

Every Institution is a Living System

Conversation with Arie de Geus | London, September 22, 1999

Claus Otto Scharmer (COS): What are the underlying or deep organizing questions that you are trying to address through your work?

I. What Is Planning For?

Arie de Geus: After I was appointed as the planning coordinator in Royal Dutch Shell, the first question I addressed was what the hell does planning actually contribute? What is planning for? I'd been in decision-making positions at the same seniority level for quite some time, and wondered did I really need a plan to help me? And the answer was yes, I needed a plan because planners were people who were talking about the future. The future plays a very important role in the decision-making process. So you could say that my original questions had something to do with the nature of decision-making processes in large organizations. How did Shell arrive at its important decisions? I had more than 30 years in Shell, and had been at the senior level for quite some time, so I should have known. But the fact was that I didn't, really. I didn't really understand how we made our major decisions. I don't mean operational decisions, I mean the really important decisions, like What were the developments in the oil business? Where did we come from and where were we going to? The senior level had a "planning role" role, but—planning in what? For what?

II. Decision-Making As Learning

Thus, the second element in my question was the nature of the decision-making process. So one was just the role of planning and the second one was what was the nature of the decision-making process in a large institution? It was the large decision-making processes in which I was interested, not the operational ones, which are clearly the application of knowledge that is codified and available in the organization. I **knew the decision-making process was important, and thought that fundamental structural decisions were in fact learning processes.** But that was a hypothesis, very much a hypothesis.

COS: Do you remember when that hypothesis first crossed your mind?

Arie de Geus: I started thinking about these things in '82 or '83. It was really only in the ten years before that that I had read some of the more modern American literature on learning. Notably I had read two little books that had made an immense impression on me, because I had young children at the time. They were by John Holt. One of the books is called *How Children Fail*, and the other one was called *How Children Learn*. They are both phenomenological studies and they emphasize something that I had picked up many years earlier as a student. It is also a sort of folksy knowledge in the cultures where you and I come from, which is that learning and playing have something to do with each other. The whole study is about the power of discovery, of experiential learning, learning by experimentation. This is opposed to the learning that takes place by authority from a teacher imposing knowledge on a class. I must have recognized certain analogies in what I was seeing in the business situation, where the acquisition of new knowledge was imposed, it was hardly team work. It was experiential in many respects. That curiosity led me in several directions because I hadn't a clue as to where to go. I couldn't talk about it in Shell because this was a highly unpopular statement.

COS: What was?

Arie de Geus: To say that the real decision-making process is a learning process rather than the application of knowledge. Many at high levels of management are convinced they are there because of what they know and how they represent what they are. These statements were saying you're not there because of

what you know. You're there because you're reasonably good at intuitively or otherwise finding your way to a learning process together with your colleagues, such that you learn and arrive at new conclusions that are more or less successful. That was not a welcome message. It was undiscussable in the beginning in Shell.

COS: What sort of reaction did you get?

Arie de Geus: I could talk about it in my own unit, in the Shell planning unit, because that's where the more adventurous minds were. I went outside in various directions at the time, more or less simultaneously. The first step was towards the Tavistock Institute here in London, where I met Harold Bridges who is one of the original people there. The folks there had been leaders in one of the major learning processes of the century, which was the preparation of a million people in the allied armies for the invasion in France. They had learned that the best learning takes place by creating experiential situations that did not carry the same risks as the real situation. I had several discussions with Harold, who is now 90, with whom I still have occasionally contact.

Seymour Papert, who was the back at MIT in the media lab, had published *The Mind Storms* in 1980, which was about children learning mathematics by playing with computers. Papert's work had very important consequences for my next steps of thinking. One was that it helped me to realize that computers could be a toy. And the second one was that Papert himself came out of the Piaget school. He had spent most of the 1970s with Piaget in Geneva, and I think that Piaget is still one of the most impressive theoreticians about the role of play in growing up. It took years before these ideas finally penetrated my brain. **The underlying work of Papert and Piaget says that play is the most important tool of the human being as he evolves through life**, in growing up through the different phases of our development as a human being. From being a baby, to becoming a toddler, from being a toddler to going to school—each stage is a whole new world. The only way we are able to cope with these is through learning. Not play, it's through learning. That was the second line that only very gradually made me begin to think of the analogy between the development of the human being and evolution of a company. Later this allowed me to begin to talk about companies as living systems with much more confidence.

The third line was that I went outside Shell to reconnoiter and see what I could discover. I was going to the System Dynamics group, as Peter Senge will remember, because I'd made the step that decision making was learning. The best learning takes place through play, and you play with a toy or a transitional object, and the computer could well be an effective transitional object. The next step was to think, what do you need to make a computer useful to grownups to actually play with it, to experiment?

Those were the last years of linear programming. Those were the last years of organization programs on computers, and we had tremendous experience in all this. We were looking for a computer program that could be worked with by the people who were sitting in front of the screen at any state. It was clear that linear programming did not and could not represent well the organization of programs that we were looking at. We couldn't even represent simple things like refinery programs, or shipping programs for our tank fleet, by using video programming. It was pure that someone said to me that "Why don't you do and talk to Jay Forrester?" And that's what we did.

COS: So you first went to Jay Forrester?

III. Meeting with Jay Forrester and Peter Senge at MIT

Arie de Geus: We first went to Jay Forrester, and Jay organized an afternoon in that awful building there where the System Dynamics group is.

COS: That was back when? What year was that?

Arie de Geus: Maybe '83 or '84. I'm not sure. Two or three of us went there, and Jay said, "I sure have a roomful of people." Peter Senge, Barry Richmond and quite a number of other people from in and around MIT were there. Jay said, "Well, here are the Shell people, I'm not sure that I understand what the hell to talk about." But he seemed to think it could be of interest to us, and let's listen.

I had prepared a very limited talk, probably along the lines that we have just been discussing. I said we were looking for a way to boot into a computer model a representation of managerial situations, and we heard that System Dynamics might help with that. And Jay and several other people said, "Yes, yes. The only thing is our software isn't good enough," and did I know much about software. I didn't know much about computers either. They had something called Dynamo, but even the simplest program in Dynamo took them months. I then learned that people like Peter Senge and Barry Richmond spent years of their time working on a complicated program of the US economy. We said we at Shell are not looking for a way of thinking that will help us clarify the future, we are absolutely not interested in predictions. We are looking for System Dynamics as a means to represent what is happening in a living system like our organization. And we recognize that there may be something in the way you think, with your causal loops. Peter Senge and Barry Richmond picked up on this immediately. That relationship developed and was the most practical. Over time they began to generate things that allowed us to start doing experiments. We talked with Peter, and I went to Peter's course, which I greatly enjoyed. But Peter and some of his acolytes came to London, talked with us, and did some experiments. Barry developed the first piece of software. I still remember walking into the room and him saying, you now have the software and it's a hundred times more effective than Dynamo.

COS: In retrospect, would you say that these programs adequately captured the complexity of business reality?

Arie de Geus: At the time we were very specifically looking for a means of representing the business reality, and getting that into a computer into a way that would allow us to --

COS: Simulate.

Arie de Geus: Yes. If you say that simulation and play is analogous, , you can say that the definition of play is that you experiment with a representation of reality. And that is what we were looking for. We may not have framed it as that then. There were also parallel parts that were sometimes confusing, like what is the role of the future in decision-making processes? The Shell path was the simple use of scenarios. **It was only much later that I realized that scenarios are also transitional objects. They are representations of future realities with which teams can experiment without having to feel the consequences.**

This led to a much more detailed questioning process. We were talking about decision-making processes and we were beginning to talk about these decision-making processes with a little bit more academic grounding, and with a little bit better terminology. The literature up to that time about decision-making processes was absolutely naive. No, it was less than naive, --

COS: Between naive and false, right?

IV. What [Entity] Is Making Organizational Decisions?

Arie de Geus: Right. The next question became, what is the nature of the thing or the being that is making those decisions? Is it the mind of the CEO? Is it just the sum of all the individuals on a team, or is it something bigger?

I minored in psychology. And of course, as a Dutchman, I have a very strong dose of Central European philosophy and psychology, so many of the people who influenced my thinking have German names. I also have been influenced by a lot of Gestalt theory. I was deeply convinced that the whole is more than the sum of the individual parts. So it was very easy to say, well, that then probably applies to the decision-making processes. **The whole is something separate from the parts.** It's something bigger than the parts. And so in those days, I was thinking in terms of Personen. To me, you and I are ein Person. And Shell ist auch eine Person. And it is possible that you have a big Person like Shell that consists of many little Personen like you and me, and yet the whole is more than the sum of the parts. That sort of thinking was deeply embedded via my academic journey and my experience at Shell. So I easily then went that route to begin to ask the question, Und was ist dann die Persönlichkeit? And the word personality in English is not exactly the same as the word Persönlichkeit for you and me.

COS: Even persona is not the same than Persönlichkeit.

Arie de Geus: Even that is not. I find it extremely difficult to explain to an Anglo-Saxon what the question Persönlichkeit exactly means. It's asking for what is the characterology of this whole, and what are the motivations? What is the background? It also has a time element in it, a Person has a past, a present and a future.

COS: Always, yes.

Arie de Geus: By this time, in the late 80s, I really began to follow that path. I was very lucky that I was beginning to meet people like Francisco Varela, and the Swedish neurobiologist David Ingmar. I quote Ingmar extensively in a book that I have written. He always places living beings on the timeline. There is a present, and between the birth point and the present there's a past. And from the present forward there's a future. And there's an end point, which is death. All these things started to **influence my thinking about the institution as a living being.** Learning falls in place because learning is the most powerful instrument of intelligent living beings to evolve from one phase in life to the other. Varela had heated arguments with other academics about whether any living being with a brain has intelligence. But I was thinking not in terms of snails, but of what you could call the superhuman living systems. The ones that consist of human beings and therefore enclose whole systems, of the family, the tribe, the company, the ministry, the church, the trade union.

The fastest growing populations in the world are the populations of the superhuman institutions. 150 years ago there were very, very few inhabitants of the superhuman institutional life. But that shift is probably growing –in relative terms it will be growing faster than the population of human beings. And so that began to impress me. What then are these questions that we're asking ourselves -- that is, what is the nature of these institutions? How do they live their lives? How are they born? How do they die? Why do they die? How long does it take them to die? What are the causes of death? These became very important questions. Our individual human lives are more and more influenced through what is happening in that upper layer where we find the human institutional population.

I'm rattling on much too far, but you can see probably how this developed. The question started with what is the role of planning? What are we planning for? What is the nature of decision-making processes? How do you make your decisions better? Through play. That easily leads to the question of who is making the decisions and what is the real nature of that "who"?

COS: So, your question really developed like a living being through three embodiments, right? Planning, decision-making, and --

Arie de Geus: Well, I like to think of it as a path. Somebody who helped me a lot by pushing me to follow my thinking is Nan Stone. I never had, for instance, a book in my mind. There are people who have a book and they have a problem, and the problem, it's hard to get the book out of their head onto paper. That wasn't my

case, I was the wanderer along the path, and every step I did led to a new step. I couldn't have written twelve years ago the things I wrote two years ago. And the things I wrote twelve years ago, like "The Planning of Learning" article, I couldn't have written in 1982 or 1983, when we had our first contacts at MIT. And that's absolutely true.

COS: Do you remember any experiences that made you aware that organizations could be conceived of as living beings?

Arie de Geus: That goes back to my student days. I told you earlier that I minored in psychology, but I also did a year of philosophy. This was just after the war in the Netherlands. The Netherlands has a very strong core in psychology which has a philosophical background, and it went in the Netherlands by the German name of Personalismus. Personalismus comes from a German philosopher-psychologist. He is a developmental psychologist and he's a forerunner of Piaget, and his name is Stern. Stern was thrown out of Germany in 1933. He went to the States and he died. He never wrote in English, so he's hardly known in the Anglo-Saxon world. But in my time every Dutchman was able to read and understand German. So Stern was very well-known in the Netherlands.

Stern's thinking was based on what nowadays we would probably call rather simplistic 19th century reasoning. The reasoning was that the world consists of two categories: dead objects and living beings. Nowadays we know that it isn't all that sharp, that there are objects that are neither fully alive nor are fully dead. But one of the aspects of the organization of life on earth, of these Personen, was that they are hierarchically organized. Stern used to say that the hierarchy is you have the human being, and then you have the family, and then you have the village community, and then you have das Volk, and you have a clear hierarchy.

Arie de Geus, 50 years later, said yes, and there are more of these hierarchies. And there is also the trade union, and there is Shell, which is a hierarchy. I am one of the thousands of human beings who make up Shell. We are individual cells in Shell. We have Shell UK, and we have Shell USA, and we have Shell Australia, and these are individual cells. And even inside Shell USA you have individual cells. **As an individual human being I belong to the planning department which is part of another part of Shell. And there is this whole hierarchy and I'm a member of that professional hierarchy. But as a Christian I can be a member of a religious hierarchy. If I'm a worker I can be a member of a trade union hierarchy. As a human being I can be a member of quite a number of these hierarchies. But they're all hierarchies.** There are next steps that go up, the number of people go into a cell. A number of those cells come together and they become a division. The divisions come together and they become a local operating company. The operating companies come together, they are the European region, or the North American region. My young student mind had been conditioned, if you like, so my mind was very ready to actually perceive it, to see that. Then I went into my business and over the years I found strong confirmations of this.

I also found more and more contradictions with the other view of the nature of these institutions, which was the machine view. And I knew, because I climbed the ranks. I knew how it worked down there and I knew how it worked up there, and I knew it didn't work like a machine at all. And it worked in a way that was much, much closer to Stern's definitions and depictions of the way living beings act and go through life. I reread Stern in the early 80s. His books are extremely difficult to get hold of, because in Germany they don't exist, they were burned. With great difficulty I found a copy many years later through Shell in the dead archives of the School of Economics in Sussex. I had photocopies made of a thousand pages of that, because it's philosophical work. It was three volumes, at least a thousand pages.

V. The Living Company: Metaphor Or Reality?

COS: It sounds like the organization as a living being is not a metaphor for you. You are talking about a reality?

Arie de Geus: In the beginning I did mean it as a metaphor. But I think now I am no longer prepared to accept "the company as a living being" only as a metaphor. I think it is much, much deeper than that.

COS: Could we go into that a little bit? Because that is really also at the very heart of the conversations that Joseph, Peter, I, and a couple of others have had over the last two or three years. I guess a question that could be the lead into that domain would be, what is the nature of that reality? What is your experiential base for making that judgment that, yes, this is a reality and not just a metaphor? How does it show up? Where do you see or sense this reality, and what is its nature?

Arie de Geus: Well, you heard me talk earlier about a growing world population of institutional persona. If there is a population, then you can apply demographics, you can actually make population statistics. For the commercial parts of the world's institutional population there are very, very good population statistics. These statistics are open to very similar interpretations and techniques as we apply when we study the human population. So you can make very accurate calculations about average life expectancy. Then you can make reasonably good calculations about maximum life expectancy. You can begin to see in what part of life high death rates occur. When you do this you're beginning to see all sorts of analogies with human demographics. Then you come to the conclusion that the institutional population is at a very, very low level of development compared to the human individuals. The very high infantile death rates, the enormous gaps between average life expectancy and maximum life expectancy occurred in human demographics at a much, much level of development, either in geographic pockets or historic pockets. If I accept that analogy, then I begin to realize **that apparently the institutional population is a recent one. As we said earlier, 150 years ago there were hardly any. So it is a very new population and it is at a very low level of development.**

Then the next question is, what do we mean by a low level of development? I think it is admissible to say that development has a lot to do with what the species has learned to make of its major biological weapons, which in the case of institutions, even more than in the case of human beings, is the use of the brain. We are not as human beings, it's not our claws, or our jaws, or our teeth. The power, the motor of development is in the development of the brain and the use we have learned to make of it. And I see, again, an analogy in the institutional population, except that they are at a level, roughly, with the Neanderthals. That led me to think with a little more precision about what actually is the role of intelligence in the institutional population.

We are very close to at least a demonstration of the role of intelligence in the institution in decision-making processes. We're beginning to come back to the original questions, that in the decision-making process, how do we take care of the future? How actually do decisions occur? And if it is learning, then what is the best way of learning? What is the difference between the use of intelligence as it has been wired in my brain, as compared to the use of intelligence as it takes place in the institutions between individual human beings in a language based process of knowledge. Language is the carrier of the decision-making process. That is, the carrier of the institutional member is the jargon that's being developed in this process. There are differences but the analogies are very, very strong. So your question was what sort of happenings or events led me to think in terms of companies as living beings. Now it will be clear that these are seeds, if you like, seed corns that have been planted in the night. **I'm beginning to see more and more loops that strongly reinforce the idea that there are hierarchically, higher placed living systems, higher than the human being. I called them "A Living Company," because basically I talk about the commercial population of the institutional world population. I talk about commercial tribes, but there are many other tribes. There are government tribes, trade union tribes, and there are Ford tribes.** But I don't know much about government ministries, or people's clubs, and even less about trade unions. So I talk about the commercial population that I can. So does that make sense to you?

COS: Yes, it makes sense. It's just I feel torn between two sides. On the one hand, I, of course, see the analogy. I mean, everybody can see what you pointed out. But I'm even more intrigued by your saying no, it's not just a metaphor, it is a reality. If that were true it would have radical implications.

VI. Cellular Structures

So, my question is what is the nature of that living being, and what are its laws? How can we as individuals relate to that?

Arie de Geus: Varela helped me to gradually drop the idea that it was a metaphor. He says that in biology they have now learned that life essentially builds up in the same way as Stern described 50 years ago. **Life is moved by two or three basic principles – one is cooperation, another one is competition. And the third principle is that very early on, successful life organized itself in relatively small groupings that created the cellular structure.** The human being itself already stands at the top of quite a high pyramid of building up of individual little bits and pieces—bacteria that came together and introduced themselves into, and organized themselves in a cellular structure. Then the cellular structures organized themselves into muscles or nervous systems, etc., which Varela talked about as sort of interim institutional constructions, that together then create the institutional construction that we call the human being. The explanation for the explosion in the world population is we increase our conditions of biological success by always competing and cooperating at the same time, and we do that in cellular structures. So whether we do that in religion, or we do that as a trade union, or we do that in a university, we cooperate and compete, and we do that in a cellular structure, and that is at every level. That creates universities, and in that sense the university is as much a living being as you are.

Now I said, Dawkins asked the same question. He said, this human life, is it human being centered? Or is it gene centered? And that's a very, very good question. The minute you ask that question, your mind opens and says, well, the center of gravity doesn't necessarily have to be the human being. There is clearly a hierarchy. You can either follow Dawkins and say that whole hierarchy is actually built up by these individual people, or you can say it's somewhere in the middle. If you're the pope in the Catholic Church you can obviously not accept Dawkins.

Another reinforcement in that reasoning is that this institution of population is just the next step in the staircase. We continue building the staircase. Global organization is another step beyond the human being, that we started to build back in classical times when the Greeks organized the first army. **Institutional population really only exploded from the middle of the 19th century. Before that we had the family, we had a few governments, we had a few nation states. We are becoming even more successful because we are members of an ever-larger and ever more specialized and able group of superhuman institutions.** To me, this is a force, and I don't need an academic debate. I'm sure you can find a few exceptions and you can ask nicely academic intelligent questions: what is the role of a retrovirus? But again, I'm a practitioner, and I find sufficient evidence. I know that with every step down this road those are ever more interesting questions and this hypothesis really seem to be helpful.

VII. Every Institution is a Living System

COS: Would you say that every organization or institution or company is a living being? Or would say that, for example, some machinelike bureaucracies may have been living beings, but maybe now.

Arie de Geus: I think every institution is a living system. What we see is that the life conditions of these living systems are being threatened from the inside by participants in the institutional living systems. They have no idea what they're doing there and what their institutions do, and they have no idea how to create

better conditions for the survival of the institution of which they are a member. On the contrary, they do all sorts of things that reduce the institution's life expectancy. A lot of the things they do make the company mechanistic. A mechanistic behavior inside an institution is usually a controlling behavior. Controlling in the sense that it reduces the internal space, which in turn reduces the learning ability, because there is no space to learn. There is no space to experiment, there is no space to act differently. The minute you take the learning ability away, you take away the viability of the institution. As Piaget has clearly indicated, that is the powerful tool in evolving from one phase to the next in life.

COS: What is nurturing to organizations as living beings?

Arie de Geus: What do you do with your daughter? Do you nurture her?

COS: Well, it's love, milk—it's a whole environment.

Arie de Geus: **It's creating space, but not too much. It is finding that equilibrium. Could that be nurturing? If you say that is a reasonably good definition of nurturing, then I think, it's also applicable to the management situation.** Nurturing is very important. You see, it isn't an either/or, it isn't either creating space or controlling. No, at any moment in time.

COS: It is playing between.

Arie de Geus: And it is balance, and depends on the environment. If you take your daughter out in a busy street, you pull in, you control her more than you create space. But if you place her in a learning environment like a playground with other children, you immediately open up, you give her more space. So again, we are getting to the proven utility of the thinking of a Piaget.

Learning is the relationship of changing environments. The learning that we talked about is **learning by accommodation**. Making internal structural changes allows me to live in harmony with the environment as it is at the moment, knowing that this environment in a couple of years down the road will again change fundamentally. When I leave the cradle and I'm allowed to crawl on the floor, all of a sudden the world becomes fifteen times larger. Then I learn to walk and the world becomes yet another four or five times larger. And then I go to school and everything changes. I spend the day in the presence of totally different people and they play in a totally different way. So the child just makes internal structural changes which allow it to live again.

I think the same applies for the institutional population, where each individual institution goes through different phases in life and can only go through these phases by learning by accommodation. And if it doesn't do that, or if they have managers who do not understand that this is the major mechanism, they will die, as they do. We know that the mortality rate is incredible: 50 percent of all young commercial institutions in the Northern Hemisphere die before they're ten years old. We've checked those figures from North America to Europe to Japan. I've never seen figures from the Southern Hemisphere. I don't know how it works there. But in the Northern Hemisphere 50 percent of all just born commercial institutions die before they're ten years old. The average life expectancy in Europe of commercial institutions born in the last 10 to 15 years seems to be coming down to 14 years. Demographic studies show that since the early 1970s, early 80s, and the mid-1990s, that the average life expectancy of the commercial babies has come down from just under 20 years to 12 to 14 years.

All I have to do is open "The Economist" or "The Wall Street Journal" to see all the talk there is about companies as money machines. This is the antithesis of companies as living beings. I know as an experienced manager that running a company as a money machine does exactly all the things that will reduce the learning capability of that institution. I'm beginning to ask my management audiences, I'm basically saying, "You're killing your companies. If that's what you want, fine. But if you think that you have a responsibility vis-a-vis the next generation, you ought to consider this. If you want to give them an

opportunity to actually enter and be a member of an evolutionary developing institution—but then people look at you with big eyes and say, but that’s what Darwin is about, isn’t it? And then I say, well, you know, **Darwin is not entirely the latest thinking anymore on this subject.** There is other thinking now that is beginning to say, some species seem to evolve better and faster than other species, but it isn’t just survival of the fittest, there is something other there.

COS: What would it take for us to move into a world that consists of living companies rather than money machines?

Arie de Geus: I think what it means is that, first of all, people see profit not as the purpose or goal of institutional life, but as the result of a successful institutional life. That is an enormous difference. In other words, to quote Russ Ackoff, it would mean that we’re beginning to realize that **profit for commercial institutions is the same as oxygen is for you and me.** Without it we cannot live, but surely it’s not the purpose of our life. It’s an enormous task to change that managerial thinking and business thinking. If you companies as living beings, and as part of a hierarchy that is still constructing itself, then you have to give an awful lot attention as the managers, as the mentors in those institutions. You have to give a lot of attention to the individual living components, in the same way that you have to give an awful lot of attention to your nervous system, your muscular system, your digestive tract. You have to keep an eye on it to see that it all functions properly, and if it doesn’t, you have to do something about it.

Institutional life expectancy depends how well we succeed in developing the intelligence of our institutions. This is why you always hear me talking about decision-making courses. I see in the decision-making process very strong analogies with learning processes. Many psychologists give definitions of learning processes which are very similar to my personal definition of the decision-making process. That is where institutional learning comes in for me, and therefore, to me, institutional learning is not a method of choice. Institutional learning is an instrument in a much more basic life event, of evolution and of an evolutionary development whose goal I don’t know.

VIII. Every Startup Is The Birth Of A New Being

COS: So every startup is the birth of a new being?

Arie de Geus: I think so. Some of them develop very quickly. One highly successful commercial institution is Hewlett-Packard. It’s 35, 40 years old. It formed very, very quickly because of the conditions that were created. And not just techniques of learning; there were a lot of other facets...the constantly changing equilibrium between control and creating space, the quality of the genes and the cells that you are checking into your institution... It is almost certainly the food that you take in as an institution --

COS: Which is?

Arie de Geus: -- which is the acquisitions that you digest. But not mergers, like with Mercedes-Benz and Chrysler.

COS: What would that be?

IX. The Absorption Level Of Immune Systems

Arie de Geus: I am close to thinking that since companies are living beings, they have something like an immune system. Varela can tell you very interesting stories about how the immune system works. But the immune system, as I understand it from him, constantly creates an equilibrium between intruders from the outside and the internal population of the living being. The immune system is not an army that goes out

and fires at every intruder, on the contrary. Space, the creation of space is not only internal space, it's also space towards the outside world that is part of the learning, allowing insight of new elements coming from the outside. But the amount and the speed at which it takes place, and the multiplication of the intruders inside the body, are controlled by the immune system. You can never know at the moment of intrusion whether that intruder is going to work as a parasite, or whether that intruder is willing to live in symbiosis, or whether that intruder is just a visitor who will come in and disappear. But the parasites can do tremendous damage, and you only find out that it truly is a parasite at the moment of exit, never before. **The immune system is the one that keeps the equilibrium and**

Varela has made me understand that the human immune system can deal with intrusions up to 25 percent of its own total population.

COS: Really?

Arie de Geus: That is very, very high.

COS: What happens at the level of 50 percent?

Arie de Geus: Very often 50 percent is way beyond the capability of any immune system. **The minute there is an invasion that goes beyond the capability of the immune system to maintain an equilibrium, the immune system goes into a fighting mode.** It increases the body temperature, it starts creating very different cells, killer cells.

When I think in those terms about mergers and acquisitions, it is exactly the same thing. But below the absorption level of the immune system you can actually buy and then basically digest. If you do that in the right way it's just like if you get the right genes or the right chemicals and minerals. **That's very different from today's management style, which is all about globalization. Globalization is about growing bigger.** And the fastest way of growing bigger is mergers and acquisitions. There must be some truth behind what I'm saying about the immune system. As you know, there's plenty of objective evidence that the failure rate of mergers and acquisitions is --

COS: Overwhelming.

Arie de Geus: The figures that I read are either 60 percent or 70 percent over a ten year period. So there must be an area here. Again, when you say, what would the consequences be of realizing that companies are living beings—for one thing there would be a totally different way of thinking about mergers and acquisitions. A totally different way of thinking about what is the nature of profits? A totally different way of thinking about what is the purpose of my company? Is the purpose of my company the maximization of quarterly profits? Or annual profits? Or is it the increase in the average life expectancy? Or is it something else like making people happy by creating the best widget. Whatever. But a purpose outside yourself. That is way beyond anything you'll see in "The Financial Times" or "The Wall Street Journal."

COS: Let me ask a last question.

Arie de Geus: Yes, we're way over time.

X. Questions For Future Research

COS: What are the three most significant questions of future research from your point of view?

Arie de Geus: I think we should continue doing what Peter Senge and you and other people have started to do at MIT. I think we should have more a multicultural research center about the nature of decision

making and the nature of public institutions. As long as we realize that institutional learning is about decision-making processes. I think that is very important. I've been saying the need for successful evolution of the institutional species is dependent on the extent to which we succeed in improving the quality of the institutional advantages.

Another important question would be to do a little bit more demographics about this institutional population. Is it really true what I'm saying about this explosive growth? I would like to see a lot more demographic work done on the institutional population in the world. And notably, it would be interesting to see whether there are demographic differences between different tribes in the institutional population. I see universities as a species, and they seem to have different demographics than commercial institutions. Religious institutions seem to have very different demographics than trade unions, for instance.

If we could discover demographic differences between the different institutional tribes, we might also begin to get a better idea about what determines death or evolution.

I think it would be a much better idea if we did a lot more demographic work on the institutional population. **I'm also intrigued by the role of language in institutions.** I'm not sure that is part of the institutional learning process. Does language in itself play a role there? Are there languages that improve the conditions, or there languages that make institutional success less possible? It would be interesting to know a little bit more about it. So if you want three questions, the first two I am very certain about. The third one I'm less sure about. But language is an intriguing subject, because it clearly plays a key role in our institutional individuals and institutional living beings.

COS: Thank you very much.

XI. Reflection

During the 1980s, Arie de Geus proposed to conceive of planning and decision-making as a learning process. During the 1990s, he enhanced this key proposition with the notion of seeing companies as a living system. Every institution, claims de Geus, is a living system. The implications of this perspective include a different role of profit and purpose in which we're beginning to realize that "profit for commercial institutions is the same as oxygen is for humans"; as well as a "limited absorption capacity" of organizational immune systems that explains the extraordinary high failure rate of mega-mergers among global companies, which because of their enormous size exceed the natural absorption capacity of the system.

I left the conversation with de Geus with two questions: One, when we are living and working in our institutions, how can we relate to the "living being" de Geus talks about and that is embodied through the way we collectively enact the organizations in which we participate?

Two, what is the nature of the relationship between individual human beings and the larger organizational whole? I was struck by hearing de Geus characterize the relationship between individual and whole (organization) in a strictly hierarchical manner: "Stern used to say that the hierarchy is you have the human being, and then you have the family, and then you have the village community, and then you have das Volk, and you have a clear hierarchy." In this view, "the whole is something separate from the parts." This view differed from what science philosopher Henri Bortoft and the Japanese philosopher Ryosoke Ohashi had told me in their interviews (see conversations with Bortoft and Ohashi). In their view, you cannot separate the whole from the parts, for the whole presences itself in the parts. Accordingly, the parts are not determined by the whole in which they exist. They are the locus in which the whole is enhanced, contradicted, or even transformed by them, or all of the above. So, I guess the deeper question I am trying to articulate here concerns the differences between biological and social systems.

I recently asked biologist Humberto Maturana, the author of the theory of autopoietic systems, about his view on the numerous recent approaches to applying his biological theory to the realm of social systems. His response: "If social systems are autopoietic, I do not want to live in them." "Why not?" I asked. "Because in autopoietic systems the part is totally determined by the whole in order to reproduce certain functions of the larger system. It's like Orwell's 1984. It's the end of freedom and choice in social systems." Thus, there seem to be two different notions of the whole-part relationship in social systems. The first one is what Maturana calls the 1984 version of society: the part (individuum) is determined by the whole. The second notion is closer to what Ohashi and Bortoft suggested in their interviews: that the individuum is not determined by the whole but rather conceived of as a place in which an emerging new whole can come into being. The first whole, I would call the traditional [and often oppressive whole] of social systems. The second whole belongs to an emerging social art, which yet needs to be developed and created in the years to come. I did not have the time to ask de Geus where he would position himself on that spectrum. I heard him describing elements of both notions outlined above.

XII. Bio

Arie de Geus joined Royal Dutch/Shell in 1951 and remained with the company for 38 years. He worked in Turkey, Belgium, and Brazil before returning to the United Kingdom in 1979. Arie assumed regional responsibility for Shell's businesses in Africa and South Asia and then, in 1981, became coordinator for Group Planning. During his last 10 years at Shell, Arie became increasingly interested in the nature of large corporations, their decision-making processes, and the management of change and he is widely credited with originating the concept of the learning organization.

Since his retirement from Shell in 1989, Arie has headed an advisory group to the World Bank and consults with government and private institutions. He is a visiting fellow at London Business School, and a board member of the Nijenrode Learning Centre in the Netherlands. Arie is also the author of the award-winning bestseller, *The Living Company* (1997).