RESEARCH REPORT

The 2025 Manufacturing Skills Report: Are Frontlines Equipped for Success?

The 67% manufacturing skills gap is growing. Here's what 600 frontline employees had to say about it.

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INTRODUCTION

Manufacturing's tipping point

According to recent findings from Deloitte and The Manufacturing Institute, nearly 50% of open roles remain vacant due to a lack of skilled candidates. And 80% of manufacturers say this labor shortage is already disrupting production.

At the same time, companies are racing to adopt industrial AI and automation. But are frontline workers—the people who keep plants running—ready to keep pace with this transformation?

To find out, we asked more than 600 manufacturing professionals across the U.S. to tell us what it's really like on the ground.

We wanted to know:



50%

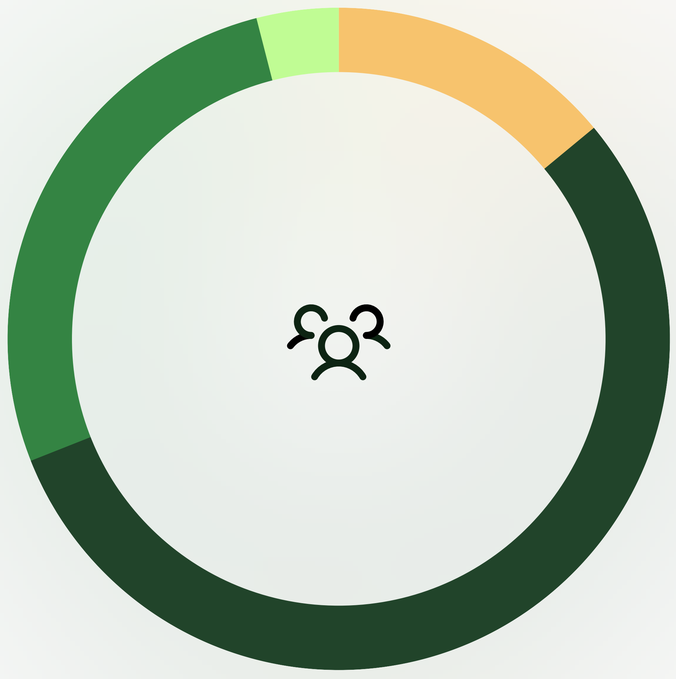
of open roles remain vacant due to a lack of skilled candidates.

- How the skills gap is affecting their day-to-day jobs
- The impact of skills deficiencies on production
- What's causing the talent shortage and high turnover
- What their companies are doing (or not doing) to close the gap
- How they feel about the future and the role technology plays in it

Who we talked to

For this survey, we gathered data from manufacturing professionals in every region of the continental U.S. and from a wide range of racial and ethnic backgrounds. 66% of participants identified as male, while 34% identified as female.

Other major demographic factors include:



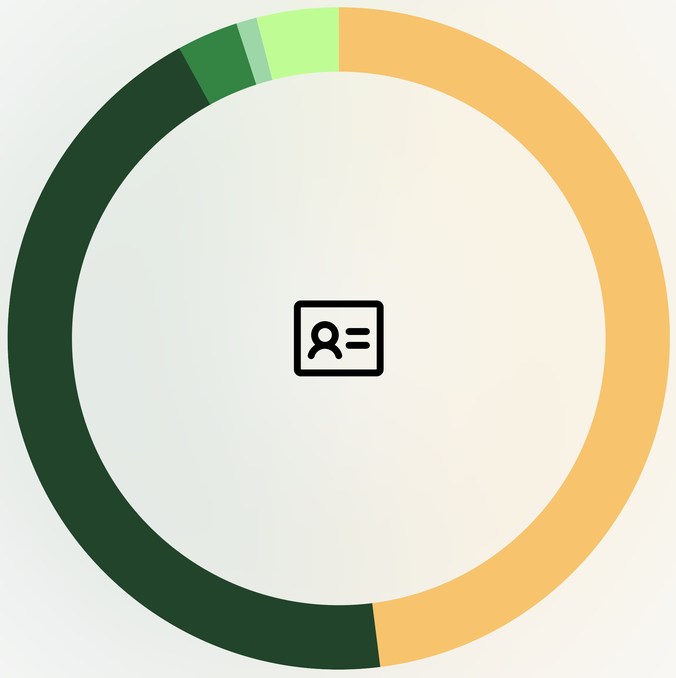
Age range

14%
Ages 18-28

27%
Ages 45-60

55%
Ages 29-44

4%
Ages 61-79



Job level

48%
Individual Contributor

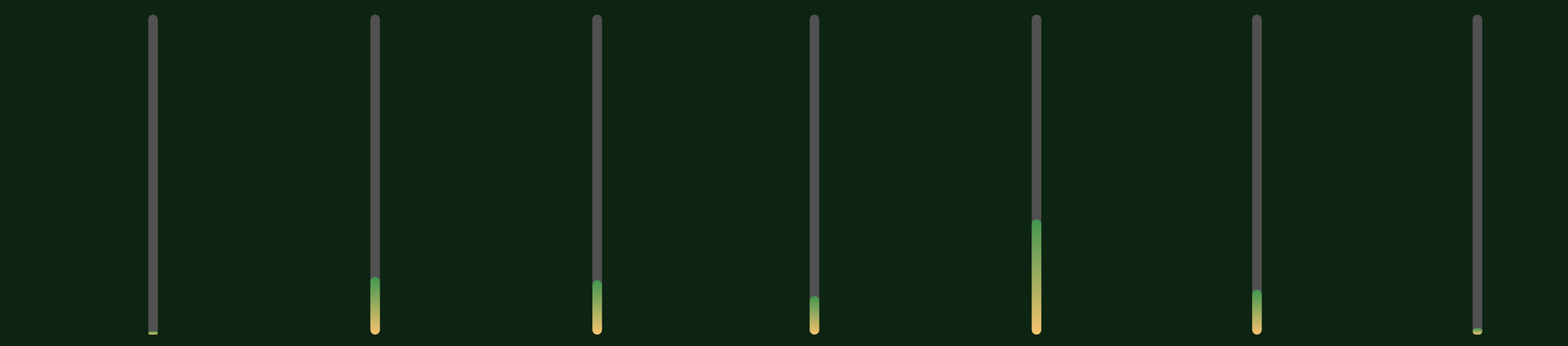
44%
Manager or Senior Manager

1%
Vice President or Senior Vice President

3%
Director or Senior Director

4%
Other

Education



1%
Some High School

18%
High School

17%
Some College

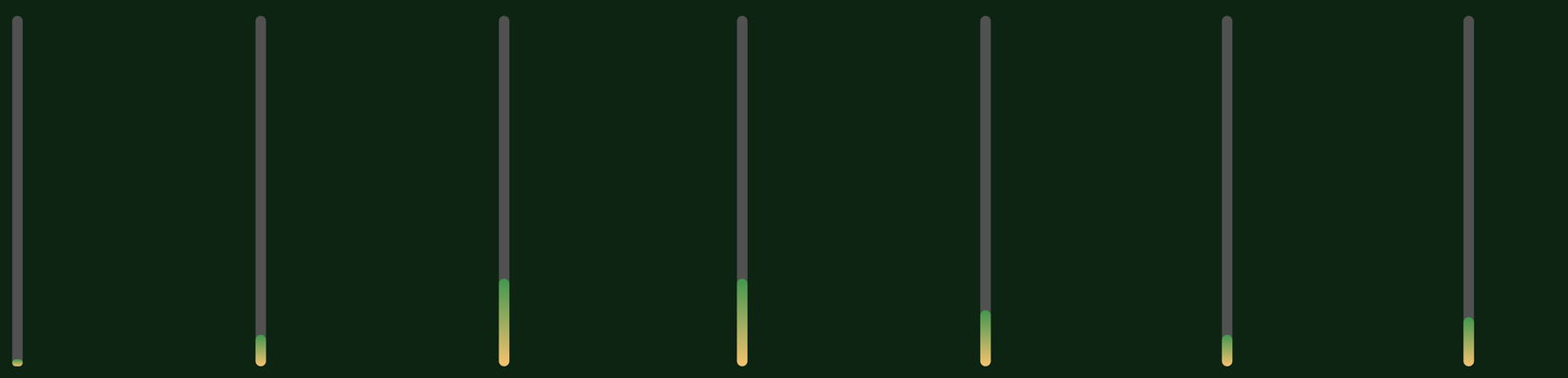
12%
Associates

36%
Bachelors

14%
Masters

2%
Doctorate

Years employed in the industry



2%	9%	25%	25%	16%	9%	14%
Less than 1 year	1-2 years	3-5 years	6-10 years	11-15 years	16-20 years	More than 20 years

Manufacturing role

44%
Production/Operations

15%
Management/Administration

10%
Engineering

9%
Supply Chain/Logistics

6%
Quality Assurance/Control

4%
General Manager

3%
Customer Service

2% Facilities Management

2% Maintenance

2% Other

1%[1]

1%[2]

1%[3]

[1] Electrical Maintenance [2] Health & Safety [3] Plant Executive

These professionals aren't simply observers. They're on the frontlines of manufacturing's most pressing challenges. Let's dive into what we learned from them about the skills gap and its impact on operations.

PART 1:

Examining the manufacturing skills crisis

We know there’s a gaping skills deficit among manufacturing professionals, especially on the shop floor. In fact, 67% of those we surveyed say the industry’s skills gap is growing.

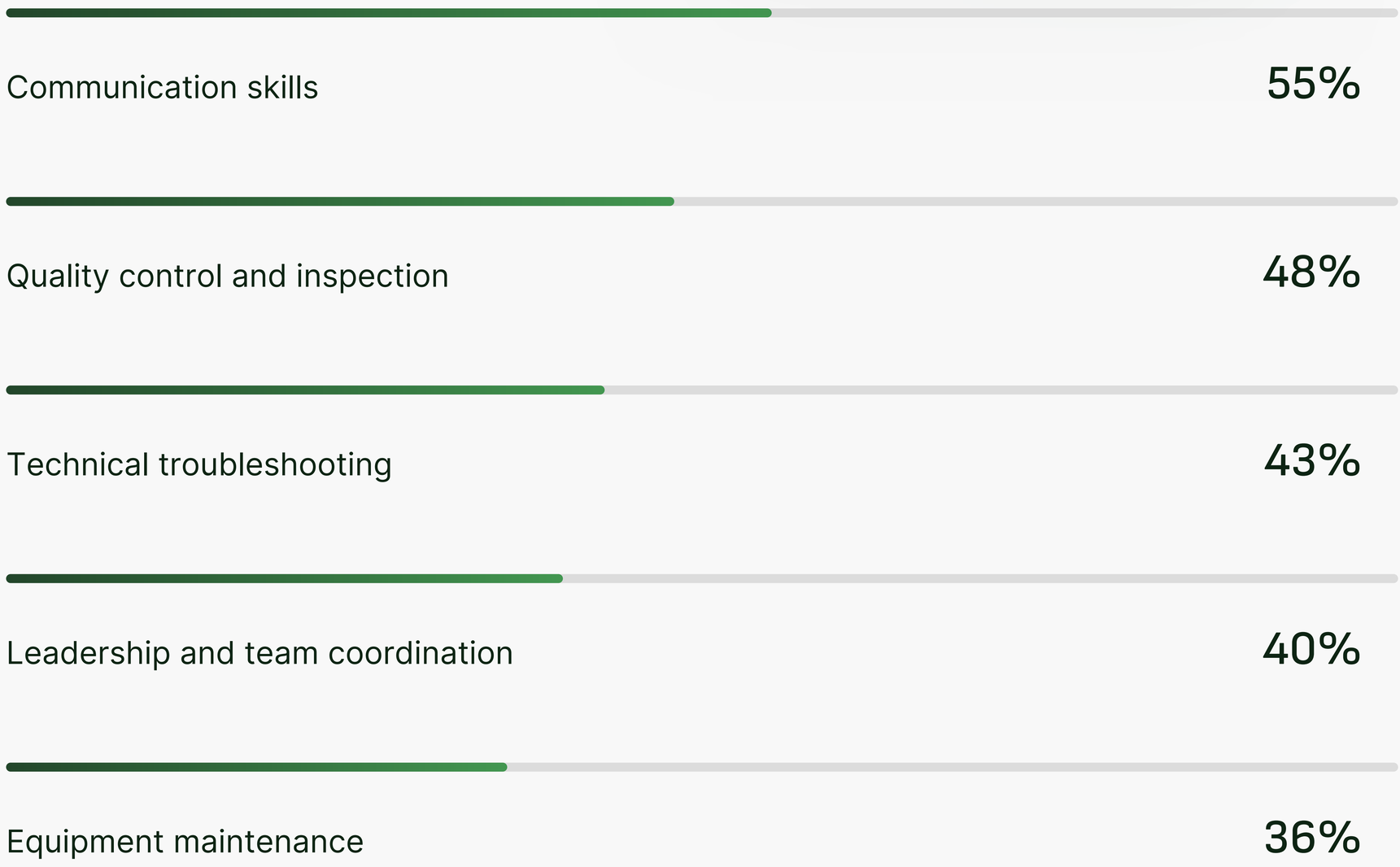


67%

of manufacturing professionals say they’ve observed a growing skills gap.

So, which skills are missing?

Here’s what our respondents cited:



Looking back at our previous report, *What Held Manufacturers Back in 2024?*, this data isn’t surprising. In fact, 45% of manufacturing professionals in that survey said they struggle with communication on the shop floor.

PART 1:

Examining the manufacturing skills crisis

Soft skills (e.g., communication, critical thinking, and problem-solving) and tools that effectively facilitate them are still lacking in most manufacturing workplaces. And the impact is alarming:

66% report production delays

59% report operational inefficiencies

53% report high turnover

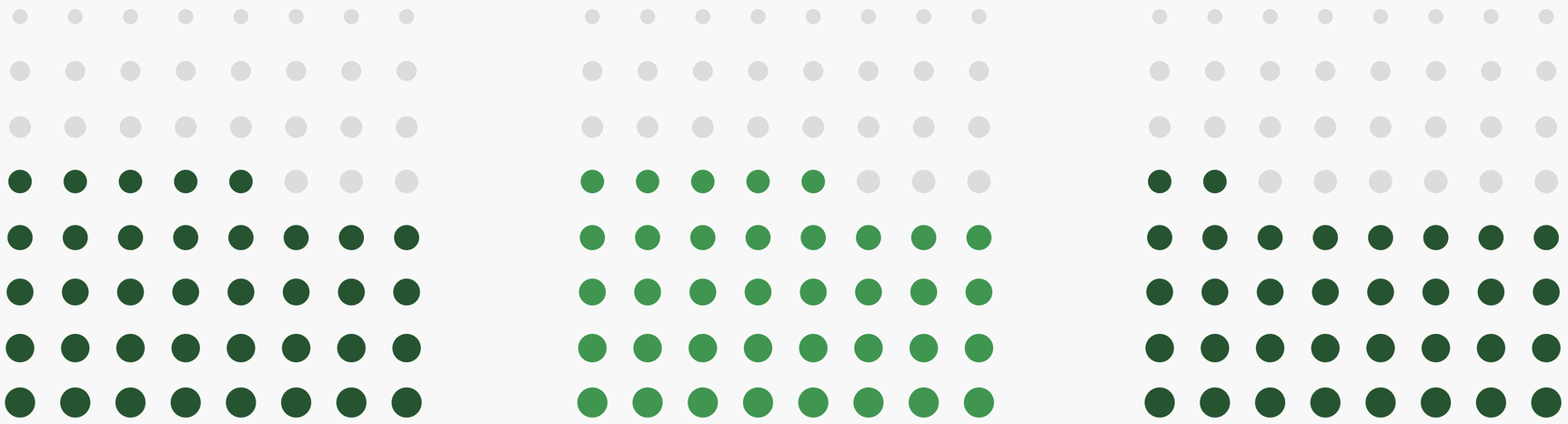
45% report increased scrap and waste

44% report more equipment downtime

35% report higher safety risks due to inadequate training

35% report reduced profitability

But what, exactly, is causing this gap—fueling turnover and disrupting production? Here's what the professionals surveyed said:



58%
cited lack of new talent

58%
cited inadequate training

53%
cited high turnover

The issue isn't just a lack of qualified job candidates. The industry has a serious training problem.

Inside the first 90 days: What new hires are(n’t) learning

Thorough training is crucial for workforce success and retention. But only 25% of manufacturing professionals say their organizations’ training programs are “very effective.”

The top training issues include:

The training programs **aren’t role-specific** enough — 57%

The materials are **outdated** — 47%

The training isn’t **engaging or interactive** enough — 45%

This issue doesn’t just affect performance. It leads to lower workforce confidence and, eventually, higher turnover rates.

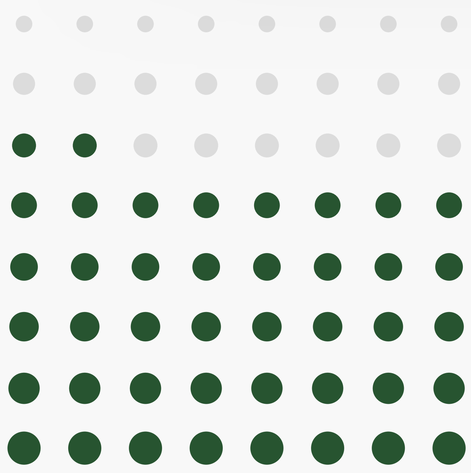
In fact, 52% of survey participants said they’ve witnessed high turnover in their organizations over the past 12 months.

52%

witnessed high turnover in the past 12 months

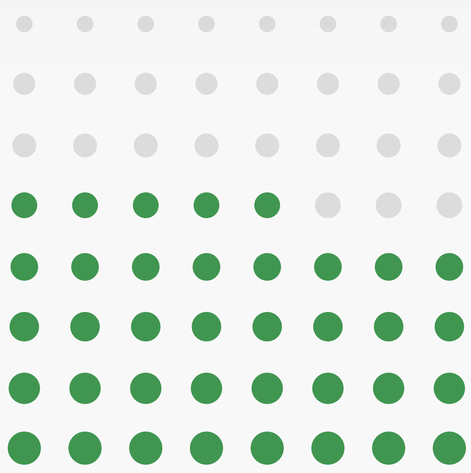


And the results aren’t surprising—but they sure are concerning:



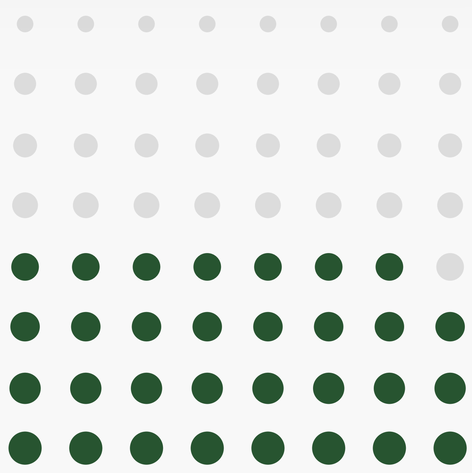
64%

increased workload



58%

reduced morale



49%

production delays

LNS Research reports that 84% of manufacturers have seen the loss of experienced employees erode operational performance. If companies want to stop the churn and keep valuable skills and knowledge within their plants, they need to address the skills gap immediately.

PART 2:

Closing the gap through upskilling

It’s clear that a lack of professional development opportunities plays a major role in manufacturing employee turnover. According to the survey data, however, industrial companies still struggle to adequately prepare employees not just for their future careers—but for their own jobs.

Upskilling and cross-training programs are key in closing the manufacturing skills gap. However, only 48% of manufacturing professionals say their organizations offer upskilling opportunities beyond the initial training period.



48%

of manufacturing professionals say their companies offer upskilling programs.

The good news? Of the 48% with access to professional development opportunities:

99%

say continuous training is important for career advancement

97%

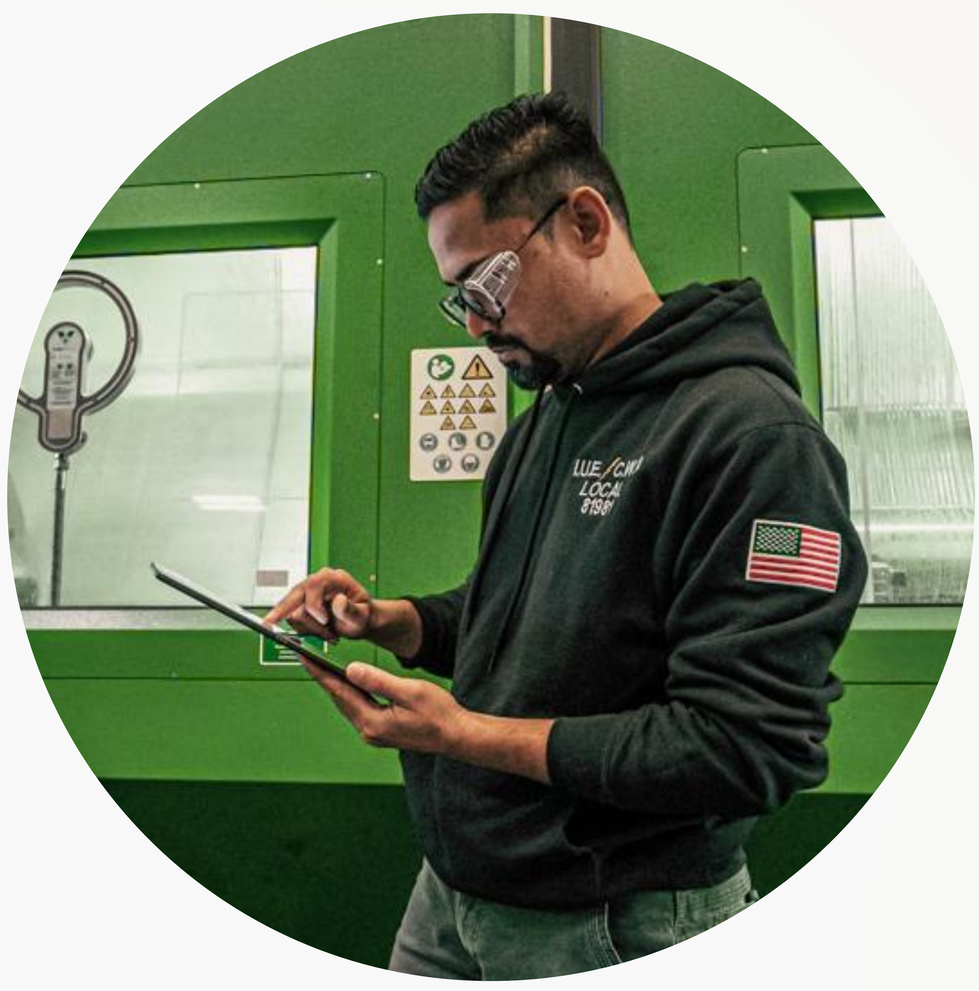
say upskilling boosts workplace confidence

95%

say upskilling increases job satisfaction

PART 2:

Closing the gap through upskilling



However, the benefits of upskilling go beyond individual job satisfaction and performance.

97%

say workforce development is critical for industry resilience.

68%

say that upskilling decreases downtime and improves efficiency.

82%

say that upskilling has prepared them for automation and digital transformation.

And for companies that don’t offer frontline professional development pathways? The skills gap will keep getting bigger.

PART 3:

Can digital transformation stop the bleeding?

It’s impossible to talk about the future of manufacturing without diving into the impact of technological advancements. Artificial intelligence (AI) and automation are transforming manufacturing processes, from maintenance to quality inspection, faster than ever.

And frontline workers aren’t shying away from industrial transformation. **Just over 80%** of those surveyed indicated feeling at least “somewhat prepared” to embrace AI, automation, and other key technologies of the future factory.



82%

say they feel at least somewhat prepared for AI and automation

Additionally, **77%** of manufacturing professionals say that AI will revolutionize manufacturing processes in the next five years. This is **up from 65%** in L2L’s 2024 survey.

75%

say it will simplify and accelerate processes





73%

say it will improve predictive analytics

64%

say it will enhance digital record-keeping



PART 3:

Can digital transformation stop the bleeding?

But are companies actually using these tools?

Here’s what we learned:

47% use real-time analytics tools

38% use predictive maintenance tools

27% use generative AI tools

22% use AI-driven decision-making tools

Despite the potential for AI-driven tools to improve manufacturing processes, companies are still slow to use them on the shop floor. But those that do see significant improvements in operational efficiency, visibility, and process optimization.

Investing in workforce development and people-centric technology has become a non-negotiable for preparing manufacturing facilities for the future.



The bottom line?

These investments may be costly upfront — but not as costly as putting them off.

CONCLUSION:

Closing the gap, building the future

The manufacturing workforce crisis, with its staggering 67% skills gap, demands decisive action.

To truly improve your margins and secure your future, embrace a strategic, step-by-step approach to operational excellence.

01

Connect people and tasks.

Digitize critical processes, track labor capacity, and visualize activity to bring clarity and accountability to your operations.

02

Standardize processes for consistent task execution.

Help frontlines develop skills and solve problems faster by implementing knowledge management tools, mobile work instructions, and streamlined abnormality management.

03

Gain visibility of what's happening on the lines to minimize downtime.

Eliminate human error, improve work order execution, and track Overall Equipment Effectiveness (OEE) in real time.

04

Implement performance monitoring to identify trends and make informed decisions.

Leverage insights to focus your efforts, plan preventive maintenance proactively, and foster best practice sharing through established continuous improvement frameworks.

05

Drive operational excellence and continuous improvement to eliminate waste.

Optimize assets and resources, implement dynamic production scheduling to address supply chain disruptions, and utilize predictive operations for faster reaction times.

06

Weave a digital thread of process optimization and innovation across your organization.

Integrate enterprise data, automate workflows intelligently, and leverage global analytics for benchmarking and strategic decision-making.

By systematically addressing these six key areas, you can transform your workforce, close the skills gap, and significantly boost your margins.

Take the next step:

SCHEDULE A DEMO WITH L2L ↗

Explore how our solutions
can help you minimize downtime and
maximize your profitability.