SPOTLIGHT

GOAL 2: UPSKILL TO GET THE MOST OUT OF YOUR AUTOMATION INVESTMENTS

Aspen Digital, in consultation with experts from academia, civil society, and industry, developed the following recommendations for how to integrate automation into the manufacturing frontline responsibly.

Issue

Hasty deployment of AI has the potential to "deskill" workers, leading to increased churn, but use of automated tools alone doesn't necessitate these negative impacts. Deskilling happens when automation is used in a way that limits workers' agency and reduces the amount of knowledge it takes to perform a task, making workers less adaptable and knowledgeable about the larger processes to which they contribute. To avoid this issue, employers should focus on upskilling or reskilling their workforce. Upskilling benefits both employers (making them more competitive and maximizing returns on technology investments) and workers (promoting their skill development and professional growth).

"Close to half (43 percent) of workers in the manufacturing industry have a high school education or less, a factor that is strongly correlated with limited digital skills. Yet a high percentage of job postings in manufacturing call for workers to have definitely digital (60 percent) or likely digital (93 percent) skills."

– NATIONAL SKILLS COALITION (2022)

Only 28.34% of the manufacturing workforce in 2022 consisted of workers aged 20-34, where the median worker age was 44.3 years.

– US BUREAU OF LABOR STATISTICS (2023)

"In 2019-20, Nissan's assembly plant suffered from a 38% turnover rate among its technicians; where the direct cost of replacing each technician was $15,000"

– THE CASE FOR GOOD JOBS (2023)

Why this matters

- **Missing recruits:** While manufacturing was once an attractive career path, fewer people—especially young people—are entering this industry. This has led to staffing issues for employers that will likely worsen in the long term without intervention.
- **High industry turnover:** Turnover rates in the frontline manufacturing workforce are historically high. Hiring new talent to keep up with turnover is expensive for employers.

- **Skills gap:** Not enough of the US workforce has the digital skills to meet employment demands, making it difficult for employers to fill positions.

"The skills gap may leave an estimated 2.4 million positions unfilled between 2018 and 2028, with a potential economic impact of 2.5 trillion."

– DELOITTE (2018)

Opportunities

- **Become an attractive employer:** Upskilling and reskilling initiatives capitalize on the aptitude and ambition of your workforce, which improves recruiting and worker motivation and productivity in the long term.
- **Improved worker retention:** Investing in reskilling your workforce improves retention, makes you more attractive to younger prospective employees (expanding the pool from which you can find talent), and saves you money in the long term.

"Two-thirds of companies expect to see a return on investment on skills training within a year of the investment, in the form of enhanced cross-role mobility, increased worker satisfaction or worker productivity."

– WORLD ECONOMIC FORUM (2023)

Actions

SKILL TYPES

1. **Identify skill gaps and provide training in basic digital skills** to prepare your workforce for working with automation in advance. Ask workers what types of trainings they want.
    - Common upskilling needs:
        - Familiarity with touchscreen interfaces
        - Machine diagnostics
        - Communication and team coordination skills
2. **Use community college partnerships to develop high-value interpersonal skills** such as knowledge-sharing, conflict resolution, and negotiation.

"A survey of more than 2,100 frontline employees found that more than 70% have applied to career advancement opportunities either with their current employers or with different companies."

– MCKINSEY (2022)

METHODOLOGY

3. **Make upskilling accessible** by making sure training opportunities are available on site, during work hours, in multiple languages, and with appropriate compensation for time spent.

"More than half of production employees want to participate in an upskilling program (52%)."

– EY (2022)

METHODOLOGY

4. **Provide training for a variety of skills and in a range of formats** based on what workers prefer.
    - Cross-train workers on different technologies to promote versatility and prevent production bottlenecks due to limited staff.
    - Offer mentoring programs and apprenticeships (see the Registered Apprenticeship Program).
    - Provide opportunities for workers to test out new technologies in low-stakes settings.
    - Take advantage of vendor-provided trainings to teach interested workers how to use new technology.
    - Provide trainings in peer and group learning formats.

"More than 60% of all [Swiss] firms find offering apprenticeships profitable, meaning that the average firm does not need to recoup training expenses after the end of an apprenticeship."

– MUEHLEMANN & WOLTER (2014)

LEADERSHIP DEVELOPMENT

5. **Clearly outline economic and career mobility benefits** for workers who participate in an upskilling program.

6. **Designate a worker or small group of workers as subject matter experts** for the new technology or specific functions of the new technology.