The Goal Is Zero Incidents

Safety is not everything, but without safety, all is for naught – this simple motto has shaped the professional career of Dr. Norbert Kuschnerus at Bayer Technology Services. In mid-2013 the physicist with a PhD in chemical engineering retired.

solutions: Norbert Kuschnerus, you are responsible for the vital area of safety at Bayer Technology Services...

Kuschnerus: ...to be more precise, the division is called Operation Support and Safety. Safety is certainly a very important aspect of my responsibilities, but by far not the only one.

solutions: What else does your division involve?

Kuschnerus: There are four main aspects to our work. In addition to reliability and safety, there are also the factors efficiency and flexibility.

solutions: Why do these different aspects play such an important role?

Kuschnerus: Consider, for example, the life cycle of a chemical facility, the median age of which is probably around 40 years in Germany. Our task is to get the optimal performance from this production plant in the face of strong international competition.

solutions: Can you specify what you mean by optimal performance?

Kuschnerus: It is really quite simple: you want to produce very efficiently, while at the same time you must be able to adjust relatively quickly to changes in the market. And, of course, the entire production process must be very safe.

solutions: And so the job of Bayer Technology Services is...

Kuschnerus: ...to support customers in their efforts to achieve the optimal performance by the most advanced technological means. Our combined holistic approach is a completely new way of tackling these challenges.

solutions: And who stands to benefit?

Kuschnerus: Effectively, the entire processing industry benefits. However, we mainly focus on the chemical and pharmaceutical industries. With the individual production processes commonly found in these fields, we have many more possibilities to help with our particular approaches and to design the best feasible processes than in the case of standardized manufacturing facilities.

solutions: That is easily claimed, but how does it measure up in concrete terms?

Kuschnerus: We are usually able to reduce energy consumption alone by ten percent. In terms of logistics costs, the savings are normally even higher. And the necessary investment costs are also reduced significantly. But, reliability and safety cannot be quantified in this form. After all, how should we claim that it is possible to guarantee a reduction in production downtimes by a factor of x? However, we can say that without our methodical approaches, the production facilities would be a lot less safe.

solutions: Does that mean Bayer’s production is safer today than it was in the past?

Kuschnerus: As a consequence of its acquisitions, Bayer actually did end up many sites in the past that were not up to Bayer’s standards. We have definitely improved this situation. With our new manual “Process & Plant Safety”, for instance, many things that used to be only recommendations are now obligatory – worldwide. This is obviously going to improve safety. And our clear goal is to achieve zero incidents!

solutions: Isn’t this perhaps an unrealistic goal?

Kuschnerus: I am not aware of any law of nature that would rule out this aim. On the one hand, it is clear that human error cannot be completely ruled out, and this is the reason why we have to make use of our technical expertise to catch any consequences arising from human error. At the same time, we must of...
course, train our plant operators.

solutions: How is this training implemented?

Kuschnerus: We have developed special simulators that plant operators use for regular training in much the same way as pilots work with flight simulators and are thus prepared for all situations. Before a new plant is commissioned, the operators practice at a computer for six months. If necessary, the facility can then be further optimized technically. As a consequence, our main customer, Bayer MaterialScience, has with our help become the worldwide leader in this field in the chemical industry.

Furthermore, we have recently drafted a project that combines safety training and operation simulators. This is a good example of how we can combine our know-how from various fields to create value for our customers.

solutions: Where, in your opinion, is the innovative strength still demonstrated in the company?

Kuschnerus: In very many places. Let’s take, for instance, the term product-related analytics. This refers to coupling online analytics with process control. We have often heard competitors say: “You succeed in process control by quality – and we can’t do that.” With this technology we are able to implement quality management continually during the process and in real time. In terms of measuring technology, we have already achieved a comparable standard in the field of biotechnology and have just initiated a project with the Technical University Dortmund to develop the corresponding process model. We are particularly proud of the fact that we can already measure all of the important parameters online – which no one else in the world has succeeded in doing yet.

solutions: What role do partners play in terms of innovation?

Kuschnerus: An increasingly important role, as it is impossible to assume that all the required knowledge is only available from one source. One example is our cooperation with the Fraunhofer Institute. We have jointly developed a tool for Asset Lifecycle Management.

For Dr. Norbert Kuschnerus a zero incident level is definitely a realistic goal.
that is based on neuronal networks and pattern recognition. This allows experts to detect at an early stage whether a plant unit or a processing unit will go off course. It has been a very successful cooperation.

**solutions:** You mentioned logistics as a key factor in the company’s portfolio. What can customers expect from Bayer Technology Services in terms of logistics?

**Kuschnerus:** Here too the aim is to identify bottlenecks. We have already developed several Track & Trace applications to industrial maturity, which allow us to trace products from their production up to delivery to the customer. We are advising the European Pharmaceutical Manufacturers Association on this subject and have contributed to the Europe-wide launch of the two-dimensional product code for all pharmaceutical packaging.

**solutions:** In which areas will we see important developments in the future?

**Kuschnerus:** We are continuing to press ahead with, for instance, the automation of biotechnological processes. This is an area in which we will collaborate with universities on further projects. And we still have not found an answer to the question how an Asset Lifecycle Management of the future will have to look. In this case it is a question of determining the condition of a plant early on. We currently only make use of just a few percent of all the information a plant has to offer. In this connection, we are carefully following the developments of Cyber-physical Systems and the “Internet of Things”. We are also taking the so-called “Industrie 4.0” project in Germany very seriously. Our colleagues in Manufacturing IT and Logistics are already in the process of elaborating proposals how we can make use of these emerging technologies for our subgroups to produce more safely and, at the same time, more efficiently.

**solutions:** Doesn’t this trend also mean that the influence of humans will be further diminished?

**Kuschnerus:** The priority is to keep the plant itself running robustly. This change in thinking implies putting a lot of trust in technology.

**solutions:** Isn’t there a risk that customers will think Bayer Technology Services comes across as a know-it-all in such questions?

**Kuschnerus:** We are trusted advisors. To remain a technological leader we are constantly investing in innovation. Our areas of interest range from process development and engineering to methods aimed at how to operate plants in the best way possible. Manufacturing expertise, in other words, the know-how in connection with a specific process, will always remain in the hands of the customer. A good cooperation based on trust always results in added value for both partners.

**solutions:** Bayer Technology Services receives a great deal of recognition...

**Kuschnerus:** …which sometimes overwhelms me. I prefer to say to my people that it is better to keep our feet firmly on the ground. But we know fully well that our good reputation is first and foremost an enormous obligation. However, I would never disregard the fact that we are all very proud of this show of confidence. And we have the outstanding work of our employees to thank for this support. They are indeed very good at what they do.

**solutions:** We understand you are retiring soon. Will you still be involved with the subject of safety in your retirement?

**Kuschnerus:** To be perfectly frank, I am firmly committed to ending that chapter. One thing I can promise is that as a retiree, I will not be writing any articles on the subject. The developments in this field occur so rapidly that a retiree is quick to lose touch. However, I do intend to stay in touch with the community in and around the Bayer Group. After all, there are many colleagues with whom I have enjoyed a close relationship over the years.

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“Marketing Is My Hobby”

When Dr. Norbert Kuschnerus asked Dr. Thomas Steckenreiter if he would like to succeed him, the manager from Stuttgart lost no time in giving his answer. Effective July 1, 2013, the candidate of choice joined the Management Committee of Bayer Technology Services.

The biggest surprise came at the very end of his curriculum vitae: Under hobbies, where most people list things like “traveling”, “reading”, or perhaps even “car racing”, Dr. Thomas Steckenreiter wrote “marketing” and “philosophy”. “Both subjects really interest me,” he says somewhat defensively with a smile during the interview. “They offer a change, but also complement my normal job.” Probably to ensure that he does not leave a false impression, he then adds, “I am also a big music fan and play the guitar quite well too – blues rock.”

What he characterizes as his “usual work” has been up till now Director of Marketing at Endress+Hauser Conducta in Gerlingen, Germany. The company near Stuttgart is considered one of the worldwide leading suppliers of measuring instruments, services and automation solutions for industrial process engineering.

Effective July 1, 2013, however, he is joining the Management Committee of Bayer Technology Services, where the 48-year-old will succeed Dr. Norbert Kuschnerus, thus assuming worldwide responsibility for the Operation Support & Safety Division.

Kuschnerus had personally contacted Steckenreiter to ask whether he could imagine succeeding the Bayer manager in this position. “And I definitely could imagine it,” says the German, who was born in Offenbach. The two had already known each other for several years because the companies had successfully collaborated for quite some time.

Thomas Steckenreiter studied chemistry at the Technical University Darmstadt, where he also earned his PhD. After joining the company Endress+Hauser in 2001, he held various positions dealing with process analysis technology. “My particular focus was to improve product quality as well as to increase the safety and efficiency by taking a holistic approach to processes.”

For Steckenreiter, the decisive factor in making the change was not least the excellent reputation that Bayer Technology Services has in the sector. “It is also fascinating to know that you can contribute to making the entire sector work even more efficiently and sustainably and can help recognize and implement new trends. That is a very exciting prospect!”

And what does Steckenreiter feel qualifies him for the new assignment – besides experience and expertise? “I believe I am a very good listener.” After all, he knows fully well that “this is a fundamental prerequisite for developing innovations.” And in general, “Both exchanging with people around me and listening to their opinions are really very, very important to me.”