

January 1989

Discussion after the Speeches of Dr. Krogh and Dr. Fleck

Discussion

Follow this and additional works at: <https://scholarlycommons.law.case.edu/cuslj>

 Part of the [Transnational Law Commons](#)

Recommended Citation

Discussion, *Discussion after the Speeches of Dr. Krogh and Dr. Fleck*, 15 Can.-U.S. L.J. 141 (1989)
Available at: <https://scholarlycommons.law.case.edu/cuslj/vol15/iss/24>

This Speech is brought to you for free and open access by the Student Journals at Case Western Reserve University School of Law Scholarly Commons. It has been accepted for inclusion in Canada-United States Law Journal by an authorized administrator of Case Western Reserve University School of Law Scholarly Commons.

Discussion After the Speeches of Dr. Krogh and Dr. Fleck

QUESTION, Professor King: How transferable is the 3M magic to other companies? For example, is it unique to the particular industries that 3M is in? Is it due to the history of the company? Is it something that can be duplicated in any other spot?

ANSWER, Dr. Krogh: A lot of people ask us how we do it. I do not know of any way to do it easily, unless you change the culture of the company completely. It is not an easy thing to do. It is something we have to fight to maintain at all times because we have forces within our own company which tend to tear it down.

I mentioned the nay-sayers. One of the things that can happen in any company is that the nay-sayers will win or you will threaten the culture of the company by going into a business that some of them do not want you to go into. It is very difficult.

On the other hand, we have been quite successful in transferring this magic to our foreign subsidiaries outside the United States, probably because we have sent our people over to start those subsidiaries and we continue the flow of people both ways. If another company wanted to change its culture, it would have to exchange people with a company like 3M. I think that would be the only successful way in which it could occur. We don't propose to do that.

QUESTION, Professor King: Dr. Fleck, as I listened to your story I wondered if it presupposes a very close relationship between you and your customers as a basis for what you are trying to do in the way of innovation. Suppose there are others who want to do the same thing that you are doing, what about the competitive factors? Does that throw a monkey wrench in the works? You have a very good theory there, with which I basically agree.

ANSWER, Dr. Fleck: If you concentrate on the process technology, you are more likely to keep that within your company than a product technology. That is not the reason we are doing it, but if you have an unpatented product technology, it is very difficult to hang onto it. If it is processes that you do within your own plant, you are able to keep control of those and not necessarily share them with your customer as you would a product development.

One of the differences is that in many cases 3M would be selling a product to a consumer. We are selling a product to an assembler, but they have specified the product in advance, generally speaking, and they have control over the design. We found that when we started trying to design a product, we ended up spending a fair bit of money and not really

getting any return for it. Whereas, if we can stay "mean and lean" with a higher emphasis on the variable side of the cost structure, we remain competitive.

We are working hard at process development, including quality, which is one of the real drivers in manufacturing these days. We think it enables us to keep better in tune with what it is our market is looking for at the present time.

QUESTION, Professor King: That presupposes, I assume, that the customer does not take the product in-house using your technology. I assume that you have to have some protection over the technology, or is it just straight know-how?

ANSWER, Dr. Fleck: No, it is more in the processes of how to do things better and more cheaply while increasing quality. It is not something that the customer really gets to see. It is just that we come up with a higher quality product that we are able to produce more efficiently.

Our focus is on maximizing our limited resources. We cannot go twelve or thirteen years without making a profit or we will not be around. You have to have the financial strength to be able to wait fifteen years for a product to come down the line. In a very competitive business like ours, you cannot let things get out of control or you will go down the tubes quickly.

QUESTION, Professor King: Dr. Krogh, you said that everybody has the right to spend 15% of his or her time on the creation of new products, is that right? How do you control that? Is that limited to a certain category of people? It sounds like a nice combination, but the 15% has got to produce something. Is it just that if you get a success story, it balances the failures in some other cases?

ANSWER, Dr. Krogh: At any given time less than 5% of the people are using the 15% plan. We wish there were more people with ideas to work on so we would have more things to choose from. Some people do abuse it, but if they have a good idea and they are working on it, we just sort of look the other way. Remember that 15% of the work week in addition to Saturdays, Sundays and evenings amounts to an awful lot of time if you really get into something that interests you. It has never been a problem. If we ask them to do something, they will set their idea aside and get that high priority task done ahead of time. It has never been an issue. The only issue is that not enough people use it.

QUESTION, Professor Edwards: I want to ask Dr. Fleck a question. What do you do to protect yourself from becoming obsolete? In other words, if there is a change that would make your improvements on the process irrelevant because the product is no longer going to be provided, what do you do?

ANSWER, Dr. Fleck: We certainly have to keep abreast of what is going on. The difference is that we are not necessarily developing it ourselves. We keep in touch with our customers to find out if anything is

being developed. We attend fairs and exhibitions and read what is available. We certainly want to watch what is happening, but we do not put a lot of resources into trying to develop our own final product.

My father used to be in the toy business many years ago. He had an R&D department — he went to the toy show in New York each year and looked at what was going on; then either copied it or licensed it.

You have to determine whether, in your specific business and in your specific niche, it makes sense to invest in R&D. You must look at whether it makes sense in your particular situation.

QUESTION, Professor King: How long a life cycle do you average on new products, Dr. Krogh? You have to keep up this tremendous momentum. So far it has worked well, but you also have a limitation in terms of product life cycles. You have invested a lot of money in product development and you need to get that back. Do you have to meet any standards on the length of the product life cycle?

ANSWER, Dr. Krogh: Life cycles are very interesting. They are very diverse. One product which has probably not changed significantly for thirty years is the roofing granules used on asphalt shingles. The only thing we have done is to increase the color selection, and make the white a little whiter. Basically that product life cycle is extremely long.

We have other products with very short life cycles, maybe six months to a year. We have gotten ourselves into a leapfrog situation with our competitors because we have not invested in the basic research, the technology-building required to produce a long product life cycle. We frequently have to go back and put more money into the technology-building in order to get a product that is so far advanced that it has a longer product life cycle.

If you do not pay attention to the technology-building, product life cycles in a tight competitive race can become so incredibly short that it is no longer productive. We have to take the bull by the horns and say, "We are not going to get into that race. We are going to do what is necessary to stay competitive or maintain market share while building the next generation of products."

Let me give you a few examples. Number thirty-three electrical tape, the stretchy black vinyl tape, first came out in 1950. It has not changed very much. Packaging tape, on the other hand, has gone through an enormous evolution in the last ten years. Prior to that it was a very stable product and did not change very much. In the clear tapes, the kind you have on your desk top, there really have been only two products in the entire life time, cellophane tape and now cellulose acetate tape. There have been improvements, but the product and the form of the product have had very long life cycles. Yet masking tape, particularly for use in masking automobiles continually demands a little bit better feel, a little more conformability. In addition, whenever the automobile manufacturers change the paint on an automobile, which

they do about every two or three years, we have to change the tape. So sometimes other products life cycle affects our own product. So in tapes, I would say the average life cycle is five to ten years.

QUESTION, Professor King: The 3M setup depends on creative individuals. Do you consider that in your hiring decisions, or is it just a potluck? How do you select your people?

ANSWER, Dr. Krogh: That is a fascinating question. Early in the history of the company, we used to hire farm boys who had gone through the local universities. Farmers are independent people, the kind that make good researchers because they will not take no for an answer.

We look at grades and participation in activities, things you would probably do in hiring anyone. But I think there is a self-selection process. When we describe 3M to certain individuals, some people, even though they look very good on paper and interview well, will turn us down because they would be very uncomfortable with our style of management.

So it is a complex process. More than anything else we try to teach people to be creative. Many people become creative simply because it is expected. For others, the creativity demonstrated by co-workers challenges them. In addition, rewards for creativity provide incentives.

Some people just never make it, but there are a lot of jobs in our laboratories and our company which are very routine. We need to have those jobs done, and often these people are very good at those jobs. Quality control testing and some kinds of process development are very routine jobs which require specialized skills. The interface between our laboratory people and our patent counsel is handled by patent liaisons who must have specialized knowledge. So there are very useful ways of utilizing those people who are not as creative.

QUESTION, Dr. Strub: The 3M spirit seems to be mainly applicable in research and product development and not in manufacturing or other areas. I find it hard to believe that this is the only U.S. company with such a style of management. Do you know of any U.S. companies which have broader applications of similar systems?

ANSWER, Dr. Krogh: The entrepreneurial spirit spills over into manufacturing and marketing because the general manager of a division has a 25% new products target. The laboratory alone cannot meet that target so there has to be a little bit of that entrepreneurial spirit in the manufacturing and marketing side. It is a company culture, although it really begins in R&D.

We are not the only company that does a good job. Hewlett-Packard and Millikin also do a good job. Roger Millikin deliberately studied the 3M company and its management style and copied it. Merck is a good illustration in a somewhat narrower field, but very innovative nevertheless. I think the interesting parallel between Merck and 3M is the freedom they give their people in the laboratory.

QUESTION, Mr. Blackburn: We heard earlier today about the Japanese corporate business culture. Does 3M or Dow have manufacturing operations in Japan?

We have been looking at the transplant problems the other way, Japanese manufacturing culture being imported to North America. How does the corporate culture transplant? Do the sorts of things you are talking about transfer the other way?

ANSWER, Dr. Krogh: We have a Japanese affiliate. Fifty percent of the Japanese company is run and staffed by 3M, using our technology. It is a very successful company. There has been no trouble in transferring the technology there. When we build a new plant to make a product in Japan, it makes a good product from day one, that is better than we do.

The Japanese are also becoming very innovative. We have been building up our laboratory there for a number of years, seriously in the last six to eight years. They are becoming extremely innovative and very fast in product development. They are also good inventors. I think we have transferred a lot of the culture.

Now, interestingly enough, other people have compared the Japanese management style and the 3M management style and say they are quite alike. It is consensus building, but the Japanese take it a little further than we do.

QUESTION, Mr. Conway: This afternoon we heard the horrors of product liability. In your R&D and product selection, what impact does product liability have on the decision-making process?

ANSWER, Dr. Krogh: We have deliberately taken some product lines off the market because the potential liability was too high. We have just established a corporate committee on risk and liability. Our CEO is extremely sensitive to the subject. We had one product recall last year, and it was quite expensive.

Product liability is an area in which our laboratory people, especially, have to be extremely sensitive. It has to be supported by staff groups who know what types of liability problems may arise, for example, environmental problems such as emissions and disposal. We are very sensitive to product liability.

QUESTION, Mr. Reifsnnyder: When you initiated this dual career ladder was it intended for people coming out of businesses and colleges?

ANSWER, Dr. Krogh: We started the dual ladder in 1956 when we appointed our first research associate, now called the corporate scientist. Because we wanted to make it extremely pure, we took a good technical manager and decided he was the best candidate to be our first research associate. He had been managing fourteen or fifteen people. We left him with a couple of technicians, but over a period of about a year all those were taken away. He was all by himself in the laboratory because he was on that non-management side of the ladder. After about two years he

came back to management and said, "Please make me a manager again so I can have somebody to help me."

We have learned not to use it as a dumping ground. In other words, if you have a field manager, do not put him on the technical side of the ladder to get him out of management. As a matter of fact we just recently went through this again, and the Technical Forum, which has a senate and a governing board, put together an ad hoc committee just to re-examine the problem of whether we should place a director or a laboratory manager on the technical side of the ladder, and if so, how we should go about it. I recommended that we leave him the same title or something similar. Do not make him a corporate scientist, for example, if he is a director. Give him a year to prove he can do it, and if he can, make him a corporate scientist. If he cannot, put him where he belongs in the ladder. One of the key things is that we have been very careful not to dump. It has been used as a dumping ground by other companies and they have abandoned the system. At the lower levels there is quite a bit of transfer back and forth. After all, a young research specialist who has never had a chance to be a supervisor will want to try it. If he does not like it, he may go back to the other side, and that is not a problem. It is only when you get to the two top rungs that it becomes a problem.

You also have to be sure that you do not have a quota on the technical side of the dual ladder. There is a limit on the number of managers and directors you need. The argument has frequently been made by people who aspired to the technical side that they have to wait in line until there are openings. That is not so. They can earn a position at any stage of their career if they have proven they can perform at that level. On the other hand, if you are an aspiring technical director, you may have to wait until somebody retires or moves on before you can get a management job.

So there are pros and cons which must be communicated to both sides. They are terribly suspicious that you are doing one thing for one side and not to the other. But keeping it pure is really the key.

We have about thirty corporate scientists, and we meet with them periodically as a technology planning and policy committee. The one thing they emphasize to us again and again is that they are all different and need to be treated differently. We have a few corporate scientists who manage fourteen to fifteen people. Some do not want to manage anybody and will not even take a technician because they just don't want to be bothered. You have to be very adaptable when dealing with them.

QUESTION, Mr. Allen: No matter how freewheeling the environment may be, at some point the corporation must establish priorities and may have to cancel projects, sometimes in their embryonic stages, sometimes when they are almost ready for commercialization.

There will be certain people who have worked perhaps a long-time in those projects, have a tremendous commitment or are emotionally in-

volved with those projects who will be disappointed by such a decision. I assume, based on my own experience, that some of those people have seen the success of others who have taken ideas into a small enterprise venture capital operation and fared very well.

How do you address this situation in 3M? Do you encourage them to go off and do these things? Do you discourage them? What is your approach?

ANSWER, Dr. Krogh: Well, we have only two or three instances where something from 3M has been taken outside with the company's permission. We have essentially licensed the patents to the people. We have one that may be a success and we have another one that I think is going to be a success. Those are the only two I have heard of since I have been with the company. The difference between 3M and a lot of companies is that our technologies are so interwoven that it is very difficult to carve out a single piece and take it outside. Frequently, by the time the management has convinced the people on the project that it is not worth the effort, there is nothing left. The major mistake that most corporations make is to think they can succeed at everything simply because they succeeded at a few things. It can be a management failure to try to pursue things for too long. When that sort of project gets killed, even if it is possible to move it outside, the venture capitalists refuse to put any money into it and it dies automatically.

QUESTION, Professor King: Is the 3M approach useable in a small company such as Fleck Manufacturing, or are you locked into servicing existing markets and thus unable to be as freewheeling as at 3M? Is it a matter of economics?

ANSWER, Dr. Fleck: I think in time we can spread our wings. In terms of management style, many of the ways in which we operate internally are probably very similar. Ours is quite an informal management style; we try to seed it with bright new people each year, and we try to delegate responsibility. Many aspects that Dr. Krogh has mentioned here are features that we might have in our company. The difference is that we certainly are not in the laboratory in the same sense, and we are not developing products to be sold to the consumer.

One of our strategic objectives is to do what we are doing well enough to generate resources that we will use — we call it the “wedge.” We are looking for something which will enable us to move off in another direction profitably. But first we are very conscious of making sure we do a good job on what we are doing now. We have grown quite rapidly in the United States. We see a tremendous opportunity for a very substantial increase in just doing well what we are doing now.

COMMENT, Professor King: The spirit of innovation must exist if we are going to succeed. During my visits at 3M I experienced it, and I am sure I would experience it at Fleck Manufacturing Company.

Thank you both for enlightening us on a very timely subject, particularly in light of the Free Trade Agreement.