



A View From 2030

Pulse of the Profession: Career-Ready Soft Skills

The Momentum

From VR to AI, big data to nanoengineering, [engineering advancements](#) are reshaping the mechanical engineering field at a dizzying rate. At the same time, globalization, sustainability,

and the long-tail impact of the pandemic have upended the usual ways of working—and the dust doesn't seem to be settling any time soon.

Engineers are increasingly expected to flex an adaptive mindset in virtual meetings, emotional intelligence while navigating asynchronous communication across language barriers, and cross-functional problem-solving that blurs the usual boundaries of specialties. In other words, the supremacy of technical knowledge has softened somewhat, with a growing emphasis on cultivating a multifaceted array of competencies.

“The jobs are going to be changing very rapidly in the next five to 10 years,” Lisa

Lang, head of learning and education Americas at Siemens, told ASME. “It’s really important that employees are constantly developing and growing to remain relevant in the workforce.”

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– Lisa Lang, Siemens

Despite the clear and rising value of soft skills in the future of work, the vast majority of workplace training dollars are focused on technical skills—a reality the [National Soft Skills Association](#) calls “the soft skills disconnect.”

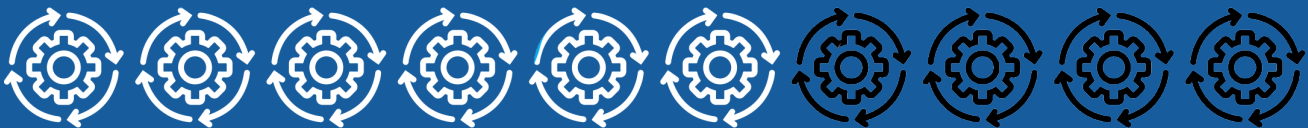
Still, the tide may slowly be turning. ASME [notes](#) that, among employers that provide upskilling opportunities, 50% focus on both hard and soft skills—but a full 30% exclusively target soft skills. That’s a clear sign that more organizations—and the mechanical engineers they employ—are recognizing the importance of soft-skills to build a future-ready workforce.

Which Way Next?

Insights from industry engineers surveyed by ASME and Autodesk, for *Future of Manufacturing* report.



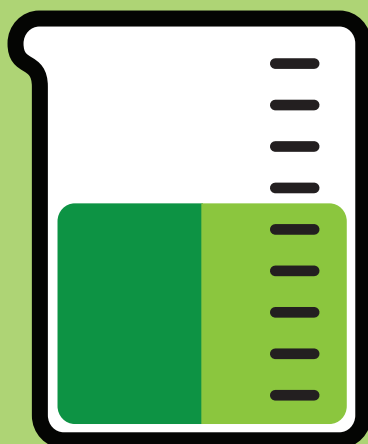
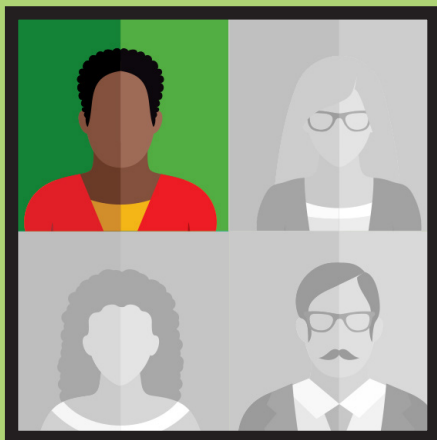
9 in 10 believe communication and creative problem-solving skills will be essential for mechanical engineers, over the 5 to 10 years.



6 in 10 expect new workflow convergence to dramatically increase collaboration among mechanical engineers, manufacturing engineers, and CNC machinists.

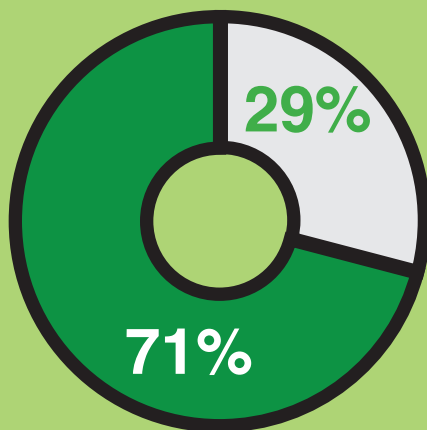
Quantifying the Gap

3 in 4
employers
can't find the
talent they
need with the
right mix of
hard and soft
skills—a 16-
year high.



58% of
employers say their
difficulty finding
talent with the right
mix of soft and hard
skills is actively
hindering their
company's forward
momentum.

In analyzing
25 million+
job listings,
researchers
found
engineering
posts average
29% soft
skills and 71%
technical skills.



How Engineers Stack Up

By comparing how often employers request a skill to its importance on the job (as measured by O*NET), researchers were able to chart the gap in specific skills.

Larger Skill Gap

Project Management

Writing

Presentation Skills

Communication Skills

Leadership

Problem Solving

Time Management

Relationship Management

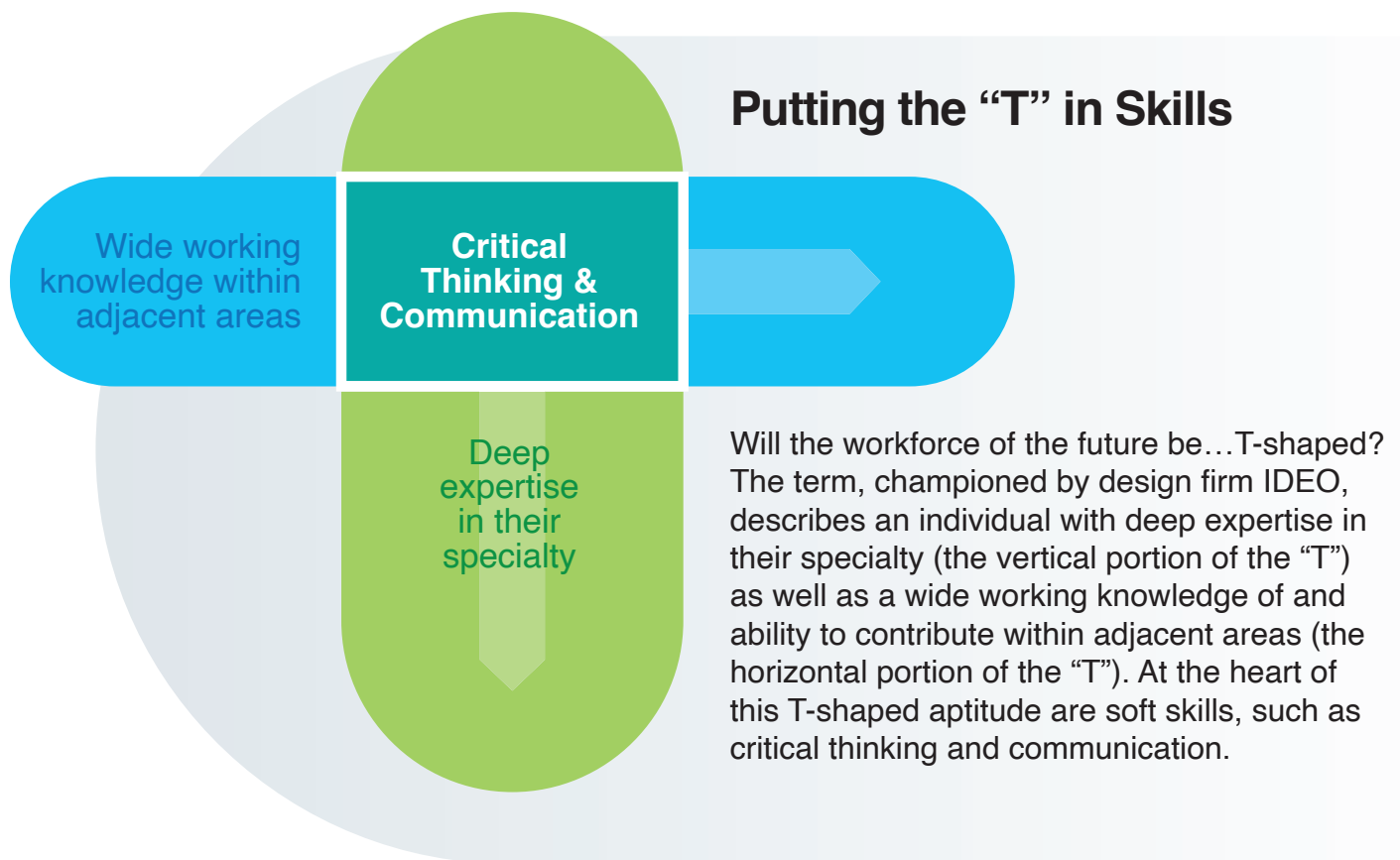
Creativity

Critical Thinking

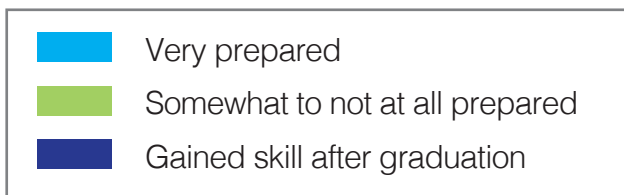
Smaller Skill Gap

“Since the future is collaborative, engineers must continue to develop their soft skills to help them improve their communication and teamwork abilities, evolving their mindset from working on isolated components to teams, systems, and interdisciplinary projects.”

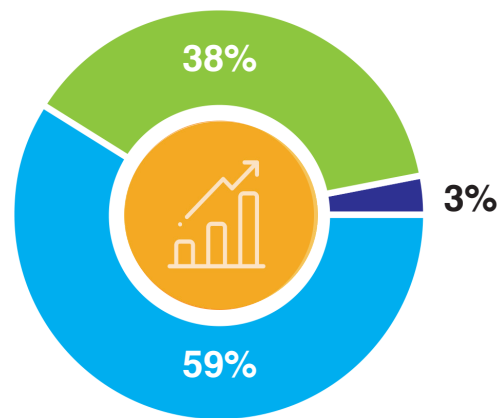
— *Future of Manufacturing: new workflows, roles and skills to achieve Industry 4.0 outcomes*, a research report by ASME and Autodesk



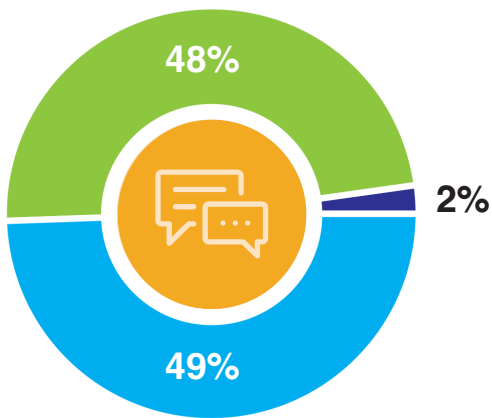
How Prepared New Engineers Grads Feel to Flex Their Soft Skills



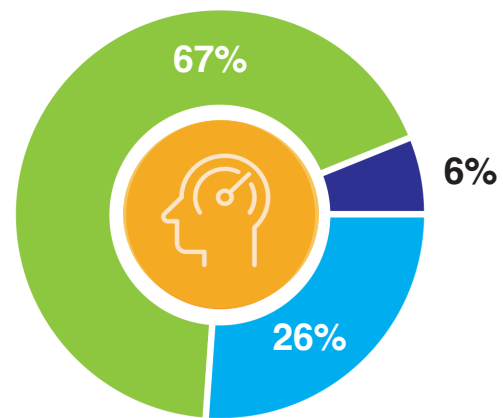
Curiosity and Desire for Continuous Learning



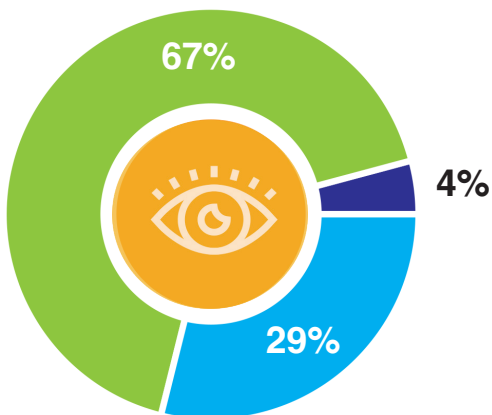
Communication Skills



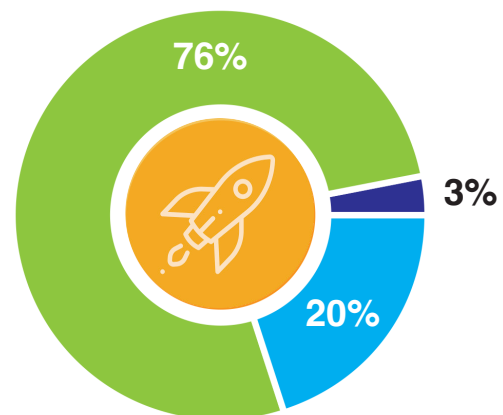
Emotional Intelligence



Cultural Awareness



Critical Thinking



A Closer Look At: Career-Ready Soft Skills

A closer look at some of the most sought-after skills, as employers look to build engineering teams ready to take on whatever comes around the corner next.

Adaptability

The pandemic cast a major spotlight on the value of an adaptable workforce, and this skill's importance won't diminish any time soon. Whether implementing emerging technologies, adopting new workflows, or pivoting as project requirements shift, adaptability is a win.

Emotional intelligence

When engineers at a global manufacturing firm were assessed on their IQ, personality,

and emotional intelligence, then asked to complete a task, [researchers](#) found that only emotional intelligence was a clear predictor of performance. Emotional intelligence includes empathy, self-management, self-awareness, and relationship awareness.



Interdisciplinary collaboration

The usual silos are coming down, giving way to more collaborative, interdisciplinary types of work. According to the ASME/Autodesk [survey](#), 79% of industry respondents believe mechanical engineers will need a working awareness of electrical engineering principles over the next decade.

In North America, 59% believe mechanical engineers will need to focus on sustainability too.

“Technology is always changing. The individual also has to constantly challenge themselves to adapt and continue their learning...How can you enhance the skills you bring to the table? That’s going to help you be successful in this space.”

— Karen Leak, Rockwell Automation

“Engineers are now faced with designing and developing more products with new, untried features and higher performance levels than ever before and having to do so within a time schedule unforgiving to design setbacks.”

— “P.E. Kenneth > d’Entremont, University of Utah-Salt Lake City”

Curiosity

Engineers are curious by nature, and this “desire to know” can fuel a lifelong habit of acquiring new knowledge and mastering new technologies (hugely important as the field’s pace of change accelerates). Curiosity can also fuel creativity. A 2022 [study](#) in the *Journal of Experimental Innovation* found that curiosity, more than other skills, had the highest potential to support creativity when engineers were asked to complete a prototyping task.

Ethics

Short development cycles, competitive pressures, and the breakneck pace of innovation can put engineers in a tough spot. “With new technologies and accelerated product-development schedules, engineers will continue to be challenged ethically

by their designs’ hazards, risks, intended uses, and potential misuses, once consumers start using them,” P.E. Kenneth L. d’Entremont, author of *Engineering Ethics and Design for Product Safety* and engineering professor at the University of Utah-Salt Lake City, [told ASME](#).

Explore More!

ASME’s gold-star resource “[Public Speaking: Know Your Audience](#)” can help you hone your skills, whether you present to groups of 10 or 200.



5 Ways to Strengthen Your Soft Skills

1. Gather intel

Perhaps you're fantastic at leading a team but struggle to adapt when requirements shift. Or maybe you're a knockout communicator with engineering peers but could improve your ability to connect and persuade non-engineering peers. The first step to improving your skills is benchmarking where you're at, so you know what needs improvement.

Ask for candid feedback from a diverse handful of colleagues, so you can synthesize a wide variety of information. You might say something like: "I'm looking to improve my soft skills and want to get a handle on how I demonstrate skills like communication, collaboration, and problem-solving. Can I ask you a few questions, to get your perspective?"

2. Seek workplace support

Faced with a crushing skills gap, organizations are racing to upskill and cross-train employees. Those efforts extend not only to digital skills and technical know-how, but also soft-skills training. Reach out to your manager or HR

department, to ask about any relevant programs and available support.

3. Stretch out of your comfort zone

Maybe you feel awkward taking on new tasks in front of coworkers or maybe work doesn't present a lot of opportunities to, say, collaborate across disciplines or deliver polished presentations. Regardless of the reason, if it's hard to stretch certain skills at work, consider volunteering your time elsewhere. Not sure you can commit to an ongoing gig? Check out the rising trend of [micro-volunteering](#), which enables engineers to lend a hand by spending as little as 30 minutes on bite-size tasks.

4. Tap the value of an association

ASME's [learning and development courses](#) cover soft skills like inventive problem solving, strategic thinking in times of change, and ethics and communication. For engineers with less than a decade of experience under their belts, [ASME FutureME](#) offers a bounty of tailored resources, from peer-to-peer talks to

Explore More!

Curious about project management? This ASME resource can help: "[10 Skills to Transition from Engineering to Project Management.](#)"

social meetups, highlighting skills like communication, time management, and leadership.

5. **Make it a mindset, not a task**

Just as your technical knowledge needs to keep pace with industry changes, your soft skills need to evolve as the world of work changes. Consider setting an annual reminder—say, the New Year or the anniversary of the day you earned your engineering degree—to reassess where your skills are at and set a learning intention for the year ahead. Benchmarking and tracking your progress can help sustain your momentum, while picking a specific focus may make it easier to beat back feelings of being overwhelmed by options.

You've Got to See This

A duo of ASME webinars well worth watching:

- [“Engineer Your Own Success: Soft Skills Needed to Thrive,”](#) featuring Anthony Fasano founder of the Engineering Management Institute
- [“Successful Transition from Engineer to Engineering Manager,”](#) featuring Jeff Perry, founder of More Than Engineering

Listen Up!

Engineer Your Mission founder Nader Mowalee visits the ASMETechCast podcast to share “How Soft Skills Help Engineers Succeed in Careers.” [Listen here.](#)



Future? Ready!

Much has been written about the sweeping technology advancements that are reshaping the work done by mechanical engineers—and rightfully so. But building a future-ready engineering workforce requires also paying attention to the swift and significant ways that soft skills are evolving.

Participating in a problem-solving session as part of a multidisciplinary team, and needing to converse as fluently with fellow engineers as with sustainability officers or client personnel, all while implementing cutting-edge technologies? Such a scenario might have seemed strange even a decade ago, but it's increasingly commonplace. And as engineers look toward the horizon, they'd be wise to focus on the future-ready skills that will enable them to thrive no matter how the profession continues to change.

About ASME

ASME is a not-for-profit membership organization that enables collaboration, knowledge sharing and skills development across all engineering disciplines.



Your Step-by-Step Guide to Taking the Next Step

Want guidance on exactly how to highlight your career-ready soft skills while applying for a new position? ASME members can download our [members-only workbook](#), full of actionable insights for your resume, your LinkedIn profile, and preparing for an interview.

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