

The 2023 Engineering Ideas Institute – Tackling the Challenges Facing Our World Through Scenario Planning & Collaboration

An Abundant, Inclusive, Innovative and Accessible Workforce

In 2033 “abundance” replaced “chronic shortage” as a descriptor of the engineering community’s workforce relative to its needs. A new purpose-driven, diverse cohort of graduates from an expanding range of engineering educational experiences combined with new means of leveraging emerging technologies to augment workers within this community drove this surprising outcome over the last decade. As a result, the engineering community is trusted by society because...

- it is driven by purpose;
- guided by values of inclusion and access, integrity and ingenuity, humility and respect, responsibility and accountability; and
- represents a professional community for human flourishing led by leaders who represent the diversity of our society.

Earlier in the decade, professional engineering societies and organizations were faced with a dwindling engineering workforce. Individuals were not motivated to pursue engineering education due to the narrative of rigorous classroom requirements and irrelevant assignments, followed by a career of extreme workloads, inadequate compensation, and high responsibility combined with low authority to make meaningful change. Individuals did not feel that their organizations and industries reflected their desires for purpose and human flourishing nor the demographics of those they served. The engineering profession was divided, siloed, and at risk of becoming relegated to a technical role, putting the health and safety of the public at risk. Changes needed to be made.

Professional societies came together to change the image of the engineering profession and to unite the engineering community behind a common goal, “Protect and Better Humanity Through Scientific and Technological Innovations.” Organizations like the National Academy of Engineering, ABET, NSPE, NCEES, and other discipline-based engineering societies highlighted the positive impact of the engineering community. Leaders across all sectors of the engineering community, including higher education, teamed up to rethink the diverse pathways one could navigate in contributing to human flourishing. This meant that technicians, technologists, engineers across all disciplines, and other related professionals came together to be part of this community of professionals. Clear and diverse pathways were created for people to contribute, with a commitment to better humanity responsibly being the common thread.

Now, due to a narrative shift and modern, digital technologies to augment the workforce, a sense of abundance has emerged. The agility of the profession to respond to the needs of society is embodied by the multiple, diverse pathways to be part of the engineering community. The depiction of entering the profession has shifted from “engineers must be good at math” to “*engineers better humanity and improve the lives of people.*” As a result, a diverse, abundant, and purpose-driven workforce has emerged.

Multiple entry points into the profession, such as high school programs, two-year degrees, four-year degrees, post-graduation career changes, certificate pathways, licensure pathways and more has led to its growth. Engineering and other related careers are introduced in early education as a career and life choice that allows contribution to bettering your community and increasing the quality of life for people everywhere. With time, the leadership of engineering community organizations has evolved and is now as diverse as the populations they serve.

Professionals across the engineering community are passionate about the work they do. Technologies such as AI and blockchain are utilized for typical mundane engineering tasks, allowing individuals to focus on the work that motivates them. Organizations encourage workers to perform purpose-driven work and technological advancements allow this flexibility. Industry exemptions no longer hold engineering professionals back from upholding their responsibilities to protecting and bettering humanity.

The engineering community is as diverse as our society. Anyone and everyone feel empowered to enter this community, leading to an abundance of workers and a greater appreciation of the entire engineering community by society.