

# An Intervention Strategy to Re-engage Women Engineers in the Workforce

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# EXECUTIVE SUMMARY

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Without intervention strategies, the current demand for technical talent combined with the projected increase<sup>1</sup> in the need for engineers will result in a significant shortage of skilled labor throughout the United States engineering industry.

Increasing the persistence of women in engineering at all stages of their careers is imperative to solving this talent shortage. As this white paper illustrates, while more women are graduating with four-year degrees than men, they are underrepresented in the engineering industry – especially within positions at the senior and executive levels. Women are also more likely than men to leave the engineering profession (Corbett & Hill, 2015).

In envisioning an intervention strategy to re-engage female engineers who have left the workforce, the Society of Women Engineers (SWE) and iRelaunch created the STEM Re-entry Task Force (Task Force).

Through the Task Force, engineering and technology organizations can develop cost-effective re-entry programs to attract an underutilized source of talent. (Within this context, re-entry programs are defined as formal internship programs developed by organizations to recruit individuals on a career break of two years or more back into the workforce to fill critical talent shortages. All re-entry programs are equal employment opportunities.)

Without incorporating re-entry programs as part of their overall recruitment strategies, organizations risk ignoring a valuable and largely unexplored source of talent. In addition, diversifying talent pipelines and increasing gender diversity not only addresses labor shortages, but it also fosters innovation (Dezso & Ross, 2012) and increases competitiveness in the global marketplace.

When the Task Force was launched in September 2015, Booz Allen Hamilton, Caterpillar, Cummins, General Motors, IBM, Intel Corporation, and Johnson Controls formally partnered with SWE and iRelaunch as Founding Members.

Through interviews with all active Founding Members of the Task Force, this white paper positions the specific need for re-entry programs within the context of each company while demonstrating the unique advantages received through participation in the program. These interviews also highlight the value proposition of the Task Force, provide key indicators of organizational readiness in starting a re-entry program, and emphasize best practices and lessons learned. The conclusion provides specific recommendations to the engineering and technology sector.

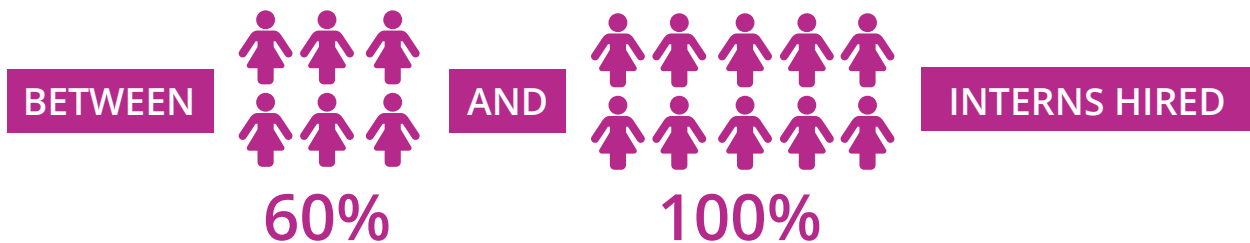
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## KEY OUTCOMES AND INDICATORS OF SUCCESS

In the 18 months since its official launch, the Task Force has had demonstrated success:

- All of the Founding Members developed re-entry programs that launched or were poised to launch.
- All interviewed Founding Members that launched re-entry programs say involvement on the Task Force enabled effective development of their programs.
- All Founding Members interviewed for this white paper say participation in the Task Force supported their companies' core values and was positively viewed by external and internal partners, stakeholders, and target audiences.
- Over 60 interns participated in Task Force pilot programs in the first year of the program (2016).
- Across all launched re-entry programs, the rate of converting re-entry interns to long-term employees ranged between 60 percent and 100 percent (meaning some companies hired 60 percent of their interns, while other companies hired 100 percent of them).

### *Conversion rate of interns to employees*



- Two companies that launched re-entry programs early in 2016 have already doubled or tripled the number of positions they plan to recruit for in the 2017 iteration of their programs. Another two companies developed re-entry programs for 2017 launch dates. One Founding Member launched a six-month program in 2016 that completed in early 2017, with plans to repeat the program in late 2017. Another one of the Founding Members launched a re-entry program in 2016 and is re-evaluating the future of the program.
- In the fall of 2016, a second cohort of the program began with the following organizations: Ford Motor Company, General Electric, Johnson & Johnson, Medtronic, Northrop Grumman Corporation, and Schneider Electric.

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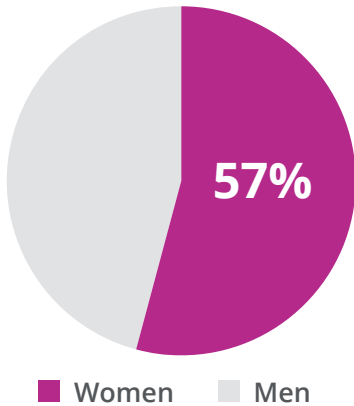
Jennifer Abman Scott, of SWE, and Carol Fishman Cohen, of iRelaunch, have co-led the execution of the Task Force since its inception. During the first year of the cohort, the Founding Members of the Task Force met during monthly conference calls and convened during SWE's Corporate Partnership Council meetings. Companies also sent interns from the re-entry programs to share their experiences at SWE's Annual Conference, WE16, which was held October 26–28, 2016, in Philadelphia, Pennsylvania, and was attended by over 11,700 individuals from all engineering disciplines.

This white paper was authored by Honna Eichler George, who conducted interviews and received content from Margaret Arney, Holly Rollins, and Cheryl Wade of Booz Allen Hamilton; Stacey M. DelVecchio of Caterpillar; Christina Baldwin and Karen M. Ramsey-Idem of Cummins; Silvia Karlsson, Catherine Martin, Kristen Siemen, and Adela Perez Vinot of General Motors; Jennifer P. Howland of IBM; and Catie Anderson, Cheryl Kern, and A. Denise Malloy of Johnson Controls. Jennifer Abman Scott and Carol Fishman Cohen provided both interviews and forwards for this white paper. Finally, SWE's Deputy Executive Director and Chief Learning Officer, Peter Finn, provided editorial guidance during the final stages of this project.

As Executive Director and CEO of SWE, I am pleased to highlight the visionary leadership of the Founding Members of the Task Force in designing and developing re-entry programs that have increased their organizations' access to high-caliber engineering talent. I also commend Jennifer Abman Scott and Carol Fishman Cohen in creating and directing the Task Force, which uniquely addresses a critical need within the engineering industry. In addition, the 2017 Cohort of the Task Force is furthering the impact of this intervention strategy by designing a new set of re-entry programs for their respective organizations. Finally, thank you to SWE's Corporate Partnership Council, which provided seed funding to pilot the first cohort of the Task Force.

# NEED STATEMENT: A TALENT-DRIVEN NEED FOR WOMEN TO RE-ENTER THE STEM WORKFORCE

Total College Graduates Across All Disciplines

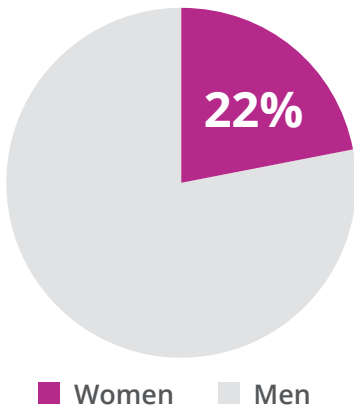


Increasing women in all stages of the engineering profession is necessary to address the industry's growing labor needs. According to the U.S. Department of Labor, Bureau of Labor Statistics, job growth in the engineering industry will yield over 500,000 unfilled positions from 2014 to 2024.

Yet the current pipeline of engineering talent does not include the majority of college graduates: women represent over 57 percent of college graduates but only 22 percent of the engineers entering the workforce (Hughes, 2013). Within the workforce, only 14 percent<sup>2</sup> of engineers are women. Women also leave the engineering profession in greater numbers than men do (Corbett & Hill, 2015).

Organizations operating globally also report a shortage of engineering talent outside the United States, especially for positions in management and at the executive level.

College Graduates Entering the Field of Engineering

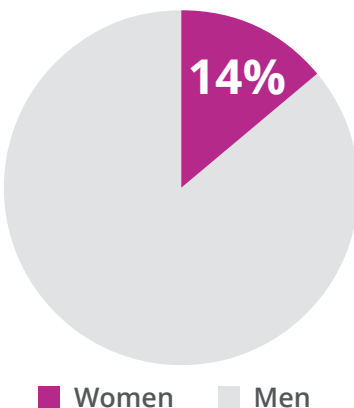


While a variety of solutions are necessary to address the growing labor needs in the engineering industry and to attract and retain women in the profession, one emerging intervention strategy is the re-entry internship program model. Across all industries, re-entry internship programs prioritize the inclusion of workers from a multitude of diverse backgrounds while transforming traditional recruitment practices.

Through participating in the STEM Re-entry Task Force (Task Force), engineering firms hoped to fill critical labor needs in their organizations while also countering the trend of women leaving the workforce and never returning. As is expanded upon throughout this needs analysis, the Task Force responds to two core needs:

1. A significant number of experienced female engineers who have taken career breaks are ready and willing to return to the profession.
2. The engineering industry needs talent for management and executive-level positions.

Women Employed as Engineers

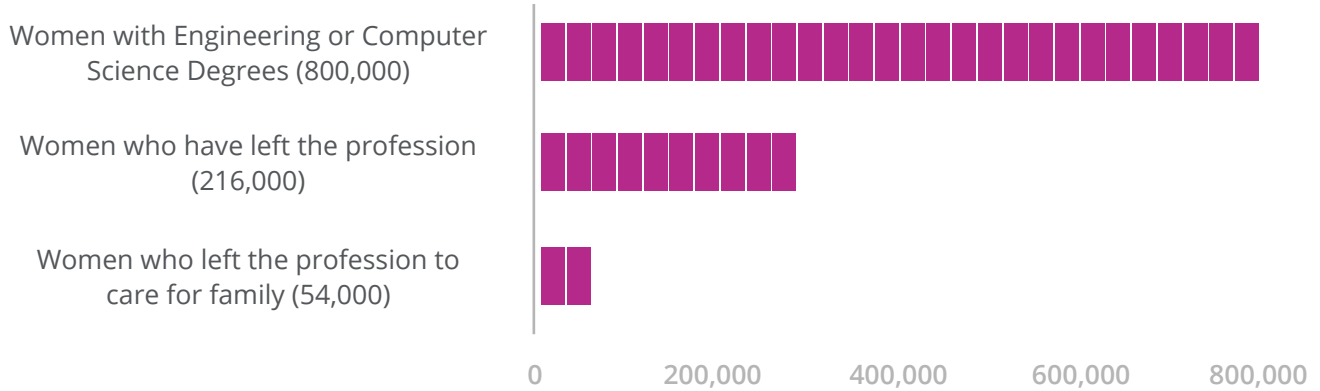


## THE HIDDEN TALENT POOL: WOMEN WITH TECHNICAL DEGREES ON CAREER BREAKS

A significant number of women with technical degrees who took career breaks are able and willing to return to their past professions.

# NEED STATEMENT: A TALENT-DRIVEN NEED FOR WOMEN TO RE-ENTER THE STEM WORKFORCE

## WOMEN IN THE ENGINEERING AND COMPUTER SCIENCE PROFESSION



Between 54,000 and 216,000 women with technical degrees are on career breaks at any time.

Research shows there are about 2.5 million women in the United States with STEM degrees. Of this number, roughly 800,000 women (32%) have engineering and computer science degrees and 216,000 (27%) have left their technical fields. Approximately 54,000 (25%) of the women who left their technical careers did so to care for their families. It is estimated that the pool of technical women who are on career breaks at any given time is between 54,000 and 216,000.<sup>3</sup>

Founding Members of the Task Force demonstrated a need for talent with experience and a desire to recruit individuals with technical backgrounds who had left the workforce. As Karen M. Ramsey-Idem of Cummins says, “We wanted to increase our pipeline for technical talent, and we realized that we were leaving money on the table to not recruit these engineers. We were missing out on a valuable source of technical talent simply because there was not an on-ramp for individuals who had left their careers.”

Cheryl Kern of Johnson Controls notes that one of their “greatest needs and gaps” is the retention of women in technical positions. Catie Anderson, also of Johnson Controls, agrees while noting the potential to address larger business needs: “Finding experienced talent increases our competitive advantage and helps us solve our most challenging business problems.”

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## THE DEMAND FOR EXPERIENCED TECHNICAL LEADERS WITHIN THE STEM WORKFORCE

During the interviews conducted by SWE, all Founding Members recognized they wanted to increase the diversity of their talent pipelines for mid- and senior-level positions. While most companies in the Task Force had traditionally relied on recruiting talent directly from undergraduate and graduate programs, many noted there was a growing need for candidates with more experience.

For example, due to closely monitoring its pipeline for future technical leadership, Stacey M. DelVecchio at Caterpillar had known for a while that they had an issue recruiting diverse talent with experience. “We knew we wanted to have a stronger pathway for experienced talent to come to Caterpillar.”

At Booz Allen Hamilton, Margaret Arney says that as soon as they learned about the Task Force at an SWE CPC Meeting, the team was “very excited about it. We knew it was something we wanted to be involved with and that it would provide a new avenue to recruit qualified, experienced professionals.”

Recruiting and hiring technical leaders with demonstrated work experience also furthers innovation for companies, as Catherin Martin illustrates in her assessment of the value of Take 2 (the name of General Motors’ re-entry program). “Take 2 further promotes an environment that is inclusive and supportive of women in STEM roles. It helps to engage passionate and experienced technical women in careers that need their skills and unique perspectives and experiences to boost innovation and advancement in the automotive industry.”

Through the Task Force, SWE and iRelaunch are uniquely positioned to address these core needs:

- With a history that dates to 1950 and a global membership of over 37,000 individuals from all engineering professions, SWE is the world’s largest advocate for women in engineering and technology. Each year, SWE hosts the world’s largest conference for women in engineering. SWE’s mission is augmented through its collaboration with 75 high-ranking organizations in its Corporate Partnership Council (CPC) and its brand recognition and respect in the industry.
- As the pioneering company in the career re-entry space, iRelaunch is the leader in career re-entry programming of all kinds. iRelaunch works directly with over 14 Fortune 100 companies and over 30 Fortune 500 (or equivalent) companies, in a range of roles, to develop, pilot, source for, present in, and publicize their re-entry internship programs or to similarly support their efforts to hire relaunchers directly into open roles without internships.