5 Must-Have Soft Skills for Engineers' Career Success

By David Butcher

Technical acumen alone is insufficient for engineering career success. "Soft skills" play an increasingly important role in differentiating STEM professionals for employment and advancement.

In the day-to-day work of engineers and technical specialists, soft skills are as important as technical skills. These skills, or emotional intelligence, are often not learned in school and enable professionals to navigate smoothly and effectively through a wide variety of social and professional situations with a wide variety of people. Such skills include communication, cooperation, creativity, leadership, and organization.

A mid-2012 study from Millennial Branding showed that soft skills topped the list of must-haves for employers, with 98 percent of them saying communication skills are essential and 92 percent teamwork skills. Following are five key soft skills that engineers and other STEM professionals should develop for career success.

Soft Skill 1: Communication

While speaking, writing, and listening are everyday actions, many professionals underestimate the importance of communication skills. Engineers tend to prioritize technical skills over communication skills, not realizing that they cannot be fully effective in their jobs if they are inadequate speakers, writers, and listeners. Yet it is particularly in the engineering fields that effective communication skills are crucial to success.

In a recent survey conducted by the American Society of Mechanical Engineers of both society members and nonmembers in engineering-related positions, respondents said they believe communication skills -- such as business writing, technical writing, public speaking, and presentation preparation -- are "crucial" for success as engineers work in and among more varied groups.

The interaction between stakeholders, whether it is internal in an organization or external with partners or clients, is fraught with opportunities for misunderstanding. That is why effective communication also involves listening, which is itself an essential soft skill. Without actively listening to customers, clients, or project partners, problem-solving becomes much more difficult and time-consuming.

Soft Skill 2: Creativity

Creativity is arguably the driving force behind innovation and therefore increasingly gaining recognition as the new capital in uncertain and challenging economic times. Innovation thrives on breakthrough thinking, nimbleness, and empowerment. Organizations often depend on big ideas and creative employees to develop innovative products and services.

In the mid-aughts, IEEE Spectrum noted the frequent accusation that engineers are uncreative -- a myth that persists today. Yet, as IEEE Spectrum explained, "every engineer's core mission is to try to improve the utility of things, to design products or processes that will solve problems better, faster and cheaper." This mission would rarely be achieved if not for engineers' ways of thinking, which often lead to problem-solving opportunities that would otherwise remain hidden. In the engineering fields, creativity can be as valuable to solving a problem as the technical skills to identify and troubleshoot the source of the problem. As such, creative thinking is a soft skill that engineers, scientists, and others in the STEM fields should cultivate in order to become invaluable members of their organizations.

Soft Skill 3: Adaptability

There is no shortage of challenges and issues that arise on any given workday. Having the ability to identify solutions to unforeseen problems requires being able to modify and adjust accordingly to the environment and situation.

This flexibility is one of the soft skills that increasingly more employers look for in employees. The way professionals demonstrate their adaptability is by showing they are able to think on their feet, assess problems, and find solutions. The ability to develop a well-thought-out solution within a given time is a skill that employers value greatly.

At the same time, today's tech frontier is rapidly reshaping industries, which means that organizations often must implement change internally to keep up. Here, adaptability also means a willingness to face the unexpected.

"Are you the first to complain if plans change? Do you sulk and brood when things don't go your way?" AOL Jobs recently asked. "If that's you, think about how you can be a little less rigid. It will make you a more marketable job seeker."

Soft Skill 4: Collaboration

A 2007 study from Northwestern University's Kellogg School of Management used almost 20 million papers over five decades and 2.1 million patents to demonstrate that teams increasingly dominate solo authors in knowledge production. The days of single-inventor innovations have been replaced with team research across nearly all fields.

Whether you call it cooperation, collaboration, or teamwork, an engineer's ability to work with other people from different backgrounds is essential.

"For example, when designing a transformer for high-voltage transmission lines ... it takes more than one engineer to complete the project," the American Society for Training & Development (ASTD) recently explained. "It requires a team of engineers and other professionals -- drafters, project managers, and administrative staff -- working together and potentially interfacing with clients, regulatory agencies, subcontractors, and even public advocacy groups.

"What would be the likelihood of success if team members could not communicate together?" the ASTD continued. "What if they could not share responsibilities and accountability in working as a team? What if there was no leadership present in the project?"

Soft Skill 5: Leadership

Leadership, in and of itself, is not one skill but the blending and integration of a variety of skills. By its very nature, leading people is about successfully interacting with them and convincing them to follow. This makes leadership a key soft skill for STEM professionals who intend to make a difference.

"In an engineering context, leadership incorporates a number of capabilities which are critical in order to function at a professional level," according to the National Society of Professional Engineers (NSPE). "These capabilities include the ability to assess risk and take initiative, the willingness to make decisions in the face of uncertainty, a sense of urgency and the will to deliver on time in the face of constraints or obstacles, resourcefulness and flexibility, trust and loyalty in a team setting, and the ability to relate to others."

While much of leadership is character-based, engineers can develop or hone certain leadership skills or attributes to foster personal and professional success.

"Leadership skills are also important to allow engineers later in their careers to help develop and communicate vision for the future and to help shape public policy," the NSPE continued. "These leadership capabilities are essential for the professional practice of engineering and for the protection of public health, safety and welfare."