

## 2018 industry trends

### for engineering talent

What trends can engineers expect to see through 2018? Details may vary among specific industry verticals, but a few key issues will remain important—and could increase in significance throughout most industry segments.

Kelly® is pleased to provide this brief outlook on significant workforce trends that are expected to impact talent in the engineering industry for the near future. Through our own proprietary research and ongoing discussions with leading firms and corporate clients, we offer a unique perspective on the engineering talent market for the year to come and beyond.

#### **Industrial optimization**

Engineering functions will continue to focus on optimizing processes in key areas such as production, supply chain, product design, and predictability. As one result, quality engineering will remain in universal demand throughout the industry. The prevalence of Lean Six Sigma® and the vital importance of product and process quality throughout most industries will only continue to drive a need well into the future for quality engineers, analysts, and other engineering professionals working toward optimization. In fact, a recent analysis of job postings for engineering professionals showed that 17 percent required skills in quality assurance, 11 percent in Six Sigma, and seven percent in Lean manufacturing—a total of 35 percent of all engineering postings.

#### **Sustainability**

Industrial sustainability projects that involve energy and resource conservation, emissions control, renewable energy systems, or waste reduction all require engineering work to be performed by electrical engineers, environmental engineers, energy engineers, and others. The Department of Labor (DOL) estimates demand for environmental engineers to grow nine percent by 2021, and for environmental engineering technicians to grow by eight percent. The lightweighting of products and packaging is another area within sustainability engineering work that should continue to expand—regardless of any regulatory changes—as it promotes savings in shipping and transportation costs, among other efficiencies.

#### **Free-agent economy**

While the engineering profession has been a relatively late adopter of engaging engineering professionals via online talent platforms, the “Hollywood Model” and open innovation practices are well-suited to take advantage of engineering free-agent consultants. Kelly can provide ready access to new projects for these professionals by serving as a talent provider to many leading organizations.

## Open innovation

Modern research and development practices involve collaboration between a sponsoring manufacturer or other project underwriter, suppliers, consultants, engineering services firms, and free-agent engineers. These project teams, which integrate regular employees as well as external engineers, are assembled and brought together for the life of the project: similar to the way modern movie studios produce films—as opposed to decades ago, when actors were direct employees of movie studios.

This results in the practice of open innovation, which means the involvement of contributors beyond the regular employees of the sponsoring organization in the discovery and creation process—avoiding the so-called “not invented here” syndrome. The latest DOL reports project that engineering services firms, which accounted for 18 percent of all engineering jobs in 2016, will add 35,000 more by 2021.

## Industry 4.0

The fourth industrial revolution is upon us, and projects that take advantage of new technological advances are driving demand for engineers, technologists, and technicians in many industry verticals.

## Automation and robotics

The widespread adoption and recent developments in robotics and plant automation systems continue to impact productivity end-to-end, and impact how engineering can do business across whole product lifecycle. This trend has realized tremendous improvements in worker productivity and the talent gap in manufacturing. As another result, there will be significant competition ahead for talented professionals such as instrumentation and controls technicians, automation engineers, and industrial control systems designers. As an illustration, of all recent engineering job postings, nine percent required skills in instrumentation.

## Additive manufacturing

The implementation of additive manufacturing (AM) technologies is accelerating rapidly and growing in importance. 3-D printing has been in common use for prototyping, and adoption is quickly accelerating for production applications—most notably in aerospace, defense, medical device, and the automotive sector. Some of the largest manufacturers in the world are investing heavily in rapid technologies, which is leading to growth in demand for engineers and technologists who are talented in both developing new applications and integrating the technologies into production environments.

As one result, while industrial engineers today account for just 11 percent of all engineering professionals, they account for 34 percent of all engineering job postings—a 3:1 ratio, reflecting a significant gap. Design for additive manufacturing (DFAM) and topology optimization (TopOpt, or TO) are among the hot skills for engineers engaged in AM.

## Industrial Internet of Things

The advent of digital manufacturing will have an ongoing effect on engineering for the foreseeable future, as more and more solutions and services become available on demand. For instance, the “smart factory” concept—enabled by the Industrial Internet of Things (IIoT) and featuring data connectivity between production machinery, CAD/CAM, ERP, and suppliers—is allowing powerful new analysis and management of manufacturing operations. AutoCAD® skills were required in 17 percent of recent engineering job postings. Manufacturing and process engineers are increasingly expected to be fluent and adept at the data access and analysis available in these environments.

## Talent partnership

As demand increases for a talented workforce, engineering firms and corporations are reaffirming their need to partner with trusted engineering recruiting, staffing, and outsourcing services firms.

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