

PART **10**

BE A CONSULTING ENGINEER

CHAPTER **50**

WHAT IS A CONSULTING ENGINEER? IS THIS THE RIGHT CHOICE FOR YOU?

Have you ever thought about becoming a consulting engineer? Working for yourself sounds like a dream job. If you are thinking along these lines this section of the book offers many tips and guidelines to help you develop a successful consulting business. First let's look at what consulting engineers do.

WHAT DO CONSULTING ENGINEERS DO?

Consulting engineers typically work for themselves or may be associated with a consulting firm. Most often, consultants own their business and basically offer their time, knowledge, expertise, and experience to companies to solve problems for a fee. Engineering consultants often play a multi-functional role such as technical expert, advisor, specialist, manager, or part-time employee [1]. Companies hire consultants for several reasons. The most common is when a problem exists and the company does not have the technical expertise in-house to solve the problem. Their hope is by hiring a consultant they can quickly solve the problem, save time, money, and effort.

Another reason companies hire consultants is to obtain training in a new technology or technical expertise. This training allows the company's engineering teams to rapidly come up to speed in a very efficient manner. Consultants are also hired to give their opinions about designs and products, to help improve the functionality, reduce the cost of manufacturing, and help avoid mistakes or suggest ways to reduce the potential for customer lawsuits.

Another reason to hire a consultant is a short-term surge in the amount of work that cannot be handled by the present engineering staff. The company can hire short-term or part-time to help to complete the work. By hiring engineering consultants it offers the company a quick solution to an immediate short-term problem without having to hire permanent staff who would be without work after the job is completed.

The benefits of hiring a consultant can be enormous. Hiring a consultant with the right experience in any given area can cut days, weeks, and months off a project and result in significant cost savings, which easily pays back the consultants salary many times over. It can be the difference between success and failure for a company when developing and launching new products.

WHAT ARE THE PROS AND CONS TO CONSULTING?

There are many attractive benefits to becoming a consultant engineer [2]. Top of the list of benefits is that you are most often in business for yourself and are your own boss. You will get all the credit for a job well done and can earn the entire income. You are also involved in a variety of projects, learning new things, and always challenged. You can select your jobs and when you have built-up your business clients seek you out, this provides good job security. You are also more immune to the sudden layoffs experienced when working in a corporation.

You have tax advantages since you are in your own business. Your office can be in your home which means no dress code, no drive to work, and flexible hours. These are all very attractive benefits to be a consulting engineer and why so many engineers decide to elect to do so.

There are also cons about becoming a consulting engineer that one should be aware of before launching into a consulting business. You are in your own business and if it is just yourself, you will do everything. In addition to getting paid for your technical work, you will have to do nonengineering tasks as well. You will have to take care of the business side of things which involves marketing yourself, financial aspects, dealing with clients, and handling the contractual items. Being in your own business you can expect to be working more hours than if you were employed for a corporation; however if you love the work, this is not a problem. If you have the right skills these tasks will come easy for you and being a consultant is probably right for you. Let's next look at what skills you will need to be a successful consult engineer.

DO YOU HAVE THE RIGHT SKILLS TO BE SUCCESSFUL?

There are some very important skills you must possess or acquire if you are going to become a successful consultant. They involve your technical skills, business skills, and general work ethic.

Unique and Market Demand Skills. The first is having a unique and highly desirable engineering skill to offer clients [3]. You may possess unique skills but is there a market demand for them? Without market demand you will never get any contracts. It is the combination of these two, unique skills and market demand, that will result in paying jobs.

One way to find out if your skills are unique and marketable is to conduct some research on the potential competition. Do an Internet search to find out how many consultant engineers are presently offering services in your area of expertise. If the market is flooded, what is going to make your services stand out from others? Could you network with any of the presently practicing consulting engineers to see how good the market is? Are they turning down jobs because they are too busy? If this is the case, you have identified a potential business. If the consultants are hurting for work, you may want to consider how this will impact your chances for being successful in a consulting career.

If your research shows that you possess a unique skill and there is a market demand you are on a solid ground for starting a consulting business.

Self-Motivated and Willing to Work Hard. Being an consultant is a significant change from the corporate 8 to 5 world and will require a person to be self-motivating and willing to work hard long hours to get the business started [4]. You will not have the support structure like in a corporation to help you through the difficult times. Also building a consulting business is not easy and will be both physically and mentally demanding. It will require consistent hard work that often-times calls for going above and beyond the norm. If this sounds like what you normally do then you have excellent qualities for becoming a consulting.

Business and Social Skills. Your consulting business will consist of spending a large amount of time talking to clients during face-to-face meetings, over the phone, and via email. You will have to sell your services, manage projects, and conduct sales and technical meetings. All these activities require a person to be highly social and have excellent people skills.

The most successful consultants have a natural ability to walk into potential consulting opportunities and quickly make clients want to hire them. When problems arise on a job, they can communicate how to solve the problems putting their clients at ease. This requires the consultant to have excellent communication and listening skills coupled with the ability to project confidence. Your ability to handle all the personality types of clients and deal with people problems will be critical to your success.

In addition, you will need to have the normal business skills of bidding proposals, signing contracts, billing clients, and paying your bills. You will be a multi-functional, multi-tasking consultant where the actual technical work is only a portion of the work. If handling all this intrigues and motivates you, then consulting is for you.

Work Independently with Limited Resources and Networking Skills. As a consultant you will have to possess the ability to work independently for

long periods of time in your home office with little social contact. In addition, you will only have the tools of your home office and must be able to complete the work on these limited resources. When you need to draw on other resources, as required, you must have a network of others you can call upon. This network of support people is built up over time using your networking skills. Being a superior networker is a key element in being a successful consultant.

Excellent Writing, Speaking, and Presentation Skills. Often consultants are selected by upper-level managers and executives based on their written proposals, interviews, and presentations. Your ability to convince these managers that you are the best person for the job will depend on your written, speaking, and presentation skills. Your proposals will be reviewed to determine the technical validity of the offering. Does the consultant adequately document in the proposal and reports everything necessary to show the best solution to the problem. The consultant may be asked to come into the company to be interviewed and present their case on why they should be hired. If this is the case, the consultant will need excellent verbal and presentation skills. Therefore, successful consultants possess excellent writing, speaking, and presentation skills.

Analytical and Problem Solving Skills. The engineering problems faced by consultants are normally the most difficult problems. If the problems were easy to fix the in-house engineer team would have solved it and there would not be a need to hire a consultant. But because the problems are more difficult, the consulting engineer must possess excellent analytical and problem solving skills. They approach problems with enthusiasm and simply do not pick any solution but seek out the best solution. They find ways to bust through, dig under, climb over, or go around barriers to solve problems.

If you possess all the above-mentioned skills then you have what is needed to become a successful consulting engineer. Can you still be a successful consulting engineer if you are missing these skills or some need improvement? Absolutely, you can still have a successful consulting career but you will have to get additional training. Even successful consulting engineers make it a practice to update their training at least once a year in these skill areas. Where can you find training? One good source for affordable training is with an engineering society. IEEE has an excellent consultants network that supports independent consultants and offers many affordable training classes (<http://www.ieeeusa.org/business/default.asp>)

PROFESSIONAL ENGINEER (PE) REGISTRATION

Some companies have a prerequisite to granting a contract—the engineer must be a registered Professional Engineer (PE) for legal purposes. What is

a professional engineer? A Professional Engineer is an engineer who is licensed to practice engineering in a particular state after meeting all the requirements of the law [5]. Like other professions such as medicine (Medical Examiners Board), law (Bar Exam), accounting (CPA Exam) engineering is a profession regulated by certain laws. All states have registration laws governing the practice of engineering. Most states prohibit people who are not registered PEs from advertising, indicating to the public they are an engineer, or practicing as an engineer. The PE license is especially useful when doing work for a city, county, or state organization. Obtaining a PE license is not easy but having one will add to your credibility and may be a necessary license for you to acquire.

What is required to become a PE? The requirements differ slightly from state to state, but include getting a bachelor's degree in engineering, passing the Fundamentals of Engineering Exam, and completing 4 years of experience in your chosen field. Many engineering societies offer training courses for engineers to help prepare for the exams. The National Society of Professional Engineers (NSPE) (www.nspe.org) and IEEE (www.ieee.org) have excellent material and help when going for your PE.

IT'S ABOUT TECHNICAL APPROACH, EDUCATION, CREDENTIALS, AND EXPERIENCE

Simply deciding to become a consulting engineer because you want to and having good skills is not enough. It is also about having the best technical approach, education, credentials, and experience to get the job done. Having hired many consultants myself, I can testify the first thing companies are looking for is an excellent proven technical approach. Is the consultant proposing a tried and true solution to the problem or are they proposing to simply study the problem? Most companies want solutions and not studies on how to solve the problem. Studying the problem is okay if the effort is an analysis of the problem, but totally misses the mark if the company expects a quick fix solution to the problem.

► **Career Tip.** Companies do not hire consultants to do something they never did before; they hire consultants for what they have done before and for what works.

If the technical solution is good, then the company wants to know about the consultant's education, credentials, and previous experience. A company will be looking at the education of the consultant. Does the consultant possess the necessary technical degree or multiple degrees? Do they possess a Master's or PhD degree? What credentials does the consultant have? Are they a

recognized national expert who has published papers in the area? From what universities did they graduate? Next the company will look at the experience base of the consultant. What other projects was the consultant hired for and by what companies? Does the consultant have any references that can be contacted? If you can show the client you offer a complete package of the best technical approach, education, credentials, and experience to get the job done you are going to be a successful consulting engineer.

SUMMARY

Consulting engineers typically work for themselves or may be associated with a consulting firm. Consultants own their business and have one product to offer themselves. Basically, they collect a fee for their time, knowledge, expertise, and experience for companies to solve problems. Engineering consultants often play a multi-functional role such as technical expert, advisor, specialist, manager, or part-time employee.

There are some very important skills you must possess or acquire if you are going to become a successful consultant. They involve your technical skills, business skills, and general work ethic. These include:

- Unique and market demanded skills
- Self-motivated and willing to work hard
- Business and social skills
- Work independently, limited resources, and networking skills
- Excellent writing, speaking, and presentation skills
- Analytical and problem solving

Consulting engineers are awarded contracts on presenting a complete solution to the problem. A solution that solves the problem as quickly as possible, cost effectively, and has a high confidence of working. All backup by a proven track with the proper credentials.

Have you identified any career actions you want to take as a result of reading this chapter? If so, please make sure to capture these ideas before you forget by recording them in the notes section at the back of the book.

ASSIGNMENT AND DISCUSSION TOPICS

- 1 What do consultant engineers have to offer clients?
- 2 Name some key characteristics of successful consulting engineers.
- 3 Why is having business skill so important for consulting engineers?
- 4 How do you determine if you have a unique skill to offer?

REFERENCES

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5. "What is a P.E. License?," *Imagineeringezine*, October 4, 2008, <http://www.imagineeringezine.com/e-zine/whatpe.html>.