



Leadership Q&A

Leading a Business from Startup to Scaleup

Genomatica, a bioengineering technology leader, has successfully grown past its startup phase and has established a presence in the chemical industry. It has raised over \$100 million in financing, built partnerships with some of the largest global producers in the chemical industry, and created a wide-ranging portfolio of intellectual property. It also reached an important milestone in September 2016, when Novamont started up the world's first commercial-scale plant for the production of a high-volume intermediate chemical, based on Genomatica's process technology. Genomatica's CEO Christophe Schilling talks about his experience along this journey.

What prompted you to take an alternative path from that of a typical PhD engineer to start your own company?



Christophe Schilling:

A couple of things prompted me to take a different path. First, I was born and raised an entrepreneur. I grew up in a first-generation family in the U.S.; my parents came over from Europe shortly before I was born. My father was an entrepreneur,

and my older brother is an entrepreneur. Most of the things I was around when I was young were related to entrepreneurial activities — they weren't in the technology space, but were more like classic sole-proprietor types of entrepreneurs, the real backbone of this country. That's the mold I came out of.

I often say, I happen to be the kid who was also interested in math and engineering and science. That led me down a path to go for an advanced technical degree. I found a field that I loved for my PhD (bioengineering), and that field is really the basis of a lot of what Genomatica does today. Then I had the benefit of having Bernard Paulson as my advisor. He was incredibly supportive of all his students regardless of their specific interest — whether they wanted to become a professor or work at a large company, or become an entrepreneur. He was really an outstanding mentor to me and still is today to people who go through his lab. He's terrific at developing people. It was really about the person first and the research second, which ultimately led to better research. And lastly, I also had a

real passion for how you could engineer biology, what you could do with that. Those are the things that all together drove me to start a company.

How did you navigate the startup landscape, from raising money to developing a business strategy/vision?

Schilling: To answer that, I need to go back to the early days, around the year 2000; it feels so long ago now. The first thing I learned was to understand what makes a business work — and I think that's especially important for any entrepreneur with a technical background. It's not just about the science and your technology.

As a CEO, I believe you have to understand deeply how every single thing operates in your company, everything from the technology to business development, the market side, why you choose to put in place certain compensation systems or benefit systems, financing structures. You really need to have a good understanding of all that stuff. I've had the benefit of being able to learn a lot of that through direct experience. But before I really jumped into any of those things in a company, I was reaching out to mentors to try to get as much insight and knowledge as I could about what might lie ahead. How could I prepare myself for these things that I wouldn't see until they happened? I think that was really a key thing. It might fall into that category — important to know what you know, but more important to know what you don't know, and figure out how to get better at those.

How did you change the way you led the company as it got larger?

Schilling: I don't think there is an easy answer to that. I always felt that you have to learn, you have to grow, and you have to evolve as the company grows. But mostly it's really not about things that you have to do differently; for me, it's been mostly about staying true to my core values and those of the company. I'm a very values-based leader.

Probably one of the things we hold most near and dear to ourselves at the company is our core values. Our employees developed and codified our core values, not me, and everyone knows them and lives them through four simple ideas: we're real, innovative, united, and relentless. I like to talk about them as the adjectives I would use to describe Genomatica as a person. Our intention was that our core values should be timeless. Whether we've been 20, 50, or 100 employees, and through good and bad times, our values have been a constant. To me, that's when you know you have a good culture.

Were you surprised that you were able to raise so much money in such a short period of time?

Schilling: We have kind of a two-part history to the company. The first part, from 2000 to about 2008, we were sort of a small cashflow-positive company; we'd only raised about \$3 million during that period. We were more of what felt like a research consultancy services kind of company — a solid business, but not high-growth.

And then in 2007 we believed there was a market opportunity to apply our technology in the mainstream chemical industry. That led to a transition for Genomatica to build itself into the company that people know today. That's when we really started to raise capital. When we talk about things like \$150-million-plus in capital has been attracted to the company, that really is the second half of the company history. To navigate those challenges, especially as market conditions changed, has been a great example of one of our core values — being relentless. It takes true perseverance.

In 2008, how did you know that it was time to steer the company in a different direction?

Schilling: There were several things all happening at the same time. First, we could see increased interest in sustainability — people wanted to understand more about the environmental footprint of everyday products, major brands wanted to make a difference, and so did major retailers. We felt this would have impact across entire product value chains and industries, and high-volume chemicals are the starting point for making much of the world's stuff. Second, we were on the front lines in harnessing biology to make stuff. The power to design and engineer biology just kept increasing, and so we felt we could leverage that. So then third, our next step was to figure out the right leverage points — choosing a first product technology to develop and how to commercialize it, and laying the groundwork for follow-on steps.

A lot of people have never been exposed to how things are made, and that chemicals are the starting point for so many products. And likewise, many people don't realize that those chemicals can increasingly be made biologically, with multiple benefits compared to making them using oil or natural gas as feedstocks. By putting our technology at the front end of these value chains, we saw a way to both create a large market opportunity for ourselves, and also really “move the needle” and have a large impact in driving a transition to more sustainable materials over time. In fact, our core purpose, or overall mission as a company, is to lead what we describe as an irresistible transition to sustainable materials through our technology, and that united with industry leaders, we will make the world a better place.

Let's turn the focus to leading a company beyond the startup phase and successfully managing challenges as the company gains traction. How do you adjust the company strategy as market conditions change? Does the price of oil affect your strategy?

Schilling: Yes, we've had to change and evolve a number of times as the world changes. We've adapted — and I think it's easier to adapt when you're a modest-size company. By making sure we're delivering the right kind of value, we can reduce the impact of changes on us due to changes in the price of oil or in government policies. We aim to deliver a portfolio of products with diversity in markets and commodity exposure. We've taken the first steps, but it will take time to roll out all the pieces we have in mind.

The first product we developed is a process technology to make the chemical 1,4-butanediol (BDO). We're delighted with how well it works in terms of the quality of the product, how well it works in making downstream products, and its highly competitive economics. The first plant using this technology just went live in Italy, built by Novamont, and it represents a real milestone, not just for us but for the entire bio-based products industry.

As with many chemicals, the market for producers is cyclical, and the BDO market is just now beginning to recover from a low point. The good news for us is that producers make their plans based on what they'll need years from now, and that we have additional product lines that we're developing. Also, multiple producers are looking to benefit from our skill at bioengineering and we're also now helping companies develop or improve their processes.

Whatever the market conditions are, innovation is key. It's what we use to adapt to changing market conditions and deliver customer value. Our ability to innovate has been a common thread across our history. We even call our headquarters our Innovation Center.

What traits have been most important for you to be a successful leader?

Schilling: For me, it starts with being passionate about what you do and wanting to help others be successful with their career goals and job satisfaction. If you don't have passion, it's difficult to manage through the ups and downs that are sure to occur over time.

I'm also a firm believer in perseverance, determination, and an overcome-against-all-odds mindset and approach to life. This is particularly important for a scrappy technology innovator that aims to impact a conservative industry and change views to multiply its impact.

And again, I believe strongly in being very values-based and transparent with my people, my team.

CEP