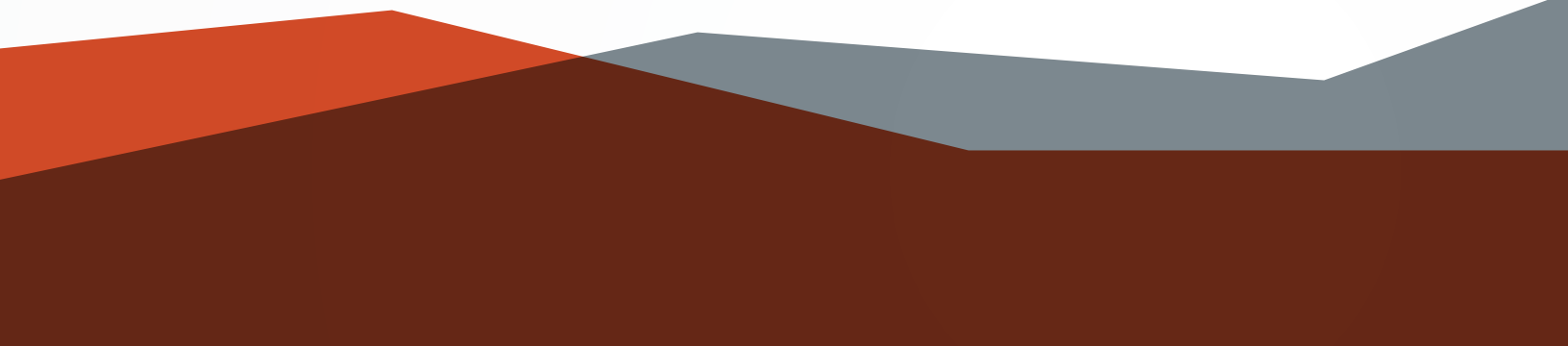# Electronic Design ®

ENGINEERING YOUR CAREER

Tricia Hatley, recent president of the National Society of Professional Engineers, offers some advice on how engineers can excel in their careers.

In this four-part series, Tricia Hatley, immediate past president of NSPE and a life-long engineer, outlines a proactive approach for engineers trying to get the most satisfaction from their careers.

PART 1

In the first installment, Challenges Facing the Profession, Hatley examines some of the new problems and challenges engineers face, including population growth and increasing urbanization, changing demographics that put a higher percentage of people in the senior citizen category, the recent pandemic and its short and long-term effects on society, the need for diversity to increase the ranks of engineers, and advances in technology engineers must stay up-to-date on. Hatley also discusses professional engineering licensing and how it can play a positive role in shaping an engineer's career.

PART 2

In the second article in the series, PE Licensing, Hatley gives a short history of the PE license, then explains how obtaining one expands an engineer's career options and likely leads to higher paychecks. She also looks at some of the challenges inherent to the licensing process.

PART 3

In the third installment, Professional Societies and Community Groups, Hatley explains how these groups can help engineers build networks of design professionals and aid in keeping them technically relevant. Both of these can be critical to an engineer's career success. But engineers must actively participate in these groups to get the most out of them.

PART 4

In the last installment, Networking and Being Mentored, Hatley urges engineers to define success and offers advice on how to achieve it. She stresses the importance of learning from other engineers and finding a mentor to work with. She also explains how to construct and use a network diagram, the importance of assessing one's strengths and weaknesses and tips for doing so, and why it is a good idea to seek out varied assignments and opportunities.

Stephen Mraz

Electronic Design

ENGINEERING YOUR CAREER (PART 1):
CHALLENGES FACING THE PROFESSION

Sept. 30, 2021

To determine the future of engineering, let's first take a look at the current role of professional engineers.

Tricia Hatley

This article is part of the Professional Advancement Series: Engineering Your Career
This article appeared in Machine Design and has been published here with permission.

Engineering entails solving societies' real-world problems using machines, systems, materials and processes. There are many different engineering disciplines and diverse specializations, but all involve solving problems for people and therefore they all inherently affect society.

This means licensed professional engineers are ethically obliged to hold paramount the health, safety, and welfare of the public. Although our country and the world looked different in 1946 when the National Society of Professional Engineers (NSPE) endorsed its first code of ethics, engineers' obligation to the public has become more important than ever as the infrastructure and technology around us become ever more complex.
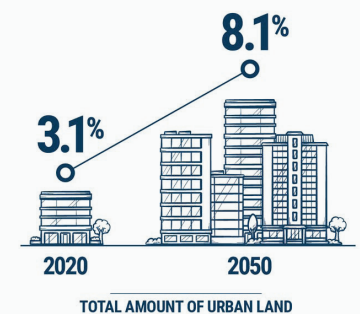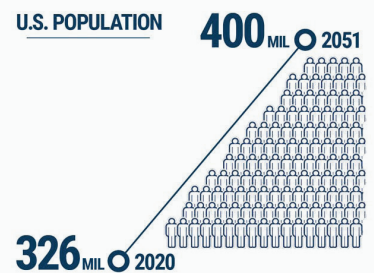
As the world rapidly changes, the problem-solving skills that are foundational to engineering are needed now more than ever. Here are just a few trends that may alter our profession.

POPULATION GROWTH AND URBANIZATION |

According to census data, the U.S. population is projected to grow from 326 million to 400 million between 2020 and 2051. Plus, over the last several decades, there has been a consistent shift of population from rural to urban areas. Although the COVID-19 pandemic may have forced people to work from home and seek out more rural settings, which slowed migration into the cities, urbanization is likely to continue. In fact, 2020 data shows about 57 million people living in rural U.S. and 273 million people in urban areas.

And cities are growing in size, as well. It's predicted the total amount of urban land will climb from 3.1% of all the land in the U.S. in 2000 to 8.1% in 2050 and encompass an area larger than Montana. By 2050, more than half of some states (e.g., Rhode Island, New Jersey, Massachusetts, and Connecticut) is projected to be urban land.

Meanwhile, U.S. forested land that equals the size of Pennsylvania will be bulldozed into city land between 2000 and 2050. If these projections bear out, professional engineers will likely be called on to improve the aging and undersized infrastructure in urban cores as well as expand the infrastructure to accommodate sprawling suburbs.

U.S. POPULATION
400 MIL ○ 2051
326 MIL ○ 2020

8.1%
3.1%
2020   2050
TOTAL AMOUNT OF URBAN LAND

BY 2050, FOUR STATES (Rhode Island, New Jersey, Massachusetts, and Connecticut) are projected to be **MORE THAN HALF URBAN LAND**

Electronic Design.

AGING POPULATION |

In the U.S., the population is growing older, which creates challenges for engineers. For example, the decline in the number of working-age people means a smaller supply of qualified workers, making it difficult for businesses to fill in-demand jobs. An economy that cannot fill these in-demand occupations faces harmful consequences, including declining productivity, higher labor costs, slower business expansion and reduced international competitiveness.

Other concerns include the rise in healthcare costs and the growing need for healthcare that increases with age. Countries with rapidly aging populations must devote more money and resources to healthcare. And with healthcare spending as a share of gross domestic product already high in most advanced economies, it is difficult to increase spending and ensure care improves.

Countries with large elderly populations must also rely on smaller pools of workers to pay taxes for higher health costs, pension benefits and other publicly funded programs. This is becoming common in advanced economies in which retirees live on fixed incomes that place them in lower tax brackets than active workers. The combination of lower tax revenues and higher spending commitments is a major concern for advanced industrialized nations.

## 2020: PANDEMIC AND SOCIAL UPHEAVAL |

It is apparent that although the pandemic did not necessarily create change, it has certainly accelerated it. For example, although working across international borders has become more common than in previous decades and national economies more interdependent, the pandemic-spawned "work from home" or "work from anywhere" movement shrunk the world even more. Businesses that once operated in just a few states have employees living all over the U.S., which has business implications. Additionally, clients no longer seem to put as much value on being "close" to their vendors if work is getting done on time and meets quality expectations. It is unknown if this attitude change will persist, but a reversal to pre-COVID times is highly unlikely.

While not associated with the pandemic, 2020 also brought an increased focus on social and racial injustice in the U.S. It is now a business imperative for all companies and organizations to focus efforts on diversity, equity, and inclusion (DEI). Potential employees will decide to join a company base not only on compensation and benefits, but also on the firm's culture and DEI efforts.

WORKFORCE PIPELINE |

The aging population presents engineering challenges and opportunities related to the workforce pipeline. In the U.S., 10,000 Baby Boomers turn 65 every day, and the 65-and-over population will nearly double over the next three decades. Nearly 19,000 engineers, many still working, will turn 69 each year for the next 15 years.

65-AND-OVER POPULATION will nearly double over the next three decades

Many companies and organizations have been preparing for this situation. However, have they prepared well enough? Have they thought of all the ramifications and taken action to address the issues? We are at risk of losing critical history and knowledge. No matter the organization, everyone is feeling the effects of the aging engineering population and the knowledge gap.
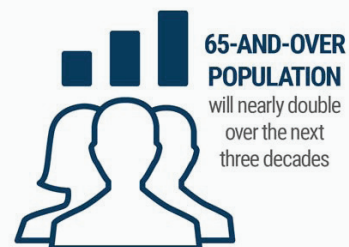
ElectronicDesign.

A focus on workplace diversity seems a logical step in solving the workforce pipeline challenges. Filling the void created by retiring Baby Boomers will require a more diverse pipeline and retaining women and minorities in the profession. For years, the number of female graduates has increased to as much as 50% in fields such as environmental engineering. Challenges persist, however, in retaining these women in engineering as their careers develop. Engineering leaders need to address the issue of inclusion within engineering to keep up with future demands.

EMERGING FIELDS |

There is no doubt industry will develop and implement new and better technologies, often at breakneck speeds. Although new technologies are not inherently bad, they should be developed so that they protect public health, safety, and welfare. Professional engineers must play significant roles in developing new products and services, rehabilitating the infrastructure and managing vital subsystems.

As technology advances, there should be caution regarding complex software that shifts routine engineering tasks from engineers onto technicians or even end-users. When products are designed and built with minimal human involvement—perhaps without even a professional engineer—the public can be put at risk. Although it's easy to discount the role of humans as technology does more "thinking and creating," engineers must embrace this change while continuing to protect the public.

CLIMATE CHANGE |

Engineers will also play key roles in addressing climate change by reducing the contributing effects or mitigating the repercussions of climate changes on the infrastructure and natural resources. The NSPE's "2020 Engineering Outlook & Salary Survey" shows that respondents younger than 25 believe engineers must actively engage on this issue. They are eager to solve climate challenges.

Furthermore, engineers will need to innovate and create new models, products, and services to reduce climate effects. They will need to revise standards and develop design processes that protect people and resources. Maybe most importantly, engineers will need a seat at the table with decision-makers to offer expert advice on avoiding and reducing risks.

ENGINEERING LICENSURE |

As discussed, the world is changing, which brings challenges and opportunities. Changes are happening in education, regulation, public opinion and technology, all of which affect PE licensing. As the future unfolds, it is important to remember that engineers are stewards of technology, the natural and built environments, and public health, safety, and welfare. PE licensing, however, was not created to readily support the vital role of engineers in these times.

Professional engineering licensing started during the second industrial revolution, with the first state license issued in Wyoming in 1907. NSPE was formed in 1935 with the goal of spreading licensing across the U.S., a goal achieved during the third industrial revolution.

Now the world is in the fourth Industrial Revolution; has PE licensing kept up to date? For example, consider software engineering. While the number of (and the need for) software engineers grow, the number of candidates seeking PE examination in that field dropped so low the exam was recently eliminated. This prevents software engineers from obtaining a PE license. With technological advances transforming how engineers work and interact, engineering licensure must be transformed.

ElectronicDesign.

Although governments have traditionally shaped the societal effects of new technologies, they struggle to keep up with the rapid change, making engineers' professional judgment even more important.

Most engineers are responsible for activities that affect public health, safety and welfare, but there are exemptions to state PE licensing laws that let certain individuals and organizations perform engineering services outside the licensing system. Exempt individuals and organizations are not subject to the same legal and ethical requirements as those with PE licenses. These exemptions undermine the purpose of engineering licensing and risks leaving the public in danger of receiving services from individuals without the qualifications for making engineering decisions that adequately protect public health, safety and welfare.

For the engineering profession, moving into the 2020s and beyond comes with exciting opportunities and daunting challenges. But history is filled with examples in which engineers rose to meet great challenges and seize new opportunities. I am confident professional engineers are up to the task today.

Tricia Hatley, P.E., is the immediate past president of the National Society of Professional Engineers.

ElectronicDesign.

ENGINEERING YOUR CAREER (PART 2):
LICENSING

Oct. 4, 2021

The professional engineering (PE) license and engineering excellence.

Tricia Hatley

An important step in an engineer's career is obtaining a professional engineering license. The license, and the PE after your name, sets you apart from others and tells the public you have the education, experience and qualifications to solve their engineering problems. To understand the value of a PE license in relation to an individual career, here's a look at the history of licensure in the U.S., the value of the PE and challenges to the current licensing system.

HISTORY |

It is common to see professions and occupations regulated through a licensure system, but it wasn't always so. As late as the early 1900s, anyone could practice engineering, and this put public safety at risk. Engineer David Steinman recognized the risk to the public and was concerned about the situation, so he began advocating for a licensing system for the competent and ethical practice of engineering.

In 1935, Steinman said: "The technical problems of civil, mechanical, electrical, mining, and chemical engineers are divergent; but the professional problems are alike. The technical societies, for the best fulfillment of their essential purpose, are divided on lines of differentiation of technical branches or specialties. This division into separate organizations, with diverse traditions and viewpoints, prevents effective united effort for the interests of the profession. A single national professional society with solidarity of purpose and concentration of strength,is needed to effectively provide for the professional interests of the engineering profession."

> **As late as the early 1900s, anyone could practice engineering, and this put public safety at risk.**

Professional licensure is a responsibility delegated to each state by the U.S. Constitution, but Steinman saw the need for an organized effort to establish professional engineering licensure across all the states. To reach this monumental goal, Steinman crafted a framework for creating the National Society of Professional Engineers (NSPE). It was then founded in 1934 with the mission of advocating for establishing PE licensing in all the states to protect engineers (and the public) from unqualified practitioners, build recognition for the profession, and stand against unethical practices and inadequate compensation.

In 1907, Wyoming become the first state to adopt a licensing system. By 1959, when Alaska and Hawaii were granted statehood, all 50 states had licensing systems.

In 1920, as state licensing boards recognized the need for a national council to make rules and laws more uniform and promote mobility of engineering licenses, the National Council of Examiners for Engineering and Surveying (NCEES) was created. Today, the council's members are comprised of the 69 engineering and surveying boards from all U.S. states and territories. Through NCEES, states and territories have worked to provide uniform model laws and rules, promote professional ethics among engineers and shape the future of professional licensing. For more than 100 years, public health, safety and welfare have been improved by the protections provided through engineering licensure laws.

ElectronicDesign®

THE VALUE OF THE PE |

Through rigorous standards for education, experience and examination, the PE license protects the public health and safety from unqualified practitioners. But what does it mean to individual engineers? Simply put, it means options and money.

Although a PE license is not required for all engineering jobs due to industry and government exemptions, it is required for many. In many states a person must hold a PE license to own an engineering firm, provide consulting services and to call themselves an engineer. If someone chooses not to obtain a PE license by earning a degree from an approved college or university, passing the necessary exams upon graduation, and working under a licensed professional engineer for the prescribed time, they limit their options for employment and most likely reduce their earning potential.
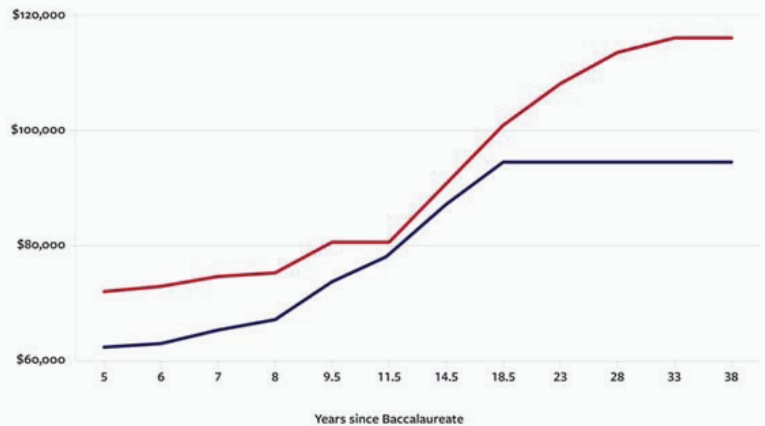

This graph shows the average salary of engineers based on if they have a PE license or not and how long it has been since they earned a B.S. in engineering. (Red: engineers with PE licenses; blue: engineers without PE licenses.) American Association of Engineering Societies

> **Additionally, the work of engineers affects not just the individual buyer; in many cases it also affects the public at large.**

In the rapidly changing world, young professionals and students should keep all options open and available. Obtaining a PE license does just that. Data clearly shows that engineers with PE licenses earn more money than those who don't.

For example, at my firm, the career ladder for engineers starts at an Engineer 1 (a new graduate) and progresses up to an Engineer 8, with pay increasing as a person moves up the ladder. To move to an Engineer 2 position, a person must pass a Fundamentals of Engineering (FE) exam, which is also a PE requirement in earning a PE license. To advance to Engineer 4, they must get a PE license.
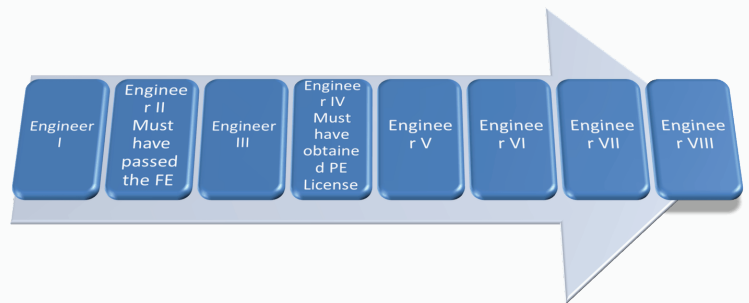
Some companies have strict hierarchies that place demands on engineers as they progress up the promotional ladder.

An Engineer 4 makes significantly more money than an Engineer 1 or 2. More money and more responsibility equate to challenging and rewarding opportunities and job satisfaction.

ElectronicDesign

PRESSURES FOR CHANGE |

If a PE license is so valuable and necessary, why are there so many exemptions? Why are state license boards under continual fire to abolish licensure? Perhaps a change is needed so that the license's value, and the protection it affords to the public, remains constant in our ever-changing world.

The debate over the government's role in regulating occupations and professions has recently come to the forefront. According to Bureau of Labor Statistics, occupational licensing directly affects nearly 30% of U.S. workers, including barbers, cosmetologists, florists, interior designers, manicurists and a long list of others. Although the work of professional engineers—like that of doctors, registered architects, and attorneys— clearly affects public health, safety, and welfare, it is not uncommon for state legislatures to categorize highly educated and trained PEs with barbers and cosmetologists in the debate over eliminating occupational licenses.

For example, 2015 model legislation championed by the American Legislative Exchange Council (ALEC), an association of state lawmakers that supports private-sector interests, led to a recommendation that would have eliminated PE licenses in Indiana.

As the result of extensive advocacy efforts by the Indiana Society of Professional Engineers and NSPE, the Indiana Job Creation Commission, inspired by ALEC's model law, rescinded its troubling recommendation to eliminate licensure of professional engineers. However, nearly identical versions of this legislation were quickly introduced in several other states, and variations of that legislation persist today across the country.

Although ALEC's legislation does not specifically target PEs, it opposes occupational licensure in general. This broad attack undermines PE's value and unintentionally affects engineering licensure. Clearly this is an attempt to muddy the difference between occupations and professions. Much work remains to be done in educating the public and especially legislators on what licensed professional engineers do and why they are critical to the continued health, safety, and welfare of the public.

In dissecting this issue, it is important to first understand the form these challenges take when introduced to state legislators. The repeated legislative threats to our licensure system come in various forms but can be grouped into four categories:

- Consumer choice
- Least restrictive
- Right to earn a living
- Universal licensing

Consumer-choice legislation is the most dangerous of the licensing threats because it seeks to let anyone practice any profession, regardless of whether they are licensed. NSPE refers to this as "buyer beware" because it places the onus entirely on consumers to determine if someone is qualified to practice engineering. This is problematic as the public generally doesn't understand engineering and how to select qualified professionals. Additionally, the work of engineers affects not just the individual buyer; in many cases it also affects the public at large. For instance, do consumers have a say in selecting the engineers who will design the bridge they will drive over or the trains and planes they will ride in?

Legislation commonly referred to as "least restrictive" is also a significant threat because it assumes market competition will protect the public. This assumption removes preventative measures in licensing regulations intended to protect the public. The only recourse for consumers comes after something has gone wrong. Even then, consumers are limited to legal actions.

Right to earn a living legislation comes primarily from the American Legislative Exchange Council. ALEC has developed model legislation that requires a state's licensing boards to review all licensing regulations. Typically, this type of legislation uses the "least restrictive" approach described above.

The fourth type of legislative threat comes in the form of universal licensing. These bills are not a threat in and of themselves, but they occasionally include language that lowers the standards required for licensing. For example, they may let applicants substitute work experience for education or may not require that the applicant's original licensing state have the same education and experience requirements. Sometimes this legislation seeks to prevent a state from requiring a state-specific exam, which is problematic for states such as Alaska, Florida, and California that require additional technical knowledge to address local issues, such as seismic activity.

> **Professional engineer should use their influence and prestige to mentor others and help develop future engineering leaders**

EMERGING FIELDS |

There is no doubt that new and better technologies will continue to be developed and implemented, often at breakneck speeds. And while new technologies aren't inherently bad, they should be developed so that the public health, safety, and welfare are protected. Ensuring the ethical development and testing of new technologies, such as autonomous vehicles, and including a professional engineer in developing and deploying those technologies can help. To date, much of the discussion on emerging technologies has been about their capabilities and perceived public benefits, but many questions remain unanswered, especially around ethics:

- How will these technologies affect our behavior and interactions?

- How can we guard against mistakes?

- How do we eliminate bias in these technologies?

- How do we keep technology safe from safe from terrorists or countries with ill intent?

- How do we protect against unintended consequences?

Answers to these questions and many others must be found so the considerable risks can be mitigated, and society can reap the full benefits of emerging technologies. The public's interests are best served when licensed professional engineers oversee the design, development, and deployment of emerging technologies to address uncertainties. Engineers as a profession and individual professionals should contribute to these emerging fields and use their knowledge and experience for the greater good.

Professional engineers should use their influence and prestige to mentor others and help develop future engineering leaders. Engineers who have not obtained their PE licenses should learn more about the process and the opportunities a license provides. And engineers should help elected officials and decision-makers understand the value of engineering and its impact on people's daily lives.

Tricia Hatley, P.E., is the immediate past president of the National Society of Professional Engineers.

ElectronicDesign®

ENGINEERING YOUR CAREER (PART 3): PROFESSIONAL SOCIETIES AND COMMUNITY GROUPS

Oct. 7, 2021

Professional societies and community groups can help build networks of design professionals that help engineers stay technically relevant.

Tricia Hatley

Engineers who invest time and energy in professional associations and community groups will quickly find that those investments pay dividends in terms of building networks of engineers and design professionals and staying technically relevant. Both of these can be critical to an engineer's career success.

INVESTING IN YOUR PROFESSION AND COMMUNITY |

When you join a professional association or a community group, you've taken an important first step in boosting your career. But that membership likely won't pay dividends until you engage. Being a member typically includes access to various benefits, but actively engaging in the organization often leads to real career growth and acceleration of an engineer's professional development. For example, associations are leaders in post-college training and professional development for engineers of all disciplines.

My own story serves as a good example. I first joined the National Society of Professional Engineers as a young engineer fresh out of college after being invited to a meeting by a co-worker. At that first meeting I learned about an opportunity to volunteer at the local Mathcounts competition. Mathcounts, a STEM program for 6th, 7th, and 8th graders, encourages the pursuit of high-level math courses, a prerequisite for any engineering program. I participated in Mathcounts in grade school and knew how fun it is, so I wanted to be a part of the effort. Through that engagement, I had the opportunity to be a Mathcounts coordinator for my local NSPE chapter. I also moved through the various officer positions in NSPE, including chapter president.

Serving as a chapter leader and then at the state and national levels, I learned vital leadership skills and had the opportunity to put those skills into practice. Certainly, on-the-job training is a great way to learn and grow, but learning and practicing leadership skills in the safe and relatively harmless context of a volunteer organization or professional association has a lot of benefits. I found my fellow members and officers to be extremely supportive and forgiving when I made mistakes or missteps. This is not always the case in the work environment. The experiences in Mathcounts and NSPE helped build my confidence along with my skills and networking base.

For example, serving as a committee chair in a professional association or community volunteer organization lets you work with small groups to accomplish a task or series of tasks. You have no real authority over your other members, so you must flex your skills of persuasion to achieve results beyond what you alone could accomplish.

> **Associations are leaders in post-college training and professional development for engineers of all disciplines.**

Electronic**Design**.

To effectively influence team members to take action and help with various tasks, you have to paint a picture of what the team is trying to achieve and then organize the team with task assignments and a schedule for completion. This closely parallels what project managers in engineering organizations do when developing a project or product. Team members don't usually report directly to the project manager and they have other responsibilities within the organization and outside of it. So, these skills of influence or persuasion, along with planning, organizing, and scheduling, are critical to the team's success. And mastering those skills is critical to your development as an engineering leader.

In addition to skills development, engaging in professional associations and volunteer community organizations requires that members learn to focus on what is important to them, their careers, and their mental/physical health. In other words, members learn to balance work and outside activities, which can be a challenge for any engineer.

As a young engineer working my way up the corporate ladder, I was also a wife and mother. I didn't have a lot of spare time, but I found a way to make time for professional and community activities while also excelling as an employee and caring for my family. These things are not mutually exclusive; they are complementary. The skills learned in one situation are helpful and applicable in the other. Balancing all of this might not be easy, but it is certainly possible. It's also fulfilling and enriching, which is a huge motivator when it comes to maintaining the focus necessary to push forward daily.

GIVING BACK, GIVES BACK

We often talk about the desire to "give back to our profession," an old-school way of looking at the world and our responsibilities. But maybe we need to rephrase it to be more in tune with today's thinking. For me, it means working as hard as possible to improve the engineering profession for future generations. Or in other words, to leave things better off than how I found them.

Whether it's sustainability, resiliency, and green approaches to our work, or improving processes and procedures for the future, it's all about making a difference and changing things for the better. That's a worthy goal, and one that fits the calling of a professional engineer. So, to have a rewarding and successful career, many engineers feel the need to make positive changes and "give back."

Mentoring young professionals, for example, is one way to give back to the profession and pass on the wisdom we have learned to future generations. According to a June 2019 Forbes article, about 70% of Fortune 500 companies offer mentoring programs to employees, a sure sign those companies value mentoring.

Whether through formal mentoring programs or informal settings, spending time mentoring or being mentored can be fulfilling and enlightening. Ironically, I often leave mentoring sessions with more than I brought to the table. Spending time with people who may differ in age or background can enrich an engineer's career while also helping others.

70% of Fortune 500 companies offer mentoring programs to employees

Mentors were promoted **6x more** often than those who did not mentor

Mentees were promoted **5x more**

Electronic Design

Committing time to mentoring and being mentored can be a challenge in today's busy world, but the time spent is worth it. In a July 2019 Forbes article, a Sun Microsystems case study illustrated this point. Mentees in the program were promoted five times more than those who were not. And mentors were promoted six times more often than those who did not mentor anyone. On top of that, retention rates were significantly higher for mentees (72%) and mentors (69%) than for employees not participating in the program (49%). It seems investing time in mentoring is critical to career growth and development.

BUILDING A NETWORK |

Having an effective network is more than just meeting folks, having casual conversation, and connecting on social media. To illustrate this point, engineers can create a bubble diagram of their network. It starts with a circle in the middle of the page that represents the engineer, and then bubbles are drawn representing various people in their life including friends, family, and co-workers. This lets engineers "see" their various relationships and then focus on strengthening those important to career advancement and other goals. For me, that includes family and professional relationships. Over the years, I have revisited and updated my network's bubble diagram, which has benefitted me.

> **Having an effective network is more than just meeting folks, having casual conversation, and connecting on social media.**

Engineers who are exploring their networks should consider not only their company and family, but also volunteer organizations, alumni and community groups, and others who influence their lives. They will likely find that a rewarding engineering career is about more than designing great projects; it is truly about the people in their lives.

STAYING TECHNICALLY RELEVANT |

Engineers are technical professionals and staying up to date on technical advances in their fields is vital to their career development. I have sat across the table from numerous young engineers who talk about wanting to be project managers and leaders in their field. But they don't seem to understand the value of their technical knowledge and problem-solving abilities as they apply for advancement.

Engineers should focus heavily on developing their technical skills in their first five years after graduating from college. Then, as their career progresses, they may shift the focus to leadership, management, and business skills. At the same time, however, it's advisable to pick a technical niche they find compelling and continue to take classes, read books and articles, and attend webinars in that area. Young engineers can easily become experts in their field if they put in the time. Fulfillment as a technical professional requires continual learning throughout your career.

Investment in your career development is essential to success. So use professional associations such as NSPE to achieve your goals and take advantage of the many opportunities that will come your way.

Tricia Hatley, P.E., is the immediate past president of the National Society of Professional Engineers.

ENGINEERING YOUR CAREER (PART 4): NETWORKING AND BEING MENTORED

Oct. 13, 2021

Career advancements come to engineers through the support of many others.

Tricia Hatley

What does career success mean to you? For some, it is being highly compensated and able to comfortably take care of yourself and family. For others, it means power and control. It could also mean continuing the legacy of a family business.

Many engineers and technical professionals define success as working on challenging projects and creating technical innovations or being considered a technical expert. You may have an entrepreneurial mindset, so success could be building a new business or service line. Or it may simply mean you have found fulfillment in your work, and you are happy.

As you look for ways to advance your career, understanding your drivers and motivation is critical. And be aware that these can change over the course of a 40-year career. But if you can picture what success looks like, you have taken the first step toward a successful career.

> **In the early stages of your career, you should seek out those in your firm or organization who are effective based on your definition of success.**

In the early stages of your career, you should seek out those in your firm or organization who are effective based on your definition of success. Once you identify these individuals, seek out opportunities to work with them. Try to position yourself so you can watch them work, see how they organize their days, and learn as much from them as you can. If working directly for these individuals is not possible, maybe you can volunteer for a committee or team project that lets you to interact with them. If nothing else, ask them to be your mentor. Most of these people are eager to mentor and develop younger engineers.

In the early stages of your career, watching and learning is key. Soak up the good you see and take note of the things you don't like. No one is perfect and everyone has their own style. Watch others and learn which style works best for you.

As your career progresses and you begin mastering the technical aspects of your work, consider building your network. For most, advancement comes through the support of many others, and you will need them to back you along the way. One useful tool for this is a network diagram. It can help in growing your support team. The diagram should contain people you interact with at work, including your supervisor, those in key leadership positions and your peers across the organization. It should also contain personal and family friends who are important to you.

ElectronicDesign.
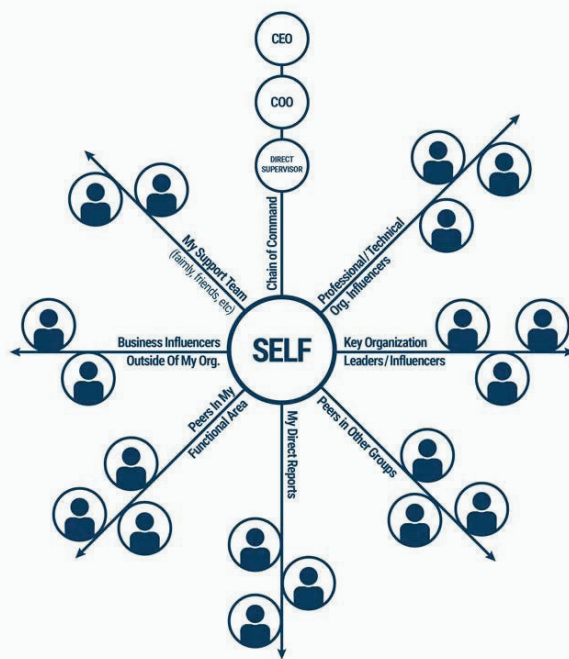
Once you have the diagram roughed out, look at relationships that need strengthening. Where do you need to invest more time? Are there people in the diagram you don't know as well as you should? For each person, consider what you know about them and how they like to get information prior to meetings or discussions. Keep a copy of the diagram and a page for each key person at work. Make notes of what you learn about your contacts and how best to communicate with them. For engineers, this may all sound too touchy-feely, but organizational politics is all about relationships, and healthy relationships are crucial to success.

Another aspect of career growth is self-awareness and being honest about your strengths and weaknesses. Several tools can help identify blind spots, including 360 reviews and profile assessments. It is always helpful to invest in your strengths while also understanding your weaknesses. Learning about your weaknesses and what may be holding you back lets you focus on one or two key improvement areas. But it is equally important to find ways to leverage your strengths. These strengths are the assets you bring to the table, so invest in them to reach your career goals.

> **Taking opportunities offered to you shows a commitment to the organization.**

If you take the steps discussed so far and are intentional about your career, you will have opportunities. Some of them will clearly be a great fit and easy for you to assess. Others may not seem to be a good fit or may look like a lateral move. But evaluate each opportunity carefully and find a way to say yes. That doesn't mean you can never say no, but you should avoid turning down opportunities without carefully evaluating them or offering suggestions for modifications that might make your answer positive.

Sometimes opportunities look like lateral moves, but consider them as improving your chances for advancement. A move within the organization may let you learn different segments of the business and prepare you for a promotion. Taking opportunities offered to you shows a commitment to the organization. At the same time, turning down a move that isn't right for you (or your family) can be a positive, so don't mistake this advice. But look at them from all angles and seek advice from a mentor or friend before turning them down. Careful consideration and clear articulation of why you are saying no is important and can help pave the way for future openings.

So, what risk are you willing to make for your future? Do you have the vision to see that a step sideways—or maybe even backward, but in a new location or service line—will provide the experience for driving your career forward? Do you have the network and relationships needed for successfully navigating these and other important life decisions that will come your way? Now is the time to reflect on these questions and chart your path to career success.

Tricia Hatley, P.E., is the immediate past president of the National Society of Professional Engineers.