element14
AN AVNET COMMUNITY

November 2020

Finding a Successful Career in Engineering **Part 2**

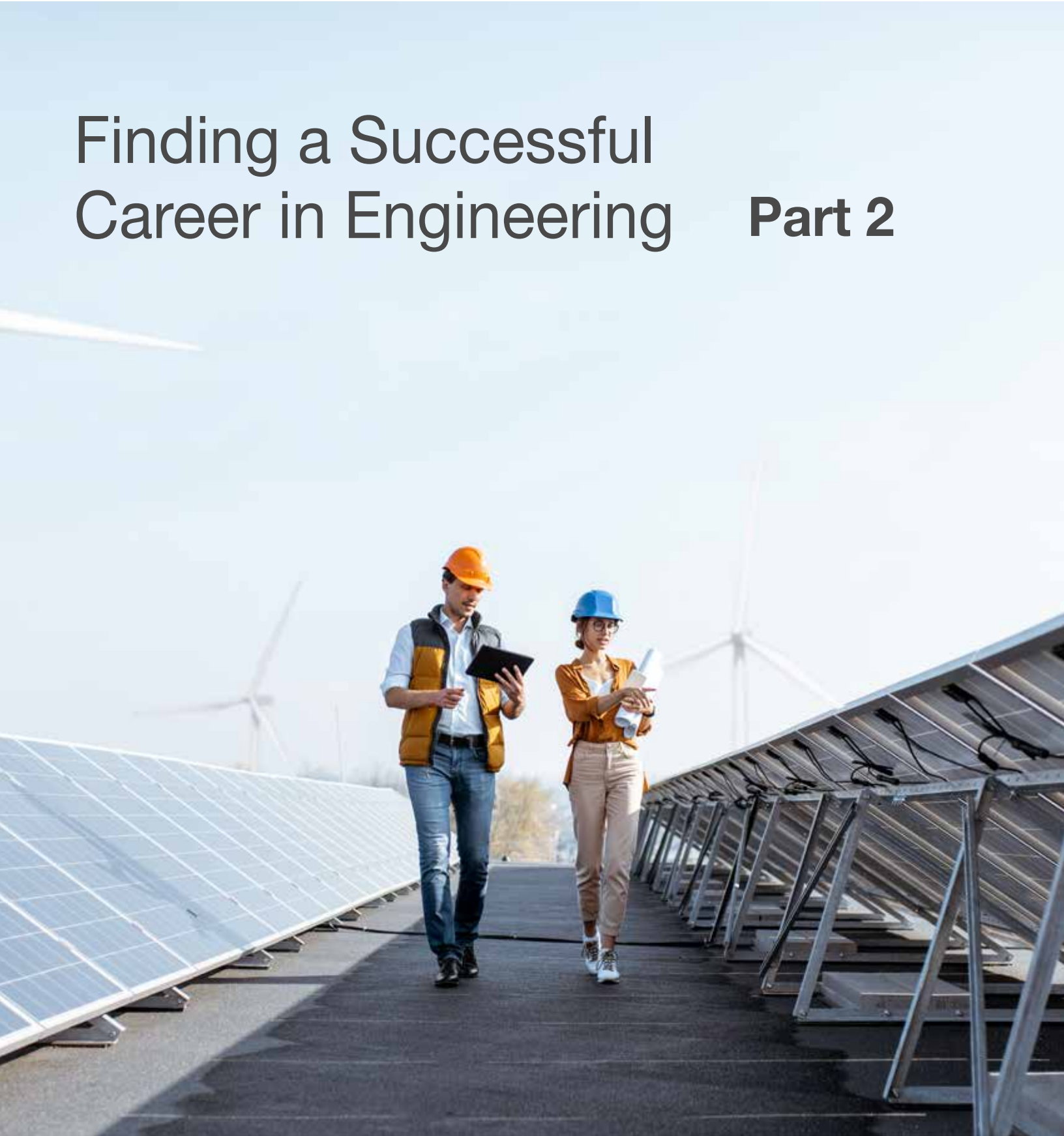

Table of Contents

Finding a Successful Career in Engineering

Part 2

element14 is a Community of over 700,000 makers, professional engineers, electronics enthusiasts, and everyone in between. Since our beginnings in 2009, we have provided a place to discuss electronics, get help with your designs and projects, show off your skills by building a new prototype, and much more. We also offer online learning courses such as our Essentials series, video tutorials from element14 presents, and electronics competitions with our Design Challenges.

This eBook is the second in a series on finding success in your career in engineering. We will discuss workplace culture, diversity in engineering, dealing with setbacks, and much more.

You'll get insights and advice from engineers working at leading companies like 3M, Molex, Kemet, Keysight, and Tektronix. You will hear from engineers who are just getting started, and from those who have worked their way up to senior roles. We hope this will be a useful resource as you navigate your career in the exciting world of engineering.

element14 Community Team

CHAPTER 1 How Do You Find the Right Culture Fit?

Engineering is an exciting career path, one which allows you to develop your creative thinking and problem solving abilities, while making an impact on the world. Engineers often work in teams to tackle complex challenges that can't be solved alone, and that's just scratching the surface. As an engineer, your skills are highly coveted, so you have options. What makes sense to you today, may not be clear tomorrow. What's the right fit for you at this moment? When's the right time to consider a different role? We'll attempt to find answers to these, and many other questions, from engineers in various roles and stages of their careers.

For Selu Gupta, Senior Hardware Design Engineer at Tektronix, a company's culture determines who stays, but it can also bring back people who leave.

"We have a very unique work culture; no one's out to outshine each other, no one's stabbing each other in the back, or trying to get the credit or the praise. We're working here to make a quality, awesome product. There's a reason why Julie's come back to Tektronix, and Jessica and I have been here our whole careers."

- Selu Gupta
Senior Hardware Design Engineer, Tektronix

Julie Campbell, Principal Mechanical Engineer at Tektronix, has spent significant time at two companies in the same industry, but with very different cultures. She emphasizes one way isn't better than another. You can succeed and get things done with both approaches if you're willing to work hard.

"The senior engineers at Tek are very good about encouraging you to ask questions. It's always a challenge here, not to get drawn into everything that comes across your desk, as I find our younger engineers are quick to seek help, and they're excited to receive it.

In my stint with the other organization, there weren't as many people, and we didn't have as many resources. One way wasn't better than the other, because there were than meets the eye. And that self-reliance, asking lots of questions, following through, and working hard in both environments, you can win."

- Julie Campbell
Principal Mechanical Engineer, Tektronix

Development is vital for Terry Collier, Application Level Engineer at 3M. You look at whom you can develop when you bring someone in, and you create opportunities for development for the talent you already have within.

"I can just talk about my personal experience. I had some great developments helping people understand how to have the best tools, whether that be statistics and Six Sigma, or cross-functional experiences.

We do business model planning scenarios. And the great thing about 3M is, if you ever call and have a question, you can reach another 3Mer, they'll answer the phone and help. I think a lot of people who thrive and are successful at 3M are people who enjoy new challenges, trying something different, and partnering with people to be able to do that."

- Terry Collier
Application Level Engineer, 3M

CHAPTER 2 How Important Is Diversity to Engineering?

Having a diversity in perspectives will help you to create better products, believes Jessica Dunn, Mechanical Design Engineer at Tektronix.

"With design, especially where you work together so collaboratively, if you have a bunch of different backgrounds, you can create that much better of a solution. But if everyone comes from the same background, they often have the same perspective. I think that diversity of thinking helps you come up with a way more creative solution. To take an example not necessarily from the world of electronics, a company designed a pool float, and you could tell it was a bunch of men who had done this, because it looked like a maxi-pad. They could have had one woman in that design group, and she would have seen the prototype and said that this could not be a product!"

- Jessica Dunn
Mechanical Design Engineer, Tektronix

Progress requires people who approach reality from opposite directions, Julie suggests.

"Too much communication can clog everything up, and then again not enough communication slows things down. Having people who are very numbers and math oriented alongside the creative, gregarious hand wavers is often a good match. To constantly challenge reality from a practical standpoint, and also from a dreaming standpoint, you need all sorts of people with lots of background to do these things."

- Julie

> *"Engineers have been shown to embody a tremendous amount of leadership skills through the collaborative educational environment. According to Harvard Business Review's Best Performing CEOs in the World, 24 percent of those included on the list have studied engineering."*
>
> *- Forbes*

Product design requires feedback from a lot of different backgrounds, and not just the obvious ones.

"For good product development, I think we need so many different kinds of people with different backgrounds and experiences in the process, and I'm not meaning just men and women, but we need people from all races, from all different countries.

You know, a simple example is colorblindness, which is something that's prevalent all around the world. In one instance we were actually looking at LCD colors to apply for one of our front panels, and we were looking at it, and everything seemed fine. But then we had a team member who was colorblind, and because of that he couldn't decipher the different colors that indicated states of the board. And had he not been on the project team, as simple a thing as an LCD color might have caused a lot of frustration or even errors for a customer.

So I think diversity goes much deeper than just the difference between a male and female environment. There are so many aspects to diversity, and the more diverse a design and solutions teams can be, the better the product will be in general. We just come up with so many ideas."

- Selu

CHAPTER 3 How Do You Deal With Failure?

Failure can be the best learning tool you ever have. Get perspective, step back, and understand what happened.

"I think setbacks happen to all of us. Continue to prepare appropriately, and to learn from your mistakes. That is the way you can become unstoppable.

We all have setbacks of different scales, but if we take and learn from them, and accept whatever responsibilities, it can be a wonderful way to grow.

In the academic world, there's a clear solution, but in the real working world, there may not be one. I had to learn there can be setbacks because there was no right answer, and you worked on the wrong problem. I see so many students go through the experience of doing great in school and studying, where there's a clear solution, but finding that many times the problems we solve may not have one."

- Terry

Julie suggests taking immediate ownership of your failures, so that others can help you.

"I have a specific example. I was working on a plastic part, and you know how you work on something for too long without a break, and you get too deep into it? In my head, when I was looking at the 3D geometry it was actually flipped around. So when I went in and

> *Also, personal mental health is important too, so if you start getting warning signs that the culture at a firm might not align with your vision of the organization you wish to work for, then don't feel obligated to accept the job offer. It is taking a gamble, but sometimes it needs to be done.*
>
> ***- Shabaz Yousaf, element14 Top Member***

reviewed that last feature, I was looking at the 3D geometry wrong. I kind of flipped it inside out and I thought, okay, it's done.

I had made it wrong, and we'd already done a final design review, so I didn't have a chance for other people to check it again. And then I sent it off to have it fabricated. About two days later, of all the crazy things to think in the morning, I realized 'oh no, I made a mistake.'

The very first thing I did was call my manager while he was on a vacation day, and he was on a ski lift!

It was about a thousand dollars and a one week delay, and a thousand dollars was not exactly trivial at this point. And you know what? He handled it very well. So, don't panic! Don't run away from the problem. Own the mistake and resolve it."

- Julie

Conor from Molex stresses providing young engineers with opportunities early in their careers, so that they can then move from a development process to roles in supporting some of America's largest companies, like Apple, Amazon, and Google.

"An important thing is giving young engineers and graduates opportunities early in their career. So [at Molex] after the 12 to 18 months that we go through this development program, we're placed in outside sales roles or in other technical roles. In terms of hiring through the program, we go to a lot of the top engineering schools here in the Midwest and on the West Coast, and I think the biggest thing is just giving people opportunities when you find them, and being flexible regarding the skill set of a candidate."

- Conor McGoldrick
Associate Sales Engineer, Molex

CHAPTER 4 What Skills Do You Need to Succeed?

It's okay to want to be noticed, says Selu, as that can often be key in how you advance your career.

"I sometimes think engineers are born introverts, which is why we like the field so much to begin with. But you need to find your voice and, especially for women, it's okay to feel competitive and want to prove your worth. I think being able to develop those soft skills and leadership skills will only help you develop as an engineer. I think that's something that I've personally learned through my career, that you can do all the good work you want and it won't necessarily always get noticed. You need to be able to tell people about what you've done."

- Selu

Whether it's a formal mentorship or one you develop through a friendship with a colleague, finding someone to provide advice and who can also advocate for you is very much worthwhile, says Julie.

"There is an old adage: 'So as I am now, soon you will be. So as you are now, so once was I.' If you have ideas and you want to enact change or influence decision making, put your story together and find an advocate, someone who cares about people and is a good engineer, and bounce your ideas off of them. A lot of times companies will set up formal mentorships, but often the best mentorship comes from friendships. Think about finding someone who's senior, who's a good designer, who cares about people. They will help you formulate good conversation and increase your influence in an organization. They'll understand all of the political challenges, the financial challenges, the history around things. These will be your colleagues who can help you navigate those kinds of issues."

- Julie

Your hard skills as an engineer are fundamental to your success, but in the working world the soft skills also become key, as you help colleagues and customers try to solve their problems, says Terry.

"I think we all get trained very well in hard skills, how to apply a framework to solve a problem. But I think it's really the soft skills of being able to collaborate with others, and help other people solve their problems, that are also so valuable. As Connor has mentioned, the empathy you develop, learning another person's language, of learning another culture, how you become connected with people in a way that they feel comfortable,

is really important. So many of the problems we face on the job are so difficult, they require a lot of people really pushing in the same direction to get them done."

- Terry

Companies are often not expecting to hire an expert in a particular area, says Axel, so in addition to the background they know about you, they want to see certain positive attitudes.

"Honestly, we don't really expect that we will hire an expert in our special field of capacitors or inductors. So I think that the most important thing is that you are eager to learn something new, you are open, you are working with different cultures. And we have customers who are experts and specialists, and you're the interface, you're in the middle of those."

- Axel Schmidt
Senior Technical Marketing Manager, Kemet

Flexibility is very much in demand, says Conor. You need to have that quality, in addition to having your engineering skill set.

"I think we often talk about flexibility. You need to have an engineering skill set, but also you need to be flexible too; be open to moving to different locations, to be open to working with people from different cultures. For instance, I'm learning Mandarin on the weekends. And again, it is often good to be open to travel to your next role.We have very strong extracurricular programs with Molex. We have a strong running club, we sponsored a marathon and we encourage people to run the Chicago Marathon. We have public speaking clubs at the corporate office. We encourage people to go out and learn Mandarin. We have employees in 23 different countries right now, so it is important that our employees understand different cultures, different mindsets, and that we encourage diversity throughout the organization."

- Conor

Patrick agrees, employers find great valuable in team members who are flexible and adaptable, and who are also open to being self starters.

"Flexibility is a key need. Nowadays it's necessary to adapt to different scenarios, and to be able to think outside the box. You might need new approaches, to not just stick to the conservative way. From my position, I would say it's key to have your appointments set yourself; my boss is not telling me where to go and when to go.

So I'm able to do things in my own style, I don't have to forcefully adapt to someone else's preliminaries on how to do the job. I get support when I need it, and I can run free where I like to run free."

- Patrick Geisler
Distribution Field Engineer, Keysight

"If you have good communication skills, those soft skills about being able to empathize with a customer and help solve their problem, that can be so valuable. As an old engineer once told me, there's no better feeling in the world than when a pilot takes your stuff out for a test run and comes back smiling from ear to ear. And so that's how I ran my career, satisfying the customer, making sure they succeeded. And then your success goes with them, because they'll tell their friends what you did for them, and then their friends are going to want to have you do the same for them. And that all builds over time, and then that's how you have a great career, you satisfied your *customers."*

- Don Bertke
Retired Systems Engineer, element14 Top Member

CHAPTER 5 How Do You Measure Success?

What will make you feel successful in your career? Try not to lose perspective by focusing exclusively on the number of sales or of problems solved, says Conor, who thinks of success in a more holistic way.

"You have to look at success from many fronts; there's personal success, organizational success. You need to ask yourself, are you helping your customers fundamentally solve their problems? I think that's often why we are in the job.

We truly see our success as learning something new to help a customer see the world in a way they didn't before, and solve their problem in a novel way that they hadn't imagined."

- Conor

Similarly, don't focus your concept of success exclusively on your customers, your managers, or your organization as a whole. Don't forget about yourself, says Patrick.

"I would go step further than just staying that success is measured by happy customers; I would say that it goes the other way around back to myself, and whether I am happy. It needs to match, I can't just say I sold the product to the customer and they're happy. So the way things flow and stuff like this needs to match to that."

- Patrick

"Of course you have to bring in some numbers, and the objective is to earn money. But I need to love my job, I need to be comfortable. And typically, this carries over to the customer, so you feel that you love what you're doing and the customer respects your work, and then together you succeed."

- Axel

> *"Among employed job seekers, engineers expressed the greatest satisfaction with all aspects of their job (42%), edging out finance and healthcare respondents."*
>
> *- Monster.com*

This eBook was based on a series of career panels with a diverse group of working engineers. You can get more in-depth answers to these and many other questions by viewing the on demand webinars at the following locations:

- **Engineering Career Virtual Panel**
- **BadassWomen Engineer Career Virtual Panel**

And if you haven't already, check out the first part in this careers eBook series, which discusses landing a job, what a typical day looks like, and much more. You may also visit the Business of Engineering page to explore further about engineering.

KEMET a YAGEO company

molex

KEYSIGHT TECHNOLOGIES

3M

TE connectivity
AUTHORIZED DISTRIBUTOR

Tektronix®

element14
AN AVNET COMMUNITY

300 S. Riverside Plaza, Suite 2200
Chicago, IL 60606

www.element14.com/community

Facebook.com/e14Community
Twitter.com/e14Community