

How to Become an *Expert* in Your Field



Danish physicist Niels Bohr once said an expert is a person who has made all the mistakes that can be made in a very narrow field.

So I figure all I have to do is be myself in order to become an expert at just about anything, right?

Well, no—expertise is not so easily acquired. Neils Bohr was on the right track, of course, but in addition to making the mistakes, you have to understand them, learn from them—and not repeat them.

Someone who has demonstrated that ability is Aarnout Kant, the business unit manager for Siemens Mechanical Drives in Elgin, Illinois. I had the opportunity to meet him at a recent tour of the Elgin operations. During the tour, Kant gave a presentation about the company's history, philosophy and the significant changes and investments they've made in the Elgin facility over the past several years.

During Kant's presentation, he recounted how, as a young engineer, he had designed a gearbox that was to be installed at the world's largest copper mine in Chile. When the gearbox was completed, Kant traveled to Chile to oversee its installation. Unfortunately, when the power was turned on, they heard a horrendous pinging noise. As it turned out, someone left a screwdriver inside the housing. It got caught in the unit's fan, breaking off two of the fan's blades. Of course, it wasn't Kant's fault that someone left a screwdriver inside the gearbox. But in order to get at the fan to replace

it, the motor and coupling had to be removed. Basically, the entire unit had to be disassembled in order to replace one of its least expensive components. As Kant described it, it was a design lesson he had to learn the hard way.

But he wasn't embarrassed by it; in fact, he embraced and learned from it. And more importantly, he incorporated that learning into new gearbox designs for his company. Today, Siemens offers gearboxes with a removable shroud over the fan section, as well as fans with replaceable blades.

But even rarer than an individual who learns from his mistakes is an organization that does so. And organizational learning seems to be a major point of emphasis at Siemens.

Manufacturing gears in the United States is new for Siemens. At the old facility, there was a small gear manufacturing cell for repair and service work; but beginning in 2009, the company completely remodeled and retooled its facility to accommodate local gear manufacturing for all their gear drives, including a brand-new heat treating facility that came fully on-line in 2011. Plant manager Peter Herzhoff described how the company built this facility based on the knowledge gained at other plants around the world, using the exact same processes, machines and technologies as at other facilities, right down to the plant layout.

"We want the gear to be the same whether it was manufactured in Germany, the U.S., India or China," Herzhoff said.

The emphasis on organizational knowledge was also evident at Siemens' new assembly facility, which was completed in 2009. There, I saw continuous improvement boards stationed around the plant highlighting not only the company's successes, but, more importantly, its failure to meet specific goals. The boards include places for employees to make suggestions, as well as before-and-after photos demonstrating incremental improvements in plant layout and operations. Jacob Schiff, plant manager for the assembly facility, described how management walks the plant floor every morning to review the boards and make adjustments, anticipate problems, incorporate changes and improve the operation. Every day, they look at their mistakes and use them to improve their operation.

Anyone can make a mistake. We've all had our "Where did I leave that screwdriver?" moments. But the ability to transform mistakes into expertise may very well be the difference between the average company and a world-class enterprise.

A handwritten signature in black ink that reads "Randy Stott". The signature is fluid and cursive.

Randy Stott,
Managing Editor