusing on what they need to develop in order to be successful for the future. They have this constant relentless urge to develop something that we don't already have. The whole sharing movement and the best practice movement could potentially lead to a very myopic view. Companies that break out of that cycle are companies that are not afraid of really thinking carefully through testing new methods of developing new knowledge and carefully thinking through what kind of new knowledge they need in order to be successful in the future.** This is where I see the challenge.

COS: So that is probably part of the way Nokia is operating. How about Skandia? Are you talking about their attempt to do this, or are you talking about business results that have been accomplished by this?

Georg von Krogh: The business results. You cannot take a short-term view on this. I mean, I can't show you possibilities tomorrow, but I can prepare the company and manage risk in a better way because I know about the larger environment. I can also use the future center to come up with new products, say, new insurance products that would fit the needs of tomorrow's generations better. So I can think in advance, I can think ahead. **The problem is that many of these companies do not have sufficient foresight. Foresight is something that some managers might be afraid of, because power is established through experience.**

COS: You chose three European companies as examples for the third stage, so would you say that is something that European companies are particularly adept at?

Georg von Krogh: I think it's just because I'm in Europe. I know a little bit about what American companies are doing here, and my feeling is that the companies I mentioned have really taken a very large leap forward. It might be that these companies are more willing to experiment with new solutions. **I think the American companies are very focused on using knowledge management to achieve efficiency, which is good, but it's only one possibility. The other side, of course, is to use knowledge management to be better prepared for new challenges and trends, to ensure that you have the kind of knowledge that will be needed for the future.**

Let me talk a little bit about the scientific areas now, or some of the new paradigms in strategic management. Perhaps the first point is that knowledge is different from information. Until you understand that, you'll think more information equals more knowledge, and see the company as an information processing unit. The work by Prahalad/Hamel and by Nonaka emphasized that a knowledge-based view has to go beyond the concept of information and information processing. In 1996 we had the special issue of the European Management Journal, and then in 1998 we had the special issue of the California Management Review and some other more practical contributions.

IV. Blind Spots

I haven't really seen a good knowledge-based theory of the firm yet. It seems to me that the resource-based perspective is a manufacturing-oriented perspective.

Blind Spot 1: Where Are the Sources of Rent?

But what is the source of rent for the knowledge-based firm? Is it speed because they're faster? Is it diligence because they're more precise? Where does it come from? I'm not sure. This is where some people might think that we have a knowledge-based theory of the firm, [that] it's all set now. But perhaps it is not.

COS: So that is one significant blind spot in the research, right?

Georg von Krogh: Theory which came from the Industrial Age might not take into consideration the peculiarities of the knowledge economy, the knowledge economy being all about speed, accuracy, diligence—

COS: So that's one blind spot.

Blind Spot 2: High Mobility and Low Loyalty of Human Capital

Georg von Krogh: The other thing that we have really lost track of is what it means to the company to live in an environment with high mobility of human capital. High mobility and a lot less loyalty. Employees are a lot less loyal because they're forced to be; the market forces it.

Currently, we are studying the correlation between how companies invest in knowledge assets and performance. There is a delay of years. So you invest in your human capital, and nothing happens for perhaps two years. Now, of course, another problem is that mobility is very high. You can imagine what happens. So these are some of the puzzling questions. What are the mechanisms that we have in order to quickly build structural capital within the organization from a highly fluctuating human capital? How do you craft contracts that take this into account?

Blind Spot 3: Understanding the "Task-Creating Company"

Another topic is the relationship between knowledge and tasks. **Now we've done something about knowledge in organizations, but we haven't really understood what tasks are all about. Job descriptions are not tasks. Tasks are constantly being retooled and regenerated. So there is actually a need to talk about the task-creating company, because it is by new tasks that you generate value within the organization.** Competence is a source of what you have when you combine knowledge with tasks. In 1991 we wrote an article in EMJ on this. My feeling is that the companies that are really going to win in the battle are the companies that have, first of all, the most interesting tasks to draw the most interesting people. Second, they'll have the ability to constantly renew the task systems and combine tasks in different ways. And third, they'll also develop a very quick feedback system between task and performance. Please keep in mind that often the task is very far away from the end result, and you need to know that it's contributing to profitability. You need a structure to do that. If we can immediately understand how you contribute to the profitability of the company with what you're doing, then I think we might see very different levels of motivation and new incentive systems.

COS: Challenges are the raw material for learning.

Georg von Krogh: Right. And the task is the currency that the company can offer to employees. In the future, the human capital perspective will lead us to believe that I will not only go into the company with the best brand name, but I will go into the company which can offer me the best tasks, because then I increase my human capital. And I need preemptive confirmation that I have those sorts of tasks.

You see a tremendous change in Europe. Traditional industrial companies used to be considered the best employers. Now all of a sudden you see the consulting companies becoming the preferred employers. And why is that? Because they have the kinds of projects that people want. Fewer students want to work with repetitive tasks, doing a repetitive task for ten or fifteen years. Now they want to see countries, to see companies, to see people, to see challenges, and thereby to increase their own personal knowledge. This is a challenge for industrial companies. And it forces us to understand the nature of tasks, because we haven't really understood the real value and nature of tasks yet, I think.

COS: This links back to the element that you mentioned earlier, how to develop an instant feedback system between task and performance. The capacity to close these feedback loops, particularly when working in distributed, networked teams, is really key. But how do you do that?

Georg von Krogh: Information technology will help us to do some of that. You will also have "intelligent systems" as part of this. It's like a little game, you know, a computerized chess game in your system. You try to outperform the system, and that becomes a learning in itself. I think that we will see the development of a kind of organic relationship between the human being and the "intelligent system." The human being will actually be using such systems as its sparring partner for its own learning.

COS: Thus there is a blind spot in this research, and you are focusing on that with your work. It may also serve as a critical focal point for future research.

Blind Spot 4: The Role of Leadership in the Knowledge Economy

Georg von Krogh: Yes, I think that is really an important one. The other thing that we do not understand is, as you mentioned in the introductory conversation, what is the role of leadership in the knowledge economy?

What I see in companies where I do my research is a form of leadership behavior which is not necessarily bad, but might be confined by the mere fact that it does not understand cognition. As human beings, we theorize about cognition, but perhaps we do not understand how cognition works. I see these half-hearted messages and ambiguous messages. I see these "don't you understand this?" statements. You know, people get a message and then do something. And then they come back and the leader says "didn't you understand this?" You find these situations so often. I'm concerned about the mixed messages that people give in their everyday leadership. This is nothing spectacular; it's not new that leaders give mixed messages. But I think a reason why might be that they have been trained in a certain notion of communication, based on a certain view of cognition, and that's also how you continue to behave.

COS: So what are the two components of the mixed message that leaders give?

Georg von Krogh: I see paradoxes in the messages that leaders give. You tell people to do some thing and they cannot fulfill both elements in that message simultaneously. Or, for example, they require [things from others] that they cannot do or require of themselves. These types of mixed messages. Leadership and care hang together.

V. Care Is a Gift

And as you know, care is very important to me as a concept. Trust is exchange-based; care is voluntary cooperation and voluntary giving. Care is a gift.

COS: Tell just a little bit more, why is care important for you?

Georg von Krogh: It's basic. A person needs care from childhood on in order to develop into a "full" person. And similarly we are finding that a caring relationship fosters the sharing of tacit knowledge.

If you exchange knowledge with another person, you can move into a transaction mode in which trust is very important. I trust that you give me the right knowledge in the best way possible, and not to cheat, for example. So trust is very important for transactions. In the transaction mode, you exchange knowledge for knowledge. You look at the expected returns from the knowledge that you exchange. That works fine for explicit knowledge because its value is often easy to measure. But for tacit knowledge that model doesn't work because you don't see the immediate return, you don't have the level of expertise to see the outcome of such an evolving process.

Care has both components. Care includes but extends far beyond trust. What I'm doing is simply looking at an instance of a process, mostly relationships among organizational members, and inductively claiming something about what makes these relationships work more effectively. Tacit knowledge-sharing is impossible without care. Leadership is very strongly affected by caring. But we need to find training programs for doing that, for having that caring behavior in place. We have to find mentoring systems that really work in a good way. We have to find ways of working that allow this kind of behavior to happen, and within conditions where people are pressed for time and resources. These are challenges that have to be uncovered and faced.

COS: What are the enabling conditions that allow care to evolve? I mean, is it something that you can manage at all?

Georg von Krogh: You can. It starts with individual behavior and then it moves up to a group level. You can work on the level of organizational systems, create systems that are truly care-enforcing, like training programs and mentoring.

COS: But couldn't that enabling condition—the source of care—be referred to as love? How does care relate to love?

Georg von Krogh: Yes, but it's not very easy. I think love is an emotional state which might be somewhat arbitrary, but it's something which surely relates to care. Care is something which is more tangible. Love can be some other things that can't be pinned down, in a sense.

COS: Let me give you an example: how you deal with a child. I have seen all of the elements that you mentioned, and I can immediately relate to that. But the most significant factor is love, because you care for somebody for his or her own self, and you would do anything to help that being to develop and complete itself independent of any transaction.

Georg von Krogh: Exactly.

COS: I see.

VI. Care Drives Attention

Georg von Krogh: Care is the fundamental concept that drives attention. So if I care for something I pay attention to that particular thing. It's very fundamental, and perhaps it cannot be decomposed—or if you look at the heart of it, care is even the source of love, because it's what drives attention. So if you pay attention to something, you might start to love some aspect of it over time.

COS: What's the significance of Heidegger in your work?

Georg von Krogh: It is pretty significant, but there are many other streams which are significant. Heidegger is clearly one author I found very relevant for my work on relationships in organizations. Now I take a slight shift more towards the base of economics, not by blindly adopting economic theory, but more by understanding how economic logic drives behavior. I'm very interested in, for example, incentive systems. Because monetary incentives versus, for example, voluntary cooperation is something that you have to understand much better. There is a limit to monetary incentives. You don't want to employ people who are only interested in monetary compensation; you want their voluntary cooperation. There's some very interesting work now coming out of experimental economics.

COS: So the rational man, the homo economicus would be replaced by what?

Georg von Krogh: The experimental economists put some very fundamental questions to microeconomics. Let's see how this develops further.

COS: I see.

Georg von Krogh: So we don't have any good theoretical substitute. I expect that the new findings will lead to a new understanding of rationality, perhaps. Actually, if you think about it this might actually bring economics closer to the new thinking on cognition.

COS: So with that, we are now talking about what you are currently working on.

VII. Frontiers: The Process of Routinization

Georg von Krogh: Yes. I said I was working on understanding what new economic research has to offer to the knowledge economy. As a subtopic here, I'm working on something pretty interesting. **I want to understand processes of routinization, because the routine could be a certain source of competitive advantage.** So with no backup examples yet, we've written a small paper on knowledge transformation—an "economic model" going from one type of knowledge to another type of knowledge. But it is too elementary at this stage. **I want to understand how knowledge in the organization, highly fluid and distributed, quickly turns into a routine.** Some routines survive and other routines die. The factors influencing routinization in organizations are something that I really don't understand. I also want to understand this evolutionary battle of routines. And here the debates on distribution, justification, and economic rationality are at the core.

If you look at an investment bank you might say, if I really want it to be just, I say I have a pile of pies and I have to slice that pie in a very just manner. That's, of course, not how an investment bank is run. I mean, management looks at your success record and then the more successful you are the more clients you gain, in a sense. So the routines do not have to be just, but they have to be justified. Or perhaps not. Some routines might actually not be justifiable and still compete for becoming a justified routine.

COS: If you look at the whole field and the things you are working on now, what would you see as a guiding question that could serve as a common ground for a future research collaboration? What task could spark our best energies?

Georg von Krogh: **What we need to understand is this fundamental issue I mentioned about the cognition of the actor. Perhaps we need to rethink rationality of human beings.** What does knowledge creation mean in terms of rationality?

COS: What is your assessment of that field? What do you consider significant when you talk about new approaches of models of cognition?

Georg von Krogh: Let's say that modeling of cognition is using algorithms, using artificial life, like programs being dependent on their own evolutionary structure, kind of emulating the structures developing for the single individual, so to speak. Now is it the case that the single individual doesn't have an information processing function, but really a knowledge creation function in the classical sense? If it's not practical rationality, then what is the new rationality that we're looking at? If you understand that, then you understand social structures. Then you understand how you might organize differently. Because the point is that the whole functional organization is thought of like an information processing organism that distributes some information, makes decisions, and so forth. But this doesn't seem to work anymore. And then we have a different type of organization. But that's the second stage. But what about the first stage? If you haven't had this different view of the human cognition, how should our companies cope with the transformation inherent in knowledge work? How should our structures operate? What is good leadership behavior? How to attract and retain human capital?

COS: Thank you very much.

VIII. Reflection

We don't know, says Georg von Krogh, what the source of rent is for the knowledge-based firm. With this claim von Krogh points at an important blind spot of the current discussion in management: the lack of a knowledge-based theory of the firm. Krogh is particularly interested in the topic of routinization: how does knowledge (human capital) become incorporated into routines (structural capital)? At the heart of von Krogh's work is the notion of care. The care that one has for something or someone, according to von Krogh, drives the attention that one pays to it. Care is the single most important capability of companies to operate in knowledge-based business environments. It is strongly related to the notion of love that is elaborated in the interviews with Joseph Jaworski, Ryosuke Ohashi, Ikujiro Nonaka, Eleanor Rosch and Francisco Varela.

IX. Bio

Georg von Krogh is a professor, director of the Institute of Management, and co-founder of the research center KnowledgeSource at the University of St. Gallen in Switzerland. His main research interests are strategy, technological innovation, and knowledge management. He has been a visiting professor at several universities, including the London School of Economics and Political Science and the Sloan School of Management at MIT. Prof. von Krogh has written several articles and books on knowledge management, including (with K. Ichijo and I. Nonaka) *Enabling Knowledge Creation* (Oxford University Press, 2000). He is an editorial board member of many international journals.