



Untapped resource
How manufacturers can
attract, retain, and
advance talented women

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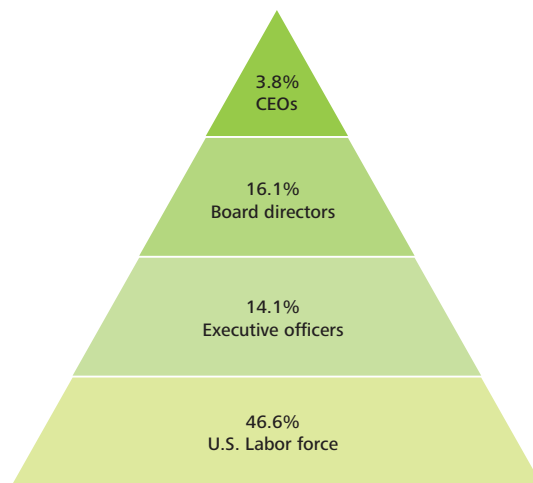
Manufacturing's workforce (im)balance

An overview of the current state of women in manufacturing

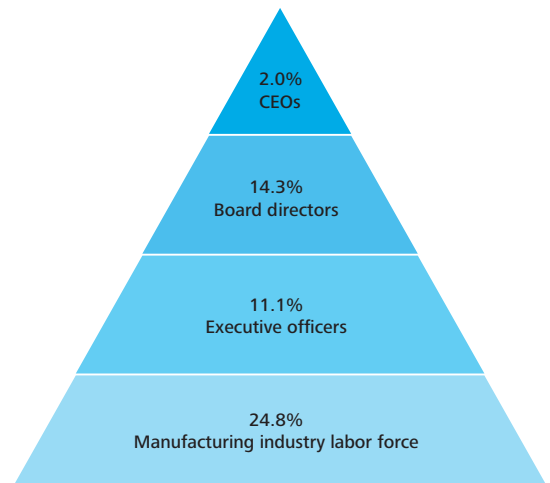
In the midst of the resurgence of manufacturing in the U.S., companies are facing a widely acknowledged talent shortfall. Meanwhile, there's one obvious source of human capital that the manufacturing industry has not fully tapped: women. Across all manufacturing sectors in the U.S., women are underrepresented in the workforce. While women represent nearly half (46.6 percent) of the total U.S. labor force, they only comprise a quarter (24.8 percent) of the durable goods manufacturing workforce (Figure 1).¹ The proportion of women in leadership roles in manufacturing companies also lags behind other U.S. industries.

In 2012, Deloitte and the Manufacturing Institute set out to understand why manufacturing isn't attracting, retaining, and advancing its fair share of talented women. We surveyed more than 600 women in manufacturing, across functional roles and levels, to gain their perspectives on how effectively their companies recruit, retain, and advance women. We conducted one-on-one interviews with more than a dozen women in a range of roles from senior leadership to individual contributors to gain their insights on human capital and talent development in the manufacturing industry. This article represents the collective voice of women in manufacturing and is intended to inform the strategies that manufacturing leaders are using to increase the number of women among their ranks.

Figure 1 Women in U.S. manufacturing vs. women in U.S. business
Women in U.S. Business



Women in U.S. Manufacturing*



*Manufacturing is defined as "durable goods manufacturing"

Source: Catalyst Research. U.S. Women in Business, 2012. Catalyst Research. Women in U.S. Manufacturing - Durable Goods, 2012.

STEP Initiative overview

The Manufacturing Institute, in collaboration with Toyota, Deloitte, the Apollo Group, and the Society of Manufacturing Engineers, is sponsoring the STEP Initiative, a program focused on research, leadership, and recognition of women in manufacturing. The first annual STEP Awards will honor women in science, technology, engineering, and production who have demonstrated excellence at all levels of manufacturing from the factory floor to the C-suite. These women will illustrate the widespread impact women have on shaping the industry, whether they are running the company, designing the next big product, or testing innovations on the shop floor.

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Why now?

The business case for women in manufacturing

There is a compelling business case for the attraction, retention and advancement of women within manufacturing companies today.

Women are critical to addressing the skills gap in manufacturing. Industry leaders expect that access to a highly skilled, flexible workforce will be the most important factor in creating value over the next three to five years, even more than new product innovation and increased market share. However, many manufacturers are already experiencing a moderate to severe shortage of skilled production workers, engineer technologists, scientists, and design engineers (Figure 2).²

Women represent manufacturing's largest pool of untapped talent. Collectively, women earn more than half of the associate's, bachelor's, and master's degrees in the U.S. Once in the workforce, they are advancing in their careers, holding more than half of all U.S. managerial and professional positions.³

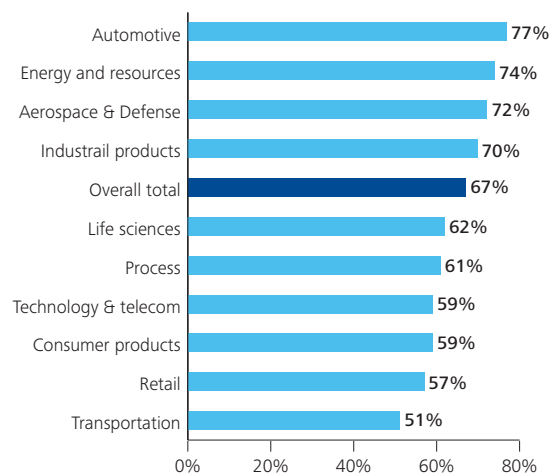
In addition to bridging the skills gap, hiring and advancing women is smart business. As consumers and influencers,

their experiences and insights could contribute significantly to the industry's competitiveness. Further, many executives expect their suppliers and partners to mirror the diversity of their own organization and that of the broader marketplace. The marketplace is becoming increasingly diverse with nearly 90 percent of Fortune 500 companies have at least one female board member and almost half (48 percent) of privately held U.S. companies are owned by women.⁴

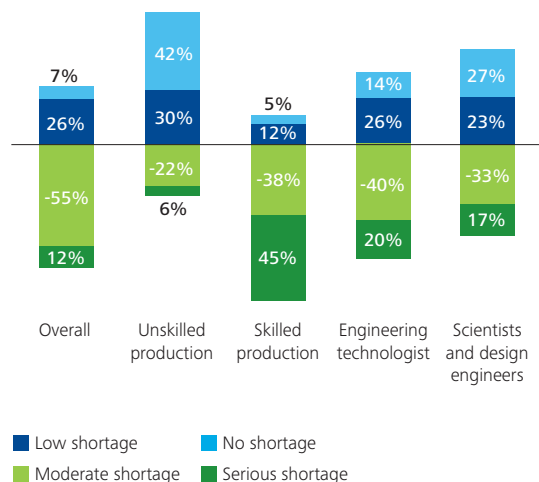
Finally, research indicates that organizations with diverse leadership are more profitable. A study by Catalyst, a leading nonprofit organization dedicated to expanding opportunities for women and business, found that Fortune 500 companies with high percentages of women officers had a 35 percent higher return on equity and a 34 percent higher total return than companies with fewer women executives.⁵ From addressing the talent shortage to improved financial performance, the business case for increasing the share of women in the manufacturing workforce is persuasive.

Figure 2 The skills gap in U.S. manufacturing

U.S. Companies facing shortage* by sector



Shortage of U.S. workers by job type



*Responses of either moderate or serious are considered "shortage"

Source: Deloitte Development LLC and the Manufacturing Institute. Boiling point? The skills gap in U.S. manufacturing, 2011.

The view from inside

Key insights from women working in manufacturing

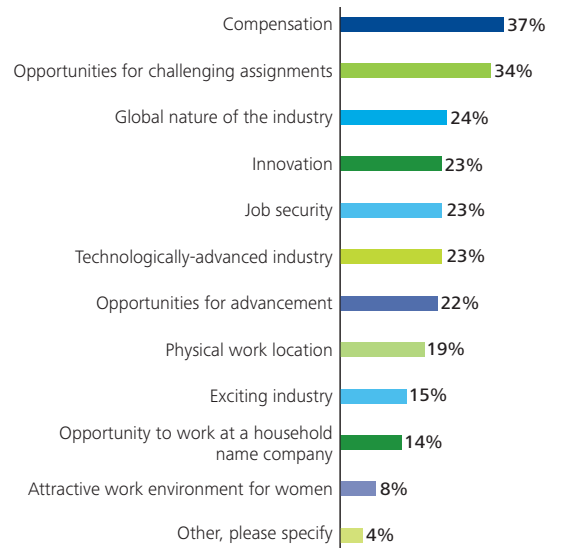
The women that participated in this research are experienced, educated, and technically astute. Of those surveyed, 66 percent have more than 15 years of work experience, and 40 percent hold managerial or supervisory positions. Over 80 percent have a post-secondary education and 20 percent have achieved a technical credential. As a group, they expressed cautious optimism about manufacturing's ability to increase its share of female talent, while offering pointed feedback on how to overcome current obstacles.

The manufacturing advantage

Overall, the women surveyed are pleased with the quality of jobs in manufacturing with over 75 percent agreeing that a manufacturing career is interesting and rewarding. Participants highlighted compensation (37 percent) and opportunities for challenging assignments (34 percent) as the top reasons to stay in the industry (Figure 3). Based largely on these attributes, over half of the women surveyed agreed that if they were starting their careers today, they would choose to pursue a job in manufacturing.

Figure 3 Attributes of manufacturing careers

Q. What do you think makes manufacturing an attractive career path?



Impactful talent initiatives

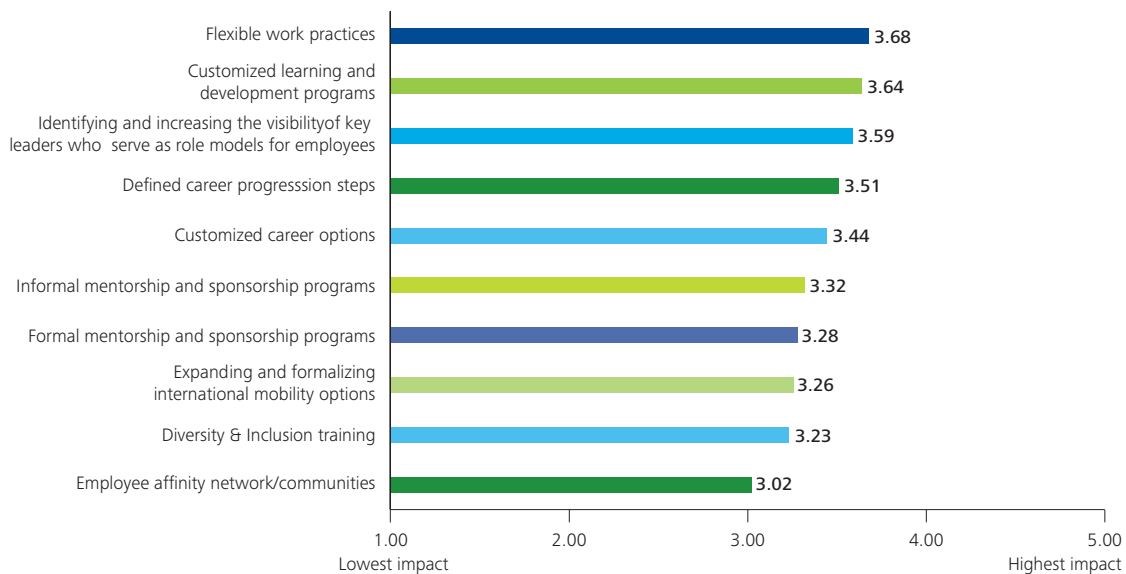
In addition to the nature of the work and its rewards, the research participants are encouraged by the wide range of talent initiatives that manufacturers are pursuing to meet the needs of the evolving workforce.

Work-life balance, or the perceived lack thereof in manufacturing, may be deterring women from the industry. Survey participants cited work-life balance, in addition to compensation, as a key decision criterion when considering a job opportunity. This is consistent with a recent study by the Families and Work Institute in which

85 percent of the manufacturing employees surveyed reported that having the flexibility needed to manage work and personal life would be “extremely” or “very” important when considering a new job.⁶ Although the desire for work-life balance is often associated with women, it has become a universal concern; as one participant offered during our interview “There is a growing acceptance of work-life balance as men are increasingly sharing the caretaker role at home.” It seems that manufacturers are making progress as our survey participants ranked flexible work practices as the most impactful talent program in their organizations (Figure 4).

Figure 4 Impacts of talent initiatives

Q. Which of the following talent programs and tactics that your organization offers, have the highest impact?

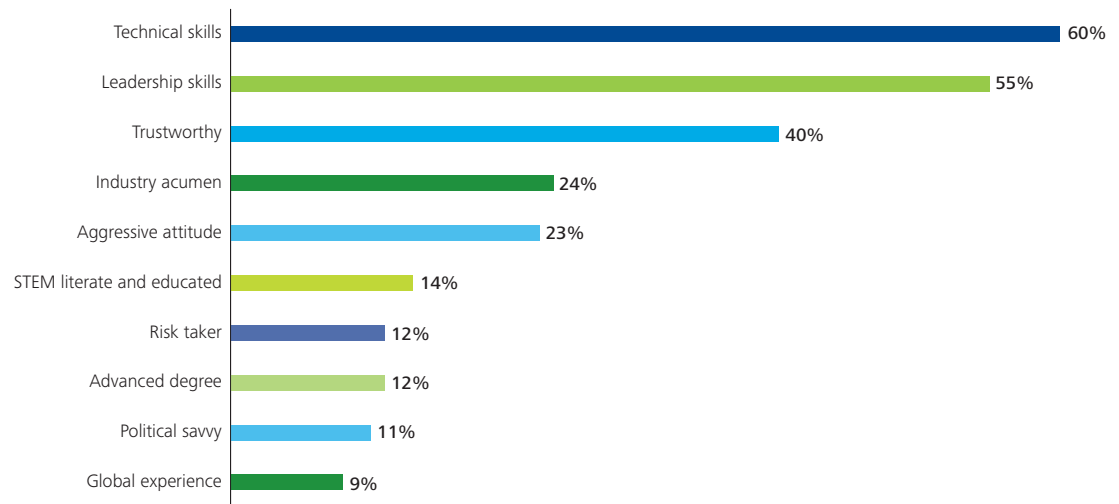


Following flexible work practices, customized learning and development programs ranked as the second most impactful talent initiative. During the interviews, the women stressed the importance of continuing education and personal development to their own success. This linked directly to the survey finding that technical and leadership skills are the qualities that the women surveyed believe contribute most to career success in the manufacturing industry (Figure 5). As explained by an engineer in a small manufacturing firm, “My company supports the external training I do; my manager understands that this is what I need to stay technically relevant.” This sentiment was echoed by many research participants as they described their own employers’ approach to personal development.

Although mentorship and sponsorship programs landed in the middle, in terms of impact, in our survey (Figure 4), there is evidence that sponsorship is one of the most effective ways to help women advance into leadership positions within an organization.⁷ The women that we interviewed articulated a similar belief; citing sponsorship and mentorship as significant contributors to women ascending the leadership ranks within manufacturing companies. The inconsistency between the survey rankings and the interview comments may reflect the difficulty organizations have implementing these types of programs. As a number of participants pointed out, formal programs often feel ‘forced’ and are less effective than sponsorship relationships that develop organically; manufacturers must strike a balance between these two extremes.

Figure 5 Attributes contributing to success in manufacturing

Q. Which of the following attributes do you believe contribute most to a person's success in the manufacturing industry?



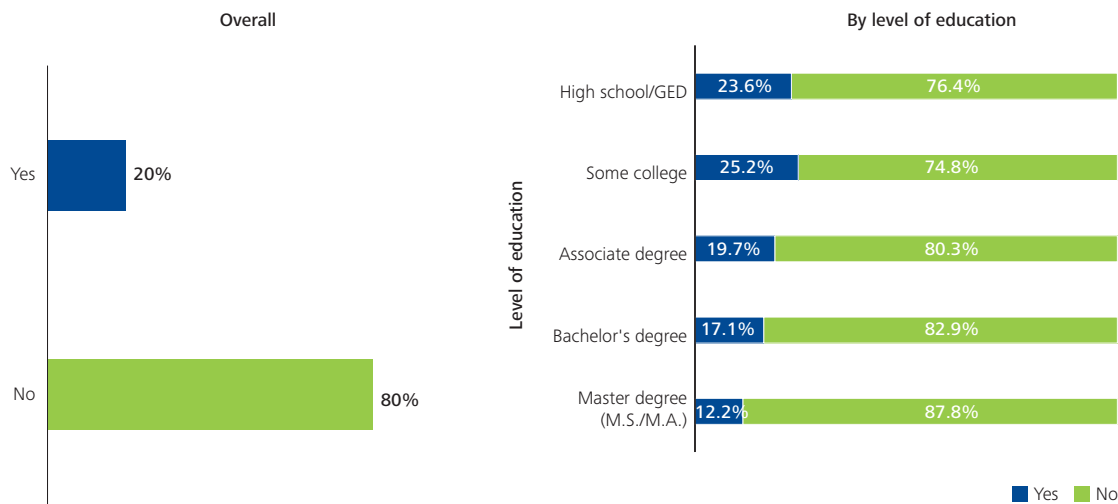
Barriers to entry

Despite the significant upside to careers in the industry and focused talent programs, manufacturers are struggling to attract female candidates. Prior research found that few companies in the automotive sector, one of the largest sectors in the U.S. manufacturing industry, have recruitment programs targeting women.⁸ This seems to be an industry-wide norm with interview participants finding it difficult to describe their companies' efforts

to attract women. Only one of five respondents (20 percent) believes that manufacturing currently does a good job of presenting itself to women candidates (Figure 6). The sentiment is even stronger among women with bachelor's and master's degrees. This finding implies that manufacturing careers are being overlooked by the well-educated talent pool that is necessary to drive product innovation and competitiveness.

Figure 6 Perspectives on recruiting

Q. Based on your experience, do you believe that manufacturing does a good job of promoting itself to potential female candidates?



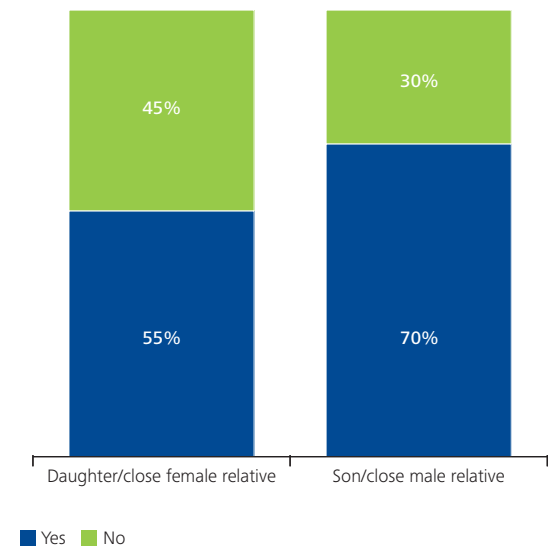
Internal image

In addition to attracting talented women to the industry, manufacturers are working to retain the women they currently employ. One survey finding, in particular, highlights the challenge manufacturers' face with this pursuit; the women surveyed were more likely to encourage their sons (70 percent) to pursue a manufacturing career than their daughters (55 percent) (Figure 7). As a female auto executive said, explaining this inconsistency, "Female executives are still not accepted by their male colleagues."

In fact, most survey participants share this view on gender bias. 51 percent cited that the main driver of women's underrepresentation in manufacturing is the perception of a male-favored culture (Figure 8). There is a sense that historical gender bias has excluded women in manufacturing from core managerial roles, such as production supervisors and operations managers. Unfortunately, these roles hold the key to preparing employees for top leadership roles within the industry, thus creating a vicious cycle. As one participant described it, "Manufacturers must have women to attract women, and must have women in executive roles to retain the women in their companies."

Figure 7 Women more likely to recommend manufacturing to their sons

Q. Would you recommend a career in manufacturing to your....?

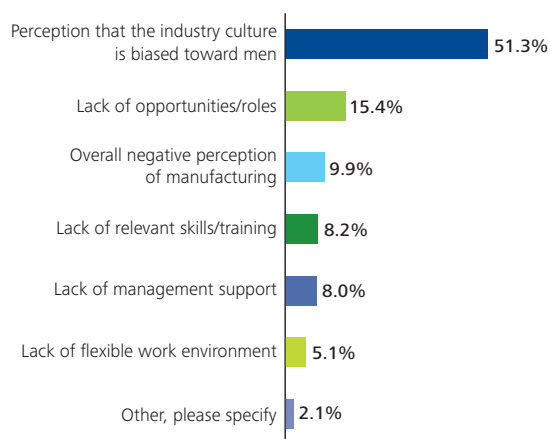


“Manufacturing” talent

Although research participants had strong opinions on the attraction and retention of women in manufacturing, they seemed most passionate about education. Specifically, the women we interviewed were adamant that the industry must broaden its talent efforts to include K-12 outreach. As one participant offered, “Technical skills are critical, and gaining those technical skills is an initial hurdle that many women face.” To meet the industry’s long-term talent requirements, the participants recommended that companies actively support school initiatives that increase young women’s interest in obtaining a technical education. This view is consistent with prior research, conducted by Deloitte and The Manufacturing Institute, that found that less than half of Americans believe that the school system in their communities provide exposure to the skills required to pursue a job in manufacturing.⁹ According to one participant, “There will be no improvement in the next 10 years unless companies are committed to investing money into organizations that push STEM to girls at the school level – before they are ready to enter the workforce.”

Figure 8 Contributing factors to underrepresentation

Q. Which factor do you believe contributes most to women's underrepresentation in manufacturing?



American public perception of manufacturing

According to a recent study by Deloitte and the Manufacturing Institute, the American public has a mixed view of manufacturing that may be contributing to the lack of women in the industry; not surprisingly the view from the inside is quite different.¹⁸

While the women in manufacturing reported a positive view of the industry, survey of the general public shows that Americans think that manufacturing jobs are good jobs but for “someone else.” The survey respondents believe that jobs in manufacturing are critical to U.S. economic security, to national security, and Americans’ standard of living. In addition, manufacturing ranked 1st when asked, “If you could create 1,000 new jobs in your community by establishing a new facility, what type of facility would you support?” However, when it comes to working in manufacturing, the story changes: the public wouldn’t choose to start their careers in manufacturing nor would they encourage their children to work in the industry. A deeper look demonstrates that survey respondents are concerned about the competitiveness of U.S. manufacturing and the long-term stability of jobs in the industry.

The path forward

Leading strategies for recruiting, retaining, and advancing women

Business strategy and talent strategy are two sides of the value coin. With looming talent shortages, few companies can afford to ignore that women represent almost 50 percent of the country's talent pool. Manufacturers, who take steps now to attract, retain, and advance women, may hold the key to recharging their company and their industry. The following key strategies represent insights gleaned by Deloitte from years of Talent Strategy engagements and Deloitte's experience with its internal women's initiative (WIN.)

1. Start at the top

A cultural change begins in the C-suite. For Diversity & Inclusion (D&I) initiatives and programs to gain traction throughout an organization, senior leaders must be aligned on D&I as a business priority and must visibly lead by example. Leading practice suggests that transparency of results reinforces accountability. Senior executives of leading companies regularly communicate their company's progress toward meeting D&I goals across the organization. In order to catalyze individual behavioral change, senior leaders' progress toward D&I goals should be tied to executive incentives and rewards. Beyond aligning performance management with D&I goals, some leading companies engage external councils to advise senior leaders on D&I and hold them accountable for progress.

2. Address gender bias head-on

In the late 1990s, an article featured in the *Journal of Organizational Behavior* highlighted that while overt gender discrimination has declined; the "think manager, think male" paradigm still prevails.¹⁰ Since then, numerous other studies have also highlighted the persistence of implicit bias — a finding aligned with the feedback collected from women in our survey and interviews. Women's advancement in the workplace is hindered by "conscious and unconscious mental associations about women, men, and leaders" with people associating men with more of the traits that connote leadership.¹¹

Leading organizations, across industries, are addressing these unconscious biases through targeted awareness training that are designed to build executive awareness of their own biases so that they can consciously adjust their behaviors and decision-making processes. These trainings uncover the drivers of each individual's thought process,

highlights how unconscious biases impact key decisions, and provides strategies to create a more inclusive workplace.

Some companies also decrease opportunities for hiring biases to arise by eliminating gender-related information on resumes to allow reviewers to more effectively focus on the applicants' skills and capabilities.

3. Create a more flexible work environment

Manufacturers who effectively rethink when and where work gets done will have a competitive edge in the talent war. The increasing demand for workplace flexibility is a trend that crosses genders and spans generations — with women, men, Gen Y, and Baby Boomers desiring more flexibility to balance their work and personal lives.

Manufacturers should consider shifting from a "presence-driven" culture to a "results-driven" culture. Many leading companies recognize and reward individuals and teams who drive results, regardless of when and where work is being done. These companies are providing support for this cultural shift by training managers on techniques for leading and evaluating the performance of virtual teams. Research shows that when manufacturing employers offer more workplace flexibility, job satisfaction, job engagement, physical health status, mental health status, and the likelihood of remaining with one's current employer are significantly higher.¹²

Customized career paths are another tactic that many companies are using to promote flexibility. Replacing the career ladder with a career lattice allows employees to make lateral and vertical career moves. The corporate lattice model of career progression allows individuals to devise multiple ways to gain experiences needed to advance in their career while addressing their personal needs for flexibility.¹³

4. Foster sponsorship

Interviewees expressed a belief that sponsorship is an effective tactic to support women's advancement into leadership positions. A sponsor advocates for an individual and undertakes responsibility for that person's development and professional progression. In addition, a sponsor extends beyond mentoring and coaching to being a vocal advocate, thereby enhancing their sponsoree's presence in the orga-

nization. Recent research shows that individuals who have the active support of sponsors within their organization are more likely to advance in their careers.¹⁵ Sponsorship confers a statistical benefit of up to 30 percent in terms of more stretch assignments, promotions, and pay raises.¹⁵

Manufacturers have the opportunity to accelerate the development and progression of women by building an environment that encourages sponsorship. Leaders can encourage sponsorship three ways:

- Create and communicate the organization's definition of an effective sponsorship relationship, including the roles of sponsor and sponsoree and leading practice tactics for identifying and maintaining a sponsorship relationship.
- Build awareness across the organization of the importance of sponsorships in meeting retention and advancement goals.
- Provide training and resources to help individuals identify a potential sponsor— and to help leaders identify people who could benefit from their sponsorship.

5. Promote personal development

Manufacturers that offer customized learning and development may have an advantage in the retention and advancement of women. In addition to identifying leadership and technical skills as critical factors to success in manufacturing, respondents ranked learning and development programs as one of the most impactful talent initiatives in their organizations. Leading practice from today's top talent management companies suggests experiential learning should account for 75 to 95 percent of high-potential learning.

Manufacturing organizations can accelerate the development of technical and leadership skills by:

- Providing talent with a clear understanding of the behaviors, capabilities and experiences required for roles and positions (both technical and leadership).
- Encouraging high potential talent to identify a target role or position within the organization that they would like to work towards.
- Assessing high potential talent or encouraging them to conduct self-assessments to evaluate existing behaviors, capabilities and experiences in relation to those required for their desired roles/positions and identify gaps to close.
- Helping talent build out an experiential based

development plan. This should include, identifying the challenging assignments, roles and experiences that will help them close the gaps and providing them with the opportunity and backing to take on these stretch assignments.

6. Build a strong employer brand

An overwhelming majority of survey respondents believe that manufacturers can improve their efforts to recruit women. Some participants recommended that manufacturers showcase gender diversity during college campus career fairs by sending women - executives, if possible - as recruiters. Leading companies are instituting customized and targeted strategies to recruit both undergraduate and experienced hires. The following tactics are focused on building a strong employer brand and breaking down the negative perception of the manufacturing industry:

- Take a relationship-based recruiting approach, identifying and engaging talent early on to foster relationships and build a connection.
- Keep female leaders visibly engaged in any recruitment efforts.
- Highlight leading talent programs when recruiting, such as options for flexibility, challenging assignments, rotation programs, and career customization.
- Target campus recruiting efforts toward schools with significant numbers of women STEM graduates. Solutions to Recruit Technical Women, published by The Anita Borg Institute, lists top universities for female STEM graduates.¹⁷
- To encourage young women to pursue a STEM career, build relationships with high school and college influencers—professors, teachers, and advisors—keeping them informed about manufacturing's career opportunities and long-term talent needs.
- Support STEM education initiatives in high schools and universities to develop female students' technical skills and interest. Consider providing students with opportunities for company visits and support STEM scholarship awards.
- Develop relationships with key professional organizations. The Anita Borg Institute study also outlines key conferences and professional organizations to target when recruiting women in STEM Fields.

A manufacturing makeover

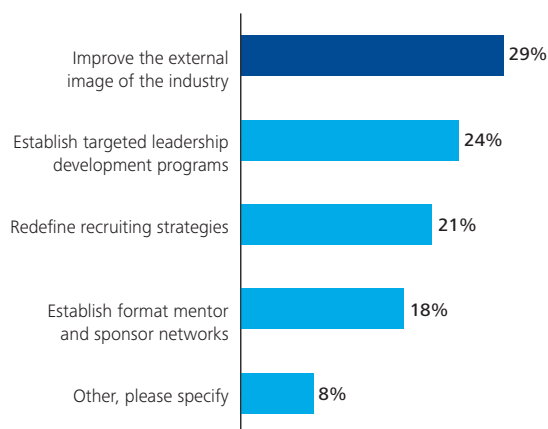
Improving the external image of the industry

“Improve the external image of the industry” was cited by survey respondents as the number one priority that manufacturers should pursue to improve their ability to attract, retain and advance women (Figure 9). Unfortunately, many on the outside see manufacturing as a dying industry with a bias against women. Although opportunities for improvement remain, manufacturers need to fight this outdated image and actively promote the high-tech, innovative, rewarding careers that constitute manufacturing today. Efforts in this area are underway and the image of the industry is beginning to change as companies take steps to showcase today’s advanced manufacturing workplace. For example, on October 5, 2012, the Manufacturing Institute co-sponsored the first Manufacturing Day where hundreds of manufacturers from across the U.S. hosted plant tours for students, teachers, guidance counselors, and the general public. Manufacturing Day is just one component of a larger effort by manufacturers to combat negative perceptions about the industry by women, young people, and the public-at-large. As manufacturers look to

2013 and beyond, combatting this image will be key to addressing the skills gap and succeeding in an increasingly competitive environment.

Figure 9 Recommendations for the next 10 years

Q. Over the next 10 years, what can manufactures do to improve their ability to attract, retain and promote women?



Improving manufacturing’s image

Today’s young people want to solve problems, start businesses, make waves, and make money. But, to accomplish those things, they think they have to be surgeons, lawyers, or Steve Jobs. They don’t understand that manufacturing careers offer real opportunities to do work that saves lives, puts men on Mars, and improves our quality of life.

Many parents and schools do not encourage their kids to pursue manufacturing careers either, resulting in a critical lack of understanding and interest among the next generation of talent. This is at a time when manufacturing could not need that talent more.

The Manufacturing Institute is partnering with manufacturers and other stakeholders to recreate the perception of manufacturing in the eyes of students, parents, educators and the general public, so that manufacturers can attract the talent that they need to grow. These activities include:

- **Dream It. Do It.**– Dream It. Do It. is the national career awareness and recruitment program for manufacturers. It includes national and local activities to engage, educate, and employ the next generation of skilled manufacturing talent.
- **Manufacturing Day** – On the annual Manufacturing Day, manufacturers open their doors to their communities. By hosting plant tours and other engagement activities, manufacturers expose students, parents, teachers, guidance counselors, and the general public to the opportunities and realities of today’s manufacturing industry.
- **Manufacturer’s Pledge** – The Manufacturer’s Pledge recognizes manufacturers who are taking action to change the perception of manufacturing, attract the next generation to jobs in the industry, or support manufacturing as a whole. The Institute showcases these activities through social media and other means, and provides tools that support their national and local efforts.

Appendix: Survey overview & methodology

The survey was commissioned by Deloitte and conducted online by an independent research company between June 25 and July 31, 2012. The survey polled a sample of 621 women and has a margin of error for the entire sample of plus or minus four percentage points

End notes

- ¹ Catalyst Research. U.S. Women in Business, 2012. Catalyst Research. Women in U.S. Manufacturing – Durable Goods, 2012.
- ² Deloitte Development LLC and the Manufacturing Institute. Boiling point? The skills gap in U.S. manufacturing, 2011, page 1.
- ³ Maria Shriver and the Center for American Progress. The Shriver Report: A Woman's Nation Changes Everything, 2009
- ⁴ Catalyst Research. 2012 Catalyst Census: Fortune 500 Women Board Directors, 2012
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- ⁶ Families and Work Institute, 2008 National Study of the Changing Workforce, Workplace Flexibility in Manufacturing Companies, 2011.
- ⁷ Catalyst. Sponsoring Women to Success, 2011. (<http://www.catalyst.org/knowledge/sponsoring-women-success>)
- ⁸ Deloitte Development LLC. Women at the Wheel. Everything you need to know — but were afraid to ask — about attracting, retaining, and advancing female executives in the automotive industry, 2010.
- ⁹ Deloitte and The Manufacturing Institute. Leadership wanted: U.S. public opinions on manufacturing. 2012
- ¹¹ Alice Eagly and Linda Carli, Through the Labyrinth: The Truth About How Women Become Leaders, Harvard Business Press Books, 2007.
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- ¹³ Cathleen Benko and Molly Anderson. The Corporate Lattice: Achieving High Performance in the Changing World of Work, Harvard Business Press Books, 2003.
- ¹⁴ Sylvia Ann Hewlett, Kerrie Peraino, Laura Sherbin, and Karen Sumberg, The Sponsor Effect: Breaking Through the Last Glass Ceiling, HBR Research Materials, 2011.
- ¹⁵ Sylvia Ann Hewlett, Kerrie Peraino, Laura Sherbin, and Karen Sumberg, The Sponsor Effect: Breaking Through the Last Glass Ceiling, HBR Research Materials, 2011.
- ¹⁷ Caroline Simard, PhD, and Denise L. Gammal, PhD, Solutions to Recruit Technical Women, Anita Borg Institute for Women and Technology, 2012.
- ¹⁸ Deloitte Development LLC and the Manufacturing Institute, Leadership wanted: U.S. public opinions on manufacturing, 2012.

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