

Welcome to the Ernst Strüngmann Forum podcasts—a series of discussions designed to explore how people collaborate under real-life settings. Joining us in the series are high-profile experts from diverse areas in society, whose experiences will lend insight to what collaboration is, what it requires, and why it might break down. This series is produced in collaboration with the Convergent Science Network.

P. Verschure Hi, I am Paul Verschure and together with my colleague, Ferdinand von Siemens, we are speaking today with Alexander Nuyken (partner at Ernst & Young, and its Life Science Strategy and Transactions Leader for Europe, Middle East, India, and Africa) about the role that collaboration plays in financial transactions. Welcome, Alexander. Could you begin by giving us a sense of your background and the different experiences that have contributed to your understanding of collaboration?

A. Nuyken Certainly, but first a general comment: My expertise stems from engaging in, creating, and practicing collaboration across diverse geographical regions. My experience is rooted less in theory and in practice.

My career path did not really follow a straight line other than a continuum of working in the life sciences. Everything else may appear like a random walk, but it adds up to a certain pool of knowledge and experience that is very valuable today.

First, I am a lawyer by training, not a scientist. By coincidence, the first case that I was given involved a life science transaction -- selling a life science business. Another one followed thereafter, and another one. They piled up quite quickly, and I became very interested in this type of work. After two and a half years of being a lawyer, though, I switched to banking after I completed an MBA program at Fontainebleau. Then, in 2006, I entered the banking world through a position at Lehman. At the time, Lehman was a thriving firm, very eager to grow and hunt in the market successfully, far removed from the financial crisis. But in 2008, all the engines came to an abrupt stop. Before this moment, however, I had been involved in great deals, very interesting experiences, very intense times, very many sleepless nights. It was a super experience, but it all stopped in 2008, when the world changed and Lehman went bankrupt. I was lucky to be taken over by Nomura, a Japanese investment bank which embodied a very different culture and approach. But they were keen to integrate the Lehman crowd into their firm. Later I moved onto UBS for another 3 or 4 years, and in 2015 I joined Ernst & Young (EY).

When EY approached me, I was initially quite skeptical. Over the years, I had gained a lot of transaction experience, as a banker (to some degree) and a lawyer. My experience allows me to those two worlds. But to me, accounting firms focus on financial due diligence, which is not my cup of tea. I was initially skeptical as to what my focus would be at EY, and they countered this skepticism with an interesting proposal. EY said, "We know what we can do and are very much centered around our competencies, but we don't really know, or are less good at knowing, what our clients really need or want, and we need this expertise to bring a holistic perspective to the table. We don't need you to expand our areas of competence, but to expand our opportunities in the market: how to capture them with a joint offering and really connect the dots." This proposition was very appealing to me because it meant that I could bring my expertise of the sector as well as my previous knowledge and networks and combine these elements in a novel way. So, I joined EY in 2015 and am running the EMEIA division. EMEIA covers projects from a broad geographic span (Europe, Middle East, India, and Africa) in the health, science, and wellness sectors. This includes pharma, MedTech, consumer health as well as health care (healthcare services, hospitals, providers, payer organizations). Given the broad scope of EMEIA as well as the fact that I am based in Frankfurt (while my team is based in London), I have always engaged intensively in remote work. Long before COVID-19 and the associated lockdowns, I developed collaborative approaches, many of which were new to the EY, to connect people from multiple areas around the world. Like many other firms, in the past, work was centered around an individual with a franchise and a team underneath, all sitting together in the same

place. The beauty of the current organization, however, is that the team has multiple competencies in various areas; combined, we are stronger than when we are separated into individual pockets. Pooling our expertise brings increased value to the client. That is basically my task and my journey at EY.

P. Verschure Thank you, Alexander, for this summary. You have provided a lot of elements to unpack. As you reflect back on your career trajectories, can you distinguish patterns of collaboration? Can you characterize collaboration in these different domains, not only for you and your team, but also with your clients and the different industries that you might want to bring together? Can you discern a pattern that you might call collaboration in these contexts?

A. Nuyken I think that the key element or the first step is to gain an understanding of the different interests involved and to align on goals or, as we call it, on the purpose of the joint key factors which will make people “drive and pull the whole carriage” in the same direction. That's the central point behind being able to collaborate. Otherwise, loose ends may develop or even worse: people may even pull the proverbial string in different directions.

P. Verschure You mentioned common goals, the need to identify common goals. In the complex structures you are in, I would imagine that common goals could vary depending on the operational level. For instance, the common goal of a manager or a legal expert might differ from the more abstract goals of the organization itself. How, then, can you define common goals?

A. Nuyken I think that the key is to acknowledge that there are multiple facets of a goal, just as you describe. The question becomes: Can you combine all the different ambitions, goals, and intentions into one aggregated larger entity? That's basically the purpose of a group of people doing something together; it is how an organization is an organization. Behind the organization, there is a larger goal. And if you can crystallize the essence of this goal, identify and break it down into different elements that will support of this goal, then ideally people will work toward and get excited about the overarching goal, all the while recognizing, for example, that an obvious subgoal is their next paycheck. Both the overarching goal and subgoals need to fit together and be consistent. If contradictions exist, this will be counterproductive. When an environment is not inclusive or diverse enough, when people are excluded, etc., this distracts and does a disservice to the core purpose; this stops people from aligning behind your goal. It is very important to have this bigger picture or vision and to transmit it to others so that people can align themselves behind it.

P. Verschure You state that collaboration is characterized by a sharing of goals. Are there other defining features?

A. Nuyken What do you mean by other defining features? I mean, goals can be multifaceted: they can be payment, salaries, they can be...

P. Verschure Well, if we take “goal” as one feature, perhaps another might be “communication” or “trust.”

A. Nuyken Yes, of course. Communication is extremely important, not only to transmit goals but to align people behind the work, particularly when work is conducted remotely across different geographic regions. Communication is crucial.

Currently because of COVID, sometimes it can feel little we are chasing our own shadow by lining up call after call. The fact is that people are sitting in completely different places and settings, and each are managing very different life experiences. For instance, an employee who lives alone in a 20-square-meter urban apartment, stuck there for two years in lockdown, faces different challenges than a person who has a full house of kids and family around them and is thus less dependent on external contacts. Everyone has a different experience, and this needs to be acknowledged.

You need to communicate in a way that will bring buy-in and engagement from all parties. In the past, anecdotally, when you got an idea for a joint project to start something, colleagues often asked: “What's in it for me? Why should I do this? How much can I earn with it, etc.?” I

think that's the wrong starting point because, although these are important questions, they do detract from the spirit of where we want to go with the organization or collaboration. That's something that took me a while to understand: How can I get people so that they are not initially focused on the first question (What's in it for me?) but rather on the overarching goal? So that they are interested in why this particular collaboration is being discussed. Ultimately, a project needs to work for everyone. It should not be a loss-making proposition for anyone.

P. Verschure Again, you bring us back to the goal. Communication, for instance, is often highly structured in organizations, and I imagine that to achieve buy-in at all layers of such a structure requires a very specific approach to communication. Do you structure the communication process to serve this idea of building a sense of common goal?

A. Nuyken Let's look at the process. It's not that I have an idea of how a project should look like and then basically infiltrate or dump it on the team. A project evolves through a process replete with iterations, joint thinking, out-of-the-box thinking. Trial and error is also involved to some degree. When certain aspects fail, this needs to be analyzed: Why didn't I get buy-in from my counterparts? Why didn't they support the idea? For me, it may have been the absolutely logical and correct thing to do, but when pushback happens, you need to assess what's driving this. How can we make it work?

P. Verschure That means you customize the approach to communication. Let us consider another dimension: trust. To bring partners together within a multilevel structure of an organization, there must be many links of trust to engineer or assess.

A. Nuyken That's a good point. When I joined EY, I was initially seen as a banker coming into their environment. And, as you know, bankers have a reputation for being sharks; they are not really regarded as collaborative team players. So, I needed to overcome a degree of skepticism. The way I approached this was to choose my battles carefully. I pursued projects where I felt that collaboration looked promising. I didn't bang my head against the wall or force people to work with me. When I sensed a person's reservation or perceived that they didn't want me to "mess up" an account, I stepped back and chose, instead, opportunities where I could work to create positive examples. I firmly believe in leading by example, really living the way that you want others to follow so that people will want to buy into the approach. Over time, this has been quite successful. Once people began to see successful outcomes, they realized that more could be achieved by working together. Then they decided, "why not try it as well with this guy"?

P. Verschure That's interesting -- approaching the trust challenge as a trusted mediator. How do you build people's trust in you as mediator? You have to bring parties together that might not necessarily trust each other. So now your task, as mediator, is to get people to trust each other so the common goal can be achieved. Is there a systematic way to do this, or do you also leave it up to the organizations themselves?

A. Nuyken I think the way we developed trust worked well: first create a few examples, then systematically scan the market to identify where (in different geographical settings), additional cases can work. I created my first positive examples in the Nordic region. After a few very successful, positive experiences in working with the colleagues from Sweden and Denmark, I then ventured out into other regions to replicate that example. The message was basically: "Look, when we worked together, we accomplished a lot. Here's the outcome. This is why we achieved it and this is working successfully." In broad or transaction terms, working together results in larger deals, bigger fees, a better outcome, and client relationships that will last longer. All sorts of other services get included in the mix. You really can create a franchise jointly. Yet if you just tell people that this can work in theory, they are skeptical because they have done things differently in the past. "Why should this guy from the outside be able to change established work patterns?" But if you can demonstrate how good things could be using specific examples, people become curious and want to have the same. Then people approach me, instead of me pushing at closed doors. They invite me to join and replicate this in their area -- perhaps in France, in Spain, or in other countries where people realize the value of working together.

- P. Verschure Okay, but so far, we're looking at the situation from a positive reinforcement perspective. You bring people together because they share goals and because they can achieve common outcomes that they would all value positively. But there can be conflicting goals, as well as conflicts in communication and objectives. And the positive approach might not always work very well, because people just view the world differently. How do you manage these more conflicted situations? How do you resolve them? Is it always about bringing people back onto the path of the common goal? Or are there also negative elements in the interaction where you would say, if we don't do this, we fail.
- A. Nuyken It very much depends on the context in which you're operating, and whether you can sanction misbehavior or whatever. Looking back to my banking time, this was very easy because the industry is organized a bit like an army. You have the general on top and a lot of people marching behind who are given their marching orders, a task. They know what direction to go, and if they fail to achieve or if they work outside of the task, they usually, very soon, lose their role in the organization. That's straightforward. In a partnership, however, it is different; in particular, if you are not, in a legal sense, the boss of any of the people with whom you are working. Here you are more like a peer, and you need to make other peers realize that it's advantageous to work with you. There's not much of a role for sanction. Of course, if someone misbehaves consistently and is not collaborative, etc., the partnership will ultimately fail.
- To get people going, there are not many sanctions that you can use. When I joined EY, my mentor gave me the following advice: "Identify the 10–20% of people who are leading, who really want to lead in a certain direction, who are willing to work for the change that's needed, who embrace the opportunity to work with you. About 50–60% of the rest of the organization will follow, but some will never follow because they don't want to or are unable to. Just leave those people behind. It's not the organization that will change; it's people in the organization who are willing to embrace change that matter. You must work to identify these people."
- I took this advice seriously. It's not worth spending or wasting time on battles that you cannot win. People ultimately self-select to not be part of this journey. And, when they do so, this will be seen in their performance, in their numbers, and they will ultimately fail. Thus, it is not worth spending too much time trying to pull them in your direction.
- P. Verschure Given that you work across a huge swathe of territory, from Scandinavia to Africa, is culture an important dimension that must be addressed when you approach collaboration across these regions?
- A. Nuyken Hmm...not really. The beauty of our organization is that we are a global organization. We are present in many cultures. I work with people from Saudi Arabia, the UK, in Germany, Africa, and India -- all have different cultures. To be successful as an organization, certain cultural differences must be accepted. This does not mean that we would compromise on our core values or standards. Even in countries where it may be hard to navigate using a Western European mindset, where the country is less liberal, ways need to be found within the firm to maintain and live our values without creating too much tension with the local setup. Sometime there's a fine line, but maintain core values is very important. In Saudi Arabia, for example, we employ probably as many women as men, and we appreciate and acknowledge local differences. For instance, we provide working space reserved for women, if they don't feel comfortable working next to men, etc. That's a cultural consideration that you would not see in Germany or in other places. That's the fine line. Acknowledge local differences, but don't compromise on what we do and how we do it. Core values must globally be the same.
- P. Verschure This is interesting, because in some sense, moral norms could be seen as part of the broader collaborative processes that form society. What you are saying is that you try to adhere to those norms, even when there are cultural challenges (e.g., regional challenges). That might mean that a point of conflict could be reached that's just not sustainable, and you would have to choose whether to proceed with the project and compromise your norms or give up on the project. How is that balancing act realized?

- A. Nuyken Our policy is to not compromise on our values. If a conflict exists, we'd rather not pursue the project, even a highly profitable project. That's very clear. Is that something we encounter often, in every situation? I cannot tell because I do not have a high-level perspective into these matters. From my immediate environment, though, I can say that I have not yet encountered such a conflict. But clearly, in terms of the quality of work, if we are unable to deliver the quality that I have signed up for and our organization is pursuing or delivering, then we would rather stop the project.
- P. Verschure Do organizations like yours, or banks where you have worked in the past, have explicit protocols and monitoring processes for these situations?
- A. Nuyken Absolutely. We have a very rigorous compliance process that starts with really knowing your customer, reviewing the backgrounds of the customer. In most cases where I work with clients, this is not an issue. The big names -- from Bayer to Novartis to whoever -- are known in the market and we have been working for a long time together. But clearly, when there is a new client, we would thoroughly look into their background. There is also a rigorous onboarding process: every project undergoes a conflict check and compliance process that is closely scrutinized and monitored. Any concern (e.g., a reputational issue) that gets raised may end the project before it actually gets started.
- P. Verschure Thus far we have looked at rather abstract, general principles based on your experience and insight. Could you point to more concrete examples? The Lehman Brothers example is a very dramatic one. In some sense, you could argue that collaboration, at different scales, was not sustainable. Do you see Lehman Brothers as a failure of collaboration, or was the collapse beyond the control of the organization itself?
- A. Nuyken In hindsight (it's been a few years, so the dust has settled on a few questions), I think it was primarily a leadership failure. Leadership did not acknowledge at the right time that by standing alone, the organization was not set up to survive. Remember, back then the organization came from an environment where long-term commitments were short-term funded. The environment changed and short-term funding became no longer possible. There were huge market-to-market adjustments on assets that were on the balance sheets; proprietary trading activities were basically turning out to be a disaster; a lot of mortgage loans were of no value at the time. Then came the margin call and suddenly your funding explodes, or better put implodes. To my thinking, this was probably a leadership issue. On that level, you should have visibility on the factors that you are managing (e.g., your balance sheet, etc.), but that was far beyond my pay grade at the time. We were doing what we were basically supposed to do: advise on transactions. In principle, it was a thriving business, but the whole setup was not sustainable.
- P. Verschure If we go back to this issue of building effective collaboration through common goals, what is interesting is that whole organization of Lehmann Brothers structured itself around common goals. Thus, it should have been able to sustain itself had it not been for the large implosion of the mortgage market. In some sense, we are looking at an artifact of goal setting. Has there been any change in the industry with respect to goal setting so that these artifacts, which precipitate massive disasters, can be avoided?
- A. Nuyken Do you mean in the immediate banking environment, or more broadly?
- P. Verschure Well, to put it bluntly, one could say that the system was driven by monetary gain at any level of organization, which led to exactly this very risky structuring of the balance sheet. This, in turn, motivated the organization and its members to keep on marching behind that general. The motive of monetary gain, oriented toward members of the organization and shareholders, was thus in some sense one of the key contributing factors to the collapse. Can we start to generalize and analyze whether this situation changed, or are we still facing similar risks? Given how you describe goals for many economic entities, it is about value. But it's also about shareholder value. Has that attitude toward setting common goals along monetary gain changed since your experience at Lehman Brothers?

- A. Nuyken I'm obviously not able to give an answer for the entire industry. Regulators have clearly given a lot of thought as to what went wrong and how to prevent it from happening again. A balance that must be found. Banks are like fuel to a motor or oil in an engine; both are absolutely necessary to keep things rolling and going. But a lot can go wrong, so the right framework must be in place. It's clearly an environment that's more monetarily driven than any other organization I've been working in before. Law firms and their self-perception are part of the legal system in our *Rechtsstaat* [rule of law]. They basically act as curators of the legal system to some degree. Important stakeholder banks fulfill a similar role for the economy. They are needed to finance growth, investments, and ultimately the pensions of millions of people, and this all requires a functioning banking system. If you implement a regulation that will prevent banks from acting profitably, then we won't have a bank anymore in Europe that's part of the global setup. If regulations are too tight, this can also be potentially damaging. On the other hand, how can you ensure that people act ethically and not only to their own immediate monetary advantage? To be honest, I can't answer that question, and I was not in a leadership position there.
- P. Verschure No, I understand. We are just having a conversation about these issues, each from our own perspective. But you bring up another aspect; namely, extra-organizational collaboration. As you say, a bank has an internal structure to organize its collaboration and interaction with other organizations, but it is also embedded within the broader structure of collaborative entities, which we call society. This could result in opposing goals. One might say that commercial entities should be regulated to achieve a balance, enough local incentive for organizations to push ahead and explore, while making sure that no damage results. How could such a balancing process work? Do you think a framework must be in place, with these commercial entities contributing to it? Or is it a competition or arms race between commercial entities, all running ahead and exploring, while society plays catch up trying to regulate their actions?
- A. Nuyken Ultimately, I think balance is useful for both sides. If you are acting in a regulated environment, then things (e.g., investment opportunities) are thoroughly tested and checked, and tick all the boxes from a regulatory standpoint. If regulation is designed to ensure that, e.g., fraud, does not exist and people can't enter into stupid investments because the risk is beyond their horizon and they cannot evaluate the risk, then such regulation is useful because it creates trust. Trust is a very important element for both sides, also for the side offering the investment opportunity or service. If a service is delivered in a regulated, tested, and monitored environment, people who are doing wrong can be identified and excluded early from the market.
- P. Verschure Do you see this as a competitive process between society and commercial entities, or as a more collaborative project?
- A. Nuyken It depends very much on the mindset. If regulation is done in the way that I have just described, then it's collaborative: it provides a seal of approval. It lets people know that an organization is part of a regulated environment; that people can rely on standardized or systematic services being provided and trust, without knowing the details, that this is properly done. Alternatively, in a free Western-like approach (in the sense of a cowboy-style environment), where everyone does what he/she thinks is acceptable, how can a normal person know where to invest or not invest the little money that they have? Or which service to buy or not buy. It's not possible. Where there is no common standard or monitoring of the quality, this is incredibly hard.
- P. Verschure That's very interesting because if we want to anchor trust, trust itself must be anchored in the regulations that a society provides. Trust is not necessarily an intrinsic feature of a commercial entity.
- A. Nuyken And that's good regulation. Regulations also contain other intentions. It depends on many factors, even the political spectrum. When I think back to discussions after the Lehman bankruptcy, there were a lot of voices who had no understanding of the banking market or the banking world, and they were overzealous in their ambitions to regulate things. Their intention was not to strengthen the local banking market but rather sometimes to kill it. That, of course,

is a very different approach, and we need to be careful and realize that not everyone who raises his voice in the context of regulation is actually doing it to benefit society. They may be pursuing a political agenda, and that's not always positive.

P. Verschure In your experience, when you look back at your recent projects, what do you see as the factors that lead to the breakdown of collaboration?

A. Nuyken Collaboration breaks down when goals or intentions diverge. This can happen when people no longer perceive a value in working together or even in pulling in the same direction. Instead, they grab what they can and pull in a different direction. That's how collaboration breaks down. Personal agendas are often involved and miscommunication can transport things to a personal level. If people feel they are not recognized or valued properly, if they place their own agenda above the joint agenda, collaboration will break down. In my experience, people react sensitively to this type of behavior or factors.

P. Verschure One could also view this as a fragmentation of the goal structure, where the emphasis switches to the individual goal and opposition gets amplified. Turning now to the present, do you think that the pandemic has taught us something fundamental about how to collaborate? Can lessons be extracted from our current situation?

A. Nuyken There are indeed fundamental changes in how collaboration is evolving. In the past, one engaged in phone or Skype calls, etc. whenever possible. But people usually met in person in a conference room. Lots of internal meetings took place with people you already knew or had seen before, where you already have a feeling for the other person. A lot of time and resources were wasted by getting everyone in the same room; in particular, when work was conducted across such a big region. A single meeting for an hour per day could kill a whole day due to travel. Personally, I think this mode of interaction will stop after COVID. Physical meetings and physical interactions will continue; they need to be there, especially when interpersonal relationships need to be built. You need to be able to look into the eyes of your counterpart to get a feeling for the situation, for the person. Although the tools being used right now, during the pandemic, can help to connect people to some degree, they will never make personal meetings redundant. This is particularly so in deal environments, where mergers and acquisitions are conducted, where partners need to develop a good understanding of each other, where you need, as some people refer to it, "to eat a steak together." In other words, situations where it is necessary to build personal rapport. For other scenarios, we will switch to meetings like this one.

P. Verschure Alexander, this is a very implementational perspective. If one observes how governments have been handling this crisis, an expert in collaboration might think that things could have been done better or differently. Do you have that impression? If things had been left it to you and your colleagues, would society have come out of the financial crisis earlier?

A. Nuyken I don't know. The issue with a crisis is that from the onset, no one really has a recipe or roadmap to follow and thus there is a lot of digging in the dark and trying out things. If you look at the vaccination programs, when vaccines were ordered, none of them actually existed as an approved product, and manufacturing capability was not yet in place. It all had to be built. So, people were betting basically on something that could not be predicted, because the outcome of clinical trials, for example, is unpredictable. There may be some degree of likelihood, but the outcome is still unpredictable. In essence, where we are today is an outcome of too many factors to say, "okay, I have a better recipe." Perhaps we could have been bolder in ordering vaccines or faster in implementing certain measures to distance people quicker. But that's knowledge in hindsight, and everyone is smarter in hindsight. It's very hard to tell, even with the little hindsight that we have on the crisis, what really could have made the big difference. In our democratic societies, we live in a space that allows discussion, margin for error, and even marching in different directions. To some degree, this must be accepted. Then again, one could also rule like in China...

P. Verschure What's interesting is that, in some sense, collaboration has not necessarily flourished there. In terms of COVID, researchers have stepped up to the plate and delivered to society. It is amazing.

At the level of the pharma industry, there is a more mixed picture, certainly in terms of logistics distribution. That could have been handled better.

Humanity, however, is facing other crises well beyond COVID, e.g., an ecological crisis that affects our planet and future generations. Do you believe that humanity will ever be able to create the necessary global collaborations to address such an existential threat?

A. Nuyken Here, I'm a little bit more skeptical. In most of the European countries, I think we have a little bit of common sense. But when I look at the global debate, it's very tough to find common ground. The argument from emerging countries, be it China or other countries, is clearly that we are coming from a different place. For Western societies, it's easier to demand restrictions and limit ourselves because our societies are already developed. Others have just begun their journey, and they have a right to thrive and develop their economies. Obviously, they don't want anyone to block that evolution. In most cases, it's more expensive to implement environmental protection on a short- or mid-term basis. Long-term planning holds the better option, but people don't tend to think long term. They don't tend to think ahead 2-3 generations. By then, they may regret previous actions, and in Europe, we are seeing this. But that's not how governments think or work. So, I'm not very optimistic that something will be achieved on a global scale. In Europe, if we reduce our CO₂ emissions by 2%, that represents a mere drop in the ocean on a global scale. I think it's the right thing to do, but again, on a global scale, will we really achieve something over the next two years? I'm skeptical.

P. Verschure If you had a magic wand and could alter one thing to allow humans to collaborate better, what would you change?

A. Nuyken Oh, that's a tough one. I wouldn't want to use up my wish so quickly without proper reflection. To be honest, I don't really know what the missing link is. Perhaps we need more long-term thinking, more thinking across generations. We all have a limited time in which to pass what we have inherited to the next generation. Neglecting to do so represents perhaps our greatest failure. People should recognize that that they are not here just for their own good. That would be my wish.

P. Verschure This speaks to an issue you mentioned earlier: Collaboration breaks down because people don't identify with the common goal, and the common goal collapses into a fragmented set of competing goals. It is naive to believe that people with similar educations, expectations, and norms will think or behave as we do. We cannot expect that they will also adhere to our ideas about democracy, fairness, etc. That's just not the case. Consider a farmer in sub-Saharan Africa who lives below the subsistence level. How can we expect that person to immediately understand democracy, fairness, or global warming, and all the associated challenges? There's a huge discrepancy between levels of expectation and knowledge, and appreciation of these challenges. Europeans and North Americans have indeed profited, more than others, over the centuries. Now we're all facing the same challenge and yet we are unable to find and communicate common goals. If we take your experiences as a reference, there is balance between the goal structure for the organization and the regulatory processes around it. For global warming, the probability of finding regulatory mechanisms that will work globally is very small, so regulation must be intrinsic to organizations. Even then, at this smaller scale, it will be very difficult to accomplish. It's a massive challenge. My personal view is that we have to augment human cognition; our cognitive machinery is not sufficiently prepared to deal with the timescales to really appreciate the problem and respond properly. But that's a topic for another discussion. Humans have evolved to collaborate on a certain scale. Evolution has prepared us to run around the savanna and cooperate with dozens of others, but not more. In that sense, our brain has certain biases and deficits which do not help us operate on the appropriate scale right now.

A. Nuyken And that's part of our evolution. I mean, even just a few years back, communication was far more difficult. It was fragmented and we relied heavily on in-person interactions. Today we use technology that enables video calls between people from various companies. A half an hour

later, we can call a completely different group of people from completely different companies from different continents. This happens over the course of an entire day, from morning to evening. Fortunately, I think we are quite adaptive.

P. Verschure We are, that is true. Alexander, I would like to thank you very much for this insightful conversation. It was a great start for our podcast series.

A. Nuyken Thank you very much, Paul and Ferdinand. You have posed intriguing questions, some of which I need to think about more. But you've gotten my immediate answers. Clearly, collaboration is at the core of more than an organization: It begins very small within a family unit, learning how to create buy-in so that the carriage goes in the same direction. It filters up through the company and society. In the big picture, topics such as how to get environmental change under control is super interesting but I'm not an expert on such topics. I work in an environment where I need to apply and analyze collaboration. Today's discussion will most definitely help me to think more about it in the future.