

# Develop Knowledge Activists!

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Ikujiro Nonaka, Georg von Krogh and Kazuo Ichijo introduce the knowledge activist as a knowledge enabler. A knowledge activist is someone, some group or department that takes on particular responsibility for energizing and coordinating knowledge creation efforts throughout the corporation. Therefore, he acts in three roles: as a catalyst of knowledge creation, as a connector of knowledge creation initiatives and as a merchant of foresight.

To catalyze social processes of knowledge creation, a knowledge activist formulates 'process triggers' and creates space or context for knowledge creation. The concepts of microcommunities of knowledge, imagined communities and shared maps of cooperation help the knowledge activist to connect knowledge creation initiatives: since there are limits to the number of participants in microcommunities, the knowledge activist establishes imagined communities, whereby shared maps of cooperation are important. As a merchant of foresight, the knowledge activist finally provides overall direction to the knowledge creation taking place in various microcommunities.

The authors warn of three possible misconceptions and pitfalls of knowledge activism. First, the task of a knowledge activist is to enable, not control knowledge creation. Second, knowledge activism is not only about connecting others, but also about ensuring self-connections. Finally, lack of knowledge creation should not be covered up by establishing a knowledge activist.

Knowledge activism finds different sources in different companies. As possible options, the corporate R&D center, strategists, knowledge and technology transfer units are discussed as well as individuals or departments as knowledge activists. The 'TORIDAS' project at Maekawa serves as an illustration of the knowledge activist concept.<sup>1,2</sup> © 1997 Elsevier Science Ltd

## Introduction

Imagine you work in a knowledge creation project developing a new service for your local customer group. In the course of time, you find out that the project seems to be failing. Imagine also that your boss at this time tells you that he has heard a rumour that some other group had tried something similar for a different customer group. You call up the person in question, and with striking confidence he tells you that they attempted a similar service offer two years ago, but that it virtually failed. He adds sarcastically that he could also tell you why it failed. Discouraged, you go back to your knowledge team and break the news to them. The reaction is immediate and drastic — no more knowledge creation in this century! You try to energize them, but you fail. They somehow feel that there is no direction set for the overall knowledge creation in the company. Likewise, they are discouraged that the coordination of innovations is so sporadic and ineffective. You desperately need the knowledge activist.

Enabling new knowledge, we believe, will to a large extent be dependent on the energy, commitment, and durability put into knowledge creation. Against this background, we would like to suggest a new knowledge enabler, *the knowledge activist*. The knowledge activist is someone, some group or department that takes on particular responsibility for energizing and coordinating knowledge creation efforts throughout the corporation. We believe that such activism will have three purposes, the first of which is to initiate and focus knowledge creation, the second to reduce the time and cost needed for knowledge creation, and the third to leverage knowledge creation initiatives throughout the corporation. Knowledge activism can reside in a particular department or with a particular person, but it can also be situated in already existing departments and functions, or it can be taken up as a special assignment by individuals or departments. In the following we will discuss the roles of the knowledge activist, possible pitfalls of knowledge activism, and where knowledge activism could reside in the company. Lastly, we will

examine the case of Maekawa, a Japanese engineering company, as an example of knowledge activism.

## The Roles of a Knowledge Activist

We can distinguish three roles of knowledge activists in the knowledge creating company, as:

- ❖ Catalysts of knowledge creation
- ❖ Connectors of knowledge creation initiatives
- ❖ Merchants of foresight.

### Catalysts of Knowledge Creation

It is common wisdom that processes of social and organizational change in general need some kind of triggering event. Some of these can be negative, like the identification of homelessness as a burning issue, an external shock to business due to changes in taxation policies, a breakdown of a power plant, the entry into a domestic market of a strong global competitor, or a natural catastrophe. Other events are seen as positive, like the establishment of governmentally funded research programs, reforms in medical care services, or the advent of new information technologies like a personal communicator. Frequently, change is triggered by the initiative of activists alerting groups to such events. We can view their work as catalysis. For some chemical processes to occur, an active agent, or a catalyst, has to be present. Likewise, for some social processes to occur, a catalyst is imperative.

Being a fragile process, impeded by strong barriers, knowledge creation sometimes also needs a catalyst. As a *catalyst of knowledge creation*, the knowledge activist performs two functions. First, travelling freely around in the company, talking to organizational members across organizational boundaries and levels, he is exposed to a variety of new data, ideas, insights, opportunities, questions, issues, and problems. He picks up on these signals and gradually formulates some 'process triggers'. These process triggers are in the form of questions: 'why', 'how', 'what', 'where', and 'when'. For example, a knowledge activist might have come across a forgotten study done by some university students on customer retention (what percentage of customers buy the product again after completed consumption) for a particular product. The data obtained showed an alarmingly low retention-rate. A typical process trigger could be: *Why is our customer retention for this product so low? Why does the customer prefer to buy our competitors' products after having tried ours? What changes do we need to make in the product, promotion, packaging, price, or distribution in order to better satisfy the customer?*

The knowledge activist also poses the key question 'who?', its answer indicating the site for knowledge creation. To return to our example, the knowledge activist might bring the process triggers to a sales representative, a marketing director, a product manager, a product developer, and so forth.

Bearing in mind that knowledge is partly tacit, and that knowledge creation is strongly tied to our senses as human beings, the second function of a knowledge activist would be to create a *space*, or context for knowledge creation. This space has a twofold purpose, both to make participants in knowledge creation utilize and leverage their personal experience, as well as to relieve themselves of the heavy burden of past experiences. Past experience is the source of insights and observations, but the space must enable one to bridge the gap between common wisdom and obsolete common wisdom.

The space requires an innovative blending of architectural innovations, intervention and moderation techniques, innovative tools for visual communication, and a sound mix of people from various cultural backgrounds and functional areas. For example, innovative architecture for knowledge creation might be a building with different rooms for different phases of knowledge creation, different spaces for sharing of tacit knowledge, concept creation, concept justification, prototype development, and cross-levelling of knowledge. Furthermore, external intervention techniques might be of particular importance in the sharing of tacit knowledge and concept creation (see Nonaka and Takeuchi, 1995). The role of an external moderator might be to set the rules for the knowledge creation sessions and to encourage participants to adhere to these rules. Furthermore, the moderator might apply creative techniques whereby the participants identify metaphors and analogies that make their insights and experiences more explicit, and bundles of key words that can finally form a concept.

Tools for visualizing concepts and prototypes range from flip charts and simple clay modelling to three dimensional CAD/CAM systems and computer simulation techniques. But we must bear one lesson in mind. Fascination with information technology often tends to make it an end in itself, and thereby blur its purpose — to be an enabler of knowledge creation. Participants with heterogeneous backgrounds would also be positive in the knowledge creation process, especially in the phases of concept creation and justification. Because there seems to be a positive relationship between heterogeneity and creativity in cross functional teams, and since successful concept creation hinges on creativity rather than expertise, varied backgrounds of participants would be recommended. In justifying a concept, since a broad range of perspectives is needed, the knowledge activist would be well advised to form a heterogeneous group including people from various cultural backgrounds, organizational levels, and functional expertise.

In essence, the idea of space is to create what the French sociologist Pierre Bourdieu calls *habitus* (Bourdieu, 1980) a kind of 'socially constructed principle of regulated improvisation' (Calhoun, 1991) where tradition and creativity intersect to create new knowledge. One should also note that knowledge creation initiatives

need long-term attention. In the case of Maekawa, the innovation of a new chicken deboning machine took 14 years altogether. As a catalyst of knowledge creation, the knowledge activist would do well to recall the words of Paul Ricoeur, 'To speak of initiative is to speak of responsibility'. Thinking of a social setting, Ricoeur here draws our attention to the will, intention and stamina to follow up commitments, needs and wishes. A knowledge creation initiative sometimes needs this kind of 'energy' to drive the process forward.

### Connectors of Knowledge Creation Initiatives

Whereas the role of the knowledge activist as catalyst is marginal in some companies (experts somehow always find a way to introduce new innovations), his role as *connector of knowledge creation initiatives* will be of paramount importance to the knowledge creating company. Large- and medium-sized companies are bound to have a wide spectrum of knowledge creation occurring simultaneously. At departmental level, people come up with new product and service ideas, different ways of manufacturing, new ways of thinking and practising controlling, and so forth. At group level, new ideas are exchanged and developed, some of which may turn into a booming business for the company. The individual organizational members have great creative potential, consisting of their visions, hopes and aspirations, and we are quite certain that a majority of your employees play around with their own concepts. March and Olsen (1976) have described this phenomenon in their 'garbage can' model of organizations. People, choices, problems, and solutions are loosely connected and come together at random. For example, an engineer in raw aluminium production might have difficulty in optimizing his manufacturing processes through the implementation of process-control tools. His first reaction is to search for such solutions outside the company by contacting a number of technical consultants. What he does not know, however (and does not bother to find out), is that the manufacturing director at a different division producing ferroalloys had a similar problem some time ago. At that time he had already bought external technical advice. The plant went through a series of trials and errors before they settled on one process-control-system. Even though the materials produced are different, engineers in aluminium plants can gain important insights from the ferroalloy plant manager, such as what consultants to work with, what factors to consider when choosing a new system, the experience of implementing a new control system, the time frame and budget for such a process, and so forth. The costs to the company of repeated trial and error in the aluminium plant might be substantial, and can be much reduced by an active effort to connect the 'solution owner' and the 'problem owner'. Many manufacturing companies now realize the importance of connecting people, problems, solutions, and choices for the purpose of reducing costs. An American hardware producer, for example, has institutionalized and computerized a library of best

practices where solutions and problems are being posted and then matched.

The problem of fragmentation is even more accentuated when we look more closely at the process of knowledge creation, and for the knowledge creating company special emphasis has to be placed on actively connecting local initiatives. The larger the company, the more effort has to be given to this task. Two departments working on similar concepts and prototypes might have great cross-fertilization by communicating more extensively. Also, there is always a danger that a new concept developed in one department has great similarities to a concept developed previously in another department, even in another country. This department might possess a prototype, or even negative experiences from trying to justify the concept by studying its implications for a customer. Even though the grounds for justifying a concept might have changed, at the very least this experience needs to be brought to the attention of the new knowledge creation initiative. To facilitate these connections is the task of the knowledge activist.

At this point, let us introduce three concepts that can help the knowledge activist to shape his role as connector: *microcommunities of knowledge*, *imagined communities*, and *shared maps of cooperation*. First, we might think of knowledge creation as occurring in microcommunities. These communities are not limited to groups, departments, and divisions, but might overlap within them. A microcommunity is a small core group of participants that engage in sharing of tacit knowledge, concept creation, concept justification, prototype development, and cross-levelling of knowledge throughout the corporation. Although the doors might be opened to a wider group of participants, the core-group takes on the commitment to knowledge creation. Note that the word 'communities' is not chosen by accident. When engaging in knowledge creation, a community is characterized by its own rituals, languages, practices, norms and values. A microcommunity is characterized by face-to-face interaction, and in creating knowledge, the participants also gradually get to know more about each other including what kind of behaviour is acceptable and unacceptable (Schutz, 1967). This social knowledge is the key to effective knowledge creation. All of the illustrations of knowledge creation given in Nonaka and Takeuchi (1995), happened in such microcommunities. Inventive people came together in the same physical space, innovated products and services, and through this process, got to know each other on a deep level, even to the point where tacit knowledge could be shared.

In large organizations, however, such microcommunities also represent a challenge for the reasons given above. There are limits to the number of participants in knowledge creation, especially in the phases of sharing tacit knowledge, creating a concept, and developing a prototype. Too many perspectives, too varied sources of tacit knowledge, too many traditions, etc., make knowledge creation difficult. Nevertheless, in the

knowledge creating company, the knowledge creation initiatives need to take place in mutual awareness among these microcommunities. Hence, we would like to introduce the concept of *imagined communities*. This term is borrowed from the work of the two sociologists Benedict Anderson (1983) and James Calhoun (1991). Calhoun attempts to describe America as an imagined community:

*I feel a oneness with other Americans I have never met, a sense of common membership with people I have never met or heard of as individuals, with people who in direct interaction might repel or anger me.*

Calhoun goes on to describe how this sense of community might even lead people to fight wars for the common cause of protecting their traditions and ways of life. Knowledge creation initiatives spread around the company occur in microcommunities, but these communities also need to have an awareness of other initiatives, or in the words of Anderson 'in the minds of each lives the image of their communion'. The knowledge activist can facilitate connections by creating such imagined communities. He must share stories of microcommunities, telling who is involved, how long they have been working together, their ideas, ideals and their frustrations, the concepts created, their attempts at justifying concepts, and the prototypes resulting from the knowledge creation initiative, and so forth. He must monitor their progress in knowledge creation, and spread detailed accounts of their works. He must create a sense of belonging to a movement by spreading the latest news through information technology, face-to-face contacts, and even through newsletters.

While microcommunities share a sense of communion making coordination of knowledge creation initiatives easier, the knowledge activist cannot stop at creating imagined communities. He must also create *shared maps of cooperation*. A map is important for establishing the imagined communities. People know with whom they share a nationality, and they also know, by reference to the map, if they are geographically close or distant. By the same token, the shared map of cooperation shows how various knowledge creation initiatives throughout the company are related. There are various types of such shared maps. One is simply an organigram showing the location of various people working on knowledge creation, or a project-management tool showing the participation, budgets, milestones, goals, and time-frame of knowledge creation initiatives. Another more sophisticated approach is to show a knowledge creation process graphically, from the sharing of tacit knowledge to cross-levelling of knowledge indicating participation, budget, time-frame, expected and achieved results and responsibilities. A second sophisticated approach would be to map the competence configurations (von Krogh and Roos, 1992), showing the tasks of various microcommunities and the knowledge they bring to the solution of these tasks. This is a powerful approach, because other microcommunities can openly discuss how their knowledge could contribute to task performance at

another site in the company, or alternatively where they can find knowledge which is of use to their own task performance.

These maps of cooperation must be shared throughout the microcommunities. They will have to be visually appealing, easy to understand and use, supplied with coordinates of each participant, and they need to show how each microcommunity contributes to knowledge creation in the company. They need to be expressed in a language that is commonly understood throughout the company.

A possible pitfall is to make these maps static, to understand them as a representation of knowledge creation. Because knowledge creation is a journey into the unknown, shared maps of cooperation will have to change with the terrain. Dynamic maps show how knowledge creation proceeds, how new concepts are created, what issues are being considered in a justification process, the development of new prototypes and so forth. In cross-levelling of knowledge or sharing insights with others in the company, the shared maps of cooperation will prepare microcommunities to engage in knowledge exchange. The maps should be understood as tools for structuring an ongoing discussion of how various knowledge creation initiatives intersect, and how cross-levelling will eventually contribute to the creation of competitive advantage for the company. At regular intervals, the knowledge activist might also create 'knowledge exhibitions' at which various microcommunities present their efforts to improve exchange of experiences.

### Merchants of Foresight

The knowledge activist must assume responsibility for making the shared maps of cooperation fit with the terrain that the company explores. He must connect initiatives where cross-fertilization leads to economies of scope and scale in knowledge creation. In this work, he also has to assume a third role, namely that of a *merchant of foresight*. By this role, we understand that the knowledge activist will provide overall direction to the knowledge creation happening in various microcommunities. As a merchant of foresight, the knowledge activist must scale up and get a bird's-eye perspective of the direction of the knowledge creation that occurs within the company.

A key question is how various microcommunities contribute to the knowledge vision of the company. 'A knowledge vision should define the "field" or "domain" that gives corporate members a mental map of the world they live in and provides a general direction as to what kind of knowledge they ought to seek and create' (Nonaka and Takeuchi, 1995). In working with the participants in knowledge creation, the knowledge activist's role will be to understand each microcommunity's contribution to the development of the company and to detect how the initiatives throughout



the company really could change its strategic posture. Another important task is to sell in the knowledge vision, and point to the role of the knowledge vision for creating a sustainable competitive advantage. He will have to challenge the participants on their contribution to this vision, and suggest how they might adjust their work to fit better with the vision. Every microcommunity engaging in knowledge creation has to understand its work in a broader context, not an easy task when you get bogged down in details. In other words, the knowledge activist will have to fight against the myopia which often hinders the process of knowledge creation. This is of particular importance in a phase of concept justification. A concept, be it a new product- or service-concept, resulting from sharing tacit knowledge in a microcommunity has to be justifiable in front of the company's knowledge vision.

Selling foresight is like selling a gas like oxygen — the customer cannot really see what he is buying. The merchant of gas needs calibrated instruments showing the flow of the gas to convince the customer that he has delivered the merchandise he or she pays for. The working of these instruments and their calibration has to be understood by both the customer and the supplier. Likewise, the shared maps of cooperation have to be linked with the foresight of knowledge creation. At certain intervals, the knowledge activist must illustrate how the various initiatives in the company support the knowledge vision. The knowledge activist needs a 'calibrated' map to show that the knowledge creation initiatives do indeed contribute to the knowledge vision. He has to demonstrate, like the gas supplier, that the knowledge vision really focuses knowledge creation in the company, and that the efforts of other microcommunities are of value throughout the company.

### What the Knowledge Activist is Not

Before moving on to discuss who can be a knowledge activist, we would also warn of three possible misconceptions and pitfalls of knowledge activism that might have a detrimental effect on knowledge creation. Firstly, knowledge activism is about enabling, not controlling. Combining the three roles of catalyst, connector, and merchant, the knowledge activist will just influence the company-wide processes of knowledge creation. Because of the inherent indeterminacy of such activities, he should at the outset give up the idea of controlling knowledge creation. If knowledge were an asset, stable over time and space, we could indeed apply technical procedures to control its development. It is quite easy for the knowledge activist to conceive of himself as a controller of such knowledge. He has immediate contact to various microcommunities, he has access to explicit knowledge, concepts, and prototypes, and he continuously edits the maps of cooperation. The activist, however, has to remove himself from the asset-perspective of knowledge once and for all — he must take a creationist stand. The creationist looking at

knowledge as a potential for new innovation, and ultimately a new source of competitive advantage must also live with the unpleasant fact that knowledge has a wicked character. It is fluid, dynamic, partly tacit, partly explicit, tied to individuals as well as groups of people. The knowledge activist cannot be a controller. Any attempt to control knowledge creation will have to refer to explicit historical knowledge, like an engineering drawing, a market study, or a production manual. This knowledge, however, is of minor importance to competitive advantage for the firm. What matters is the process where people come together, strike the tune needed for the sharing of private insights, dismantle noxians to fruitful cooperation, unleash the group's creative potential, stretch their minds to embrace new concepts and carefully apply their technical wisdom to develop new prototypes. With the mindset of a controller, he will be another unpleasant barrier to knowledge creation.

Secondly, knowledge activism is not only about connecting to others, but also about ensuring self-connections. As a merchant of foresight, the knowledge activist will be in a vulnerable position. In selling in a knowledge intent he always confronts the short-term considerations of the microcommunities, their own aspirations, needs and fears. He typically runs the risk of being dubbed as a visionary without any solid basis in day-to-day business. The maps of cooperation might be seen as a fiction of his own, rather than a navigator for down-to-earth knowledge creation. To overcome this obstacle, the knowledge activist must develop a very high sensitivity to the workings of each microcommunity of knowledge creation. He will have to build up trust by demonstrating staying power and an intent of continuous collaboration. He will have to master the delicate art of attentive inquiry and dialogue, whereby he attaches the intent of each community to the company knowledge intent. He will also have to act with integrity, at times proposing changes to the knowledge intent where this itself shows to be too ambitious, unclear, or in conflict with the ongoing knowledge creation initiatives.

Thirdly, establishing a knowledge activist should not be a cover up for the lack of knowledge creation. Of course, knowledge activism is a most visible way of demonstrating the company's intention to innovate and nurture knowledge creation practices. It would be easy to say: 'Look at us — we really take this knowledge stuff seriously — we even have this knowledge activist guy who is responsible for knowledge in our company'. This would be a great mistake. The knowledge activist is not responsible for knowledge, nor is he an alibi for the lack of knowledge creation and innovation. Without an intent to create knowledge throughout the company, the knowledge activist will just be an extra investment that does not pay off in the long run. His role is to enable, not create. He will never compensate for the lack of knowledge creation at the business level, and even the most uninformed shareholder will start to question the lack of deep-rooted practices of knowledge creation. Do

not forget that the knowledge activist is just an enabling condition, catalyzing, connecting, and trading in foresight. Do not look at the knowledge activist in isolation, but as a part of a total package, whereby new sources of competitive advantages are being secured for the future. Only then will the knowledge activist really pay off.

### Who Can (or Should) be a Knowledge Activist?

In essence, all organizational members from time to time activate knowledge creation in a company. Would it pay off to have a separate task of knowledge activism? We believe it would. Even if knowledge creation would be triggered in microcommunities, there might be a weak tie-in to a company's knowledge intent and strategy. The project might lack foresight, and even the well intended initiatives might be given limited attention. Who, then, could be a knowledge activist?

Knowledge activism stems from different sources in different companies. In many large diversified corporations, especially those with high international R&D activity, we have observed that the role of the corporate R&D center is about to change. Rather than conducting basic research, applied research, or even product development, these centers take on the role of coordinating R&D activity throughout the corporation. Applied R&D is essentially seen as a business-related activity linked to distinct industries, markets, customer groups and products. The role of corporate R&D is very much that of connecting various research and development findings across businesses with the intention of creating economies of scope. The corporate R&D center might work as a catalyst for local knowledge creation by delivering basic research. They can trigger questions related to business activities, using basic research findings as a lever to get into innovation processes at the business level. At the same time, these corporate R&D centers are closely related to the corporate strategy making of the company, and thus assume a particular responsibility in communicating its knowledge intent. This attachment to the knowledge intent also requires of the corporate R&D centers that they coordinate knowledge creation initiatives in such a way that they support the realization of the intent, or that they engage in intensive conversations with the senior management about the need for a change in knowledge intent.

The pros and cons are quite clear. As a knowledge activist, the corporate R&D center can be effective catalysts for local knowledge creation. They are also close to the corporate strategy making and can therefore communicate and influence the creation of a knowledge intent. On the other hand, especially if they have their own budgets for R&D, their interests might conflict heavily with those of the microcommunities at the business level. The question of where knowledge

creation should occur will be a recurrent theme endangering the success of knowledge activism. A possible solution would be to restrict basic research to corporate levels, and applied research and product development to the business level. But as several R&D managers have experienced, this distinction between basic research and applied research is inherently fuzzy. In a map of cooperation, the division of knowledge creation labor has to be solved on a case-to-case basis.

It was suggested by Gary Hamel that strategists need to work as activists,<sup>3</sup> inducing change throughout the organization and creating commitment to an ideal. Strategic planning staffs and foresight centers can play an important role as knowledge activists as well. Since knowledge is a source of competitive advantage, strategists are bound to take knowledge and other intangible resources into consideration in strategic planning. This in turn also requires that they develop a high sensitivity to the various knowledge creation initiatives occurring throughout the company, by communicating intensively with product developers, researchers, sales and marketing personnel, corporate communication officers and so forth. Strategists form the nexus of information streams throughout the company, and they assume responsibility for scaling up and identifying patterns in the evolving strategy.

The pros of using strategists as knowledge activists are that they are close to the knowledge intent of the corporation, and can communicate and explain the direction to be pursued by this intent. They can work actively as merchants of foresight, linking various knowledge creation initiatives to external changes like the threat of new entrants, new technical developments, intensifying competition, enhanced influence by suppliers, changing customer needs and so forth. The cons are equally clear. Strategists are busy people, always in a hurry to keep pace with environmental changes. Perhaps they even lack the patience required in catalyzing knowledge creation. As connectors of knowledge creation initiatives they might work well, but there is always a danger that they will tend to favor knowledge creation which is in line with the strategy and knowledge intent, and disfavor knowledge creation leading to an evolving, bottom-up knowledge intent. Strategists are normally often identified with a deliberate strategy, and a purposefully defined strategic intent. They normally do not acquire a reputation for picking up on local initiatives and amplifying these throughout the company. For strategists to become excellent knowledge activists, a mindset shift has to occur. They have to pay increasing attention to emergent, bottom-up knowledge creation.

Some companies, like ABB have established knowledge and technology transfer (KTT) units that take responsibility for transferring technologies, best practices, experience and so forth throughout the corporation. The purpose of these units is to globally leverage local knowledge in a systematic and speedy fashion. The units normally work with engineering



departments as sources and receivers of technology. Their responsibility is to identify expertise on technology, identify technology to be transferred, define documentation routines, develop training programs, and manage the transfer projects. KTT is becoming a discipline which has a considerable impact on the competitive advantages of the transnational corporation, and the ability to excel in this discipline will therefore have an impact on long-term industry performance.

The pros are that as connectors of knowledge creation initiatives, the KTTs are excellently positioned. Like the strategists, they function as a nexus of information, technology and knowledge flows in the corporation. The KTTs also develop particular expertise in administering projects that connect knowledge creation initiatives. They also develop particular expertise in the approach to knowledge transfer, like balancing the transfer of tacit knowledge through training, and the transfer of explicit knowledge through engineering documents.

The cons, however, might be that the KTTs seem to be quite contract- or project-oriented. Connecting knowledge creation and cross-leveiling knowledge beyond the project or contract seems unrealistic. Hence, the perspective of the KTT might be quite short-term. As merchants of foresight, the KTTs might have to put particular emphasis on knowledge and technology transfer in the context of the knowledge intent. It must give sense, purpose and direction to knowledge connections by referencing the intent. Another difficulty of the KTT might be that unlike an R&D center, they lack the basic technical knowledge needed to catalyze knowledge creation. Likewise, they might not be close enough to the market in order to pick up new signals from the customer that could trigger new knowledge creation. Hence, they need to work closely with 'listening-posts', like sales and marketing personnel, strategists, researchers, and alliance partners.

Another possibility, and the most convincing one in our opinion, is to assign responsibility for knowledge activism to an individual or department. The knowledge activist, in this case, would develop the three roles in a balanced way, seeking to catalyze new knowledge creation, connect knowledge creation initiatives, as well as introducing some foresight into the local processes of knowledge creation. The pros and cons of this approach are connected to the whole discussion above. The knowledge activist will be somebody who reduces the time needed for knowledge creation, and provides sense, direction and purpose to all those local knowledge creation initiatives happening throughout the microcommunities.

Perhaps some readers at this time have adopted the idea of using one member of a microcommunity as knowledge activist. The pros of this approach would be local acceptance in his own microcommunity, and a profound understanding of the process of knowledge creation in general. The threats to the effectiveness of this approach would be, however, that the knowledge activist would

pursue the interests of his own microcommunity, and/or be suspected by other communities of doing so. It would also be difficult for him to instill foresight into the knowledge creation initiatives, due to his high commitment to the details of one knowledge creation process.

## The 'TORIDAS' Project at Maekawa

Let us illustrate the knowledge activist in practice by means of a short case-study. Since its inception in 1924, Mycon<sup>4</sup> devoted itself to the accumulation of various forms of know-how (including elementary application and production technologies), and the creation of new markets by developing new products, focusing on customer needs in the food and thermal technology industries. Mycom was initially a company that developed and manufactured freezers for industrial use. Throughout its 70-year history, however, it has greatly extended the spectrum of its activities to services and technologies in the fields of energy, food processing and extremely low temperatures.

The idea of developing an automatic chicken leg deboning machine, named TORIDAS, emerged at Mycom in 1980. Since its introduction on the market in 1994, it has been well received by the global food processing industry as an epoch-making product because of its high deboning performance. The development of TORIDAS, however, was not easy and took 14 years. The project was suspended for four years after the first prototype was introduced in 1986. This suspension divided the project into two stages. The project team's approach to the mechanization of deboning work in the second stage was completely different from the one in the first stage.

Soon after the project started in the first stage, the members of the deboning machine development team discovered that the mechanization of deboning work was much more difficult than expected. The greatest challenge for them was to find an appropriate way to separate chicken meat from the bone. Though they had been advised by deboners at a chicken deboning plant not to cut the meat, they stuck to inventing a meat cutting machine. They believed it was the only way to develop a deboning machine, using their knowledge of and expertise in mechanical electronics. Although realizing automatic deboning, however, the first prototype, which was a huge chunk of metal with a complicated mechanical structure, had not reached a level of commercialization at all.

What went wrong in the first stage of the TORIDAS project? First, the project team decided to use and further develop their existing knowledge of mechanical devices. They didn't create a new knowledge base. At this stage of the knowledge creation process, the knowledge activist formulates process triggers such as: *What do we know about the chicken deboning process? How can we develop knowledge about this process? Why do we use just*

*knowledge about mechanical electronics?* These triggers initiate a new knowledge creation process. Secondly, the project team applied and further developed the wrong knowledge, because they lacked a knowledge intent. As a merchant of foresight, the knowledge activist sells the knowledge intent to provide overall direction to the knowledge creation process. During this first stage, the project team developed a deboning machine lacking a knowledge intent and using their existing knowledge.

Maekawa restarted the project in 1990. A young development engineer became the knowledge activist. He told the project leader that he wanted to resume the development of the deboning machine to catalyze knowledge creation. This engineer had regularly visited some chicken processing factories for his tasks in developing freezers and other machines. Connecting to the work of the previous groups he realized that the machine's movements were completely different from manual deboning work he had watched at chicken deboning plants. He concluded that the development concept had been fundamentally wrong, and decided to experience deboning work for himself. He asked one chicken deboning plant to let him work there. Through this 'training and practice' at the plant, he learned the knack of stripping chicken meat off the bone after cutting the tendons. The point was that deboners cut only tendons. The following process should be described not as 'cutting the meat off the bone' but as 'stripping the meat from the bone.'

In the beginning of the project's second stage, the project members, basing their work on the experience of the young engineer and his foresight of creating a machine that would work, framed a hypothesis that deboning work could be mechanized by analyzing the work done by human hands and translating it into mechanical movements. Then the project members started learning about chicken legs and experiencing deboning work for themselves so that they could share the experience of the young engineer. All the members of the project team started learning deboning work from scratch beside professional deboners.

After grasping the knack of deboning, the team members started breaking down manual deboning work into several phases. Through this procedure, deboning skills acquired by and embodied in the team members were articulated and transformed into explicit knowledge. This conversion of tacit knowledge into explicit knowledge enabled the project members to complete the deboning machine 'TORIDAS' in 1994.

During this second stage, the young engineer acts as a knowledge activist. Four years after the suspension of the 'TORIDAS' project, he picks it up again, asks himself why the project failed and finds the answer: the development concept was fundamentally wrong. He triggers a new knowledge creation process. While the project team works at the chicken deboning plant, space for knowledge creation is built up. The young engineer assumes the role of a catalyst of knowledge creation.

While working at the deboning plant, the project team starts learning about the chicken legs and experiencing deboning work so that the deboner's knowledge can be transferred to them. In this stage of the knowledge creation process, the young engineer acts as connector of knowledge creation initiatives, starting communication and knowledge transfer between the deboning plant and his project team, within the team and with the previous teams.

Based on the young engineer's experience, the project team formulates the knowledge intent, forming the hypothesis that deboning work could be mechanized by analyzing the work of human hands and translating it into mechanical movements.

## How to Get Started

At this point, the reader should be sensitized with respect to the role, functions, and challenges of the knowledge activist. Managed carefully, we believe that the ideas presented here can have a positive impact on knowledge creation in your company. In order to get started with knowledge creation in general, you might take some initial actions:

- ❖ Create a knowledge vision.
- ❖ Establish knowledge activism as a concept in your company — include it in conversations on knowledge creation and innovation.
- ❖ Initiate a broad discussion of how knowledge activism should work.
- ❖ Appoint the knowledge activist and clarify expectations and roles.
- ❖ Identify and name your microcommunities of knowledge, and indicate where new microcommunities could emerge.
- ❖ Discuss to what extent local knowledge creation initiatives align with the knowledge vision.
- ❖ Connect microcommunities throughout the company by sharing stories and spreading the latest news.
- ❖ Develop shared and dynamical maps of cooperation (graphical), e.g. by mapping your knowledge creation activities, innovations projects, or centers of excellence.
- ❖ Discuss and then distribute these shared maps to various microcommunities, but make sure to update the maps on a regular basis.
- ❖ Launch 'knowledge exhibitions'.

A last reminder: Knowledge creation enhances the value of your company, and you might want to support this process with the help of energetic knowledge activists.

Good luck!

## Notes

- 1 We thank Philipp Käser for his excellent editorial work.

- 2 We thank the Research Commission of the University of St. Gallen for the financial support to conduct basic research.
- 3 Gary Hamel applied this notion in his article, *Strategy as Revolution* (1996).
- 4 Mycon is a corporate brand for Maekawa Seisakujo (Maekawa manufacturing company).

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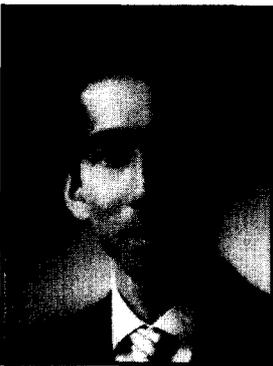
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