Build vs Buy:

Manufacturing Talent Strategy in the Age of Automation, AI, and Reshoring

Guild | Lightcast

Don’t wait for the next generation of talent; build it now.

The manufacturers best positioned for the next decade will be those investing in the workforce they already have.

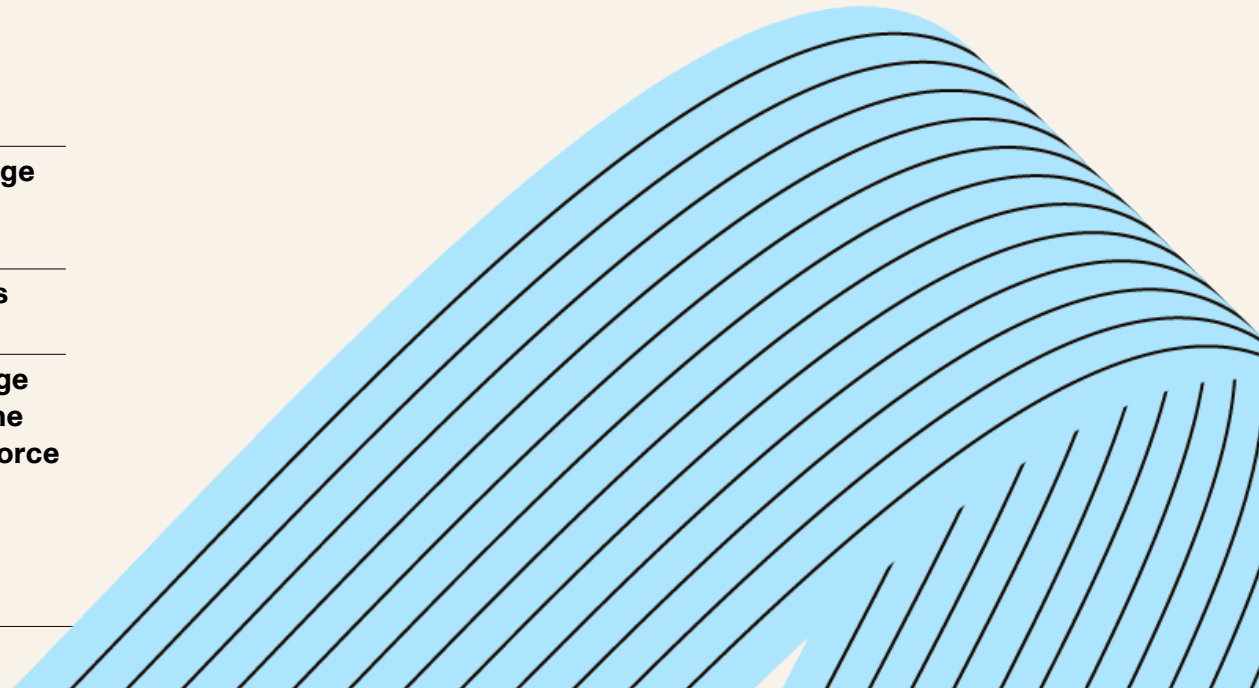
Manufacturing in the United States is at a crossroads. As production increasingly returns to domestic soil, the demand for skilled talent has surged—but the available labor pool is not keeping pace.

Several forces are converging:

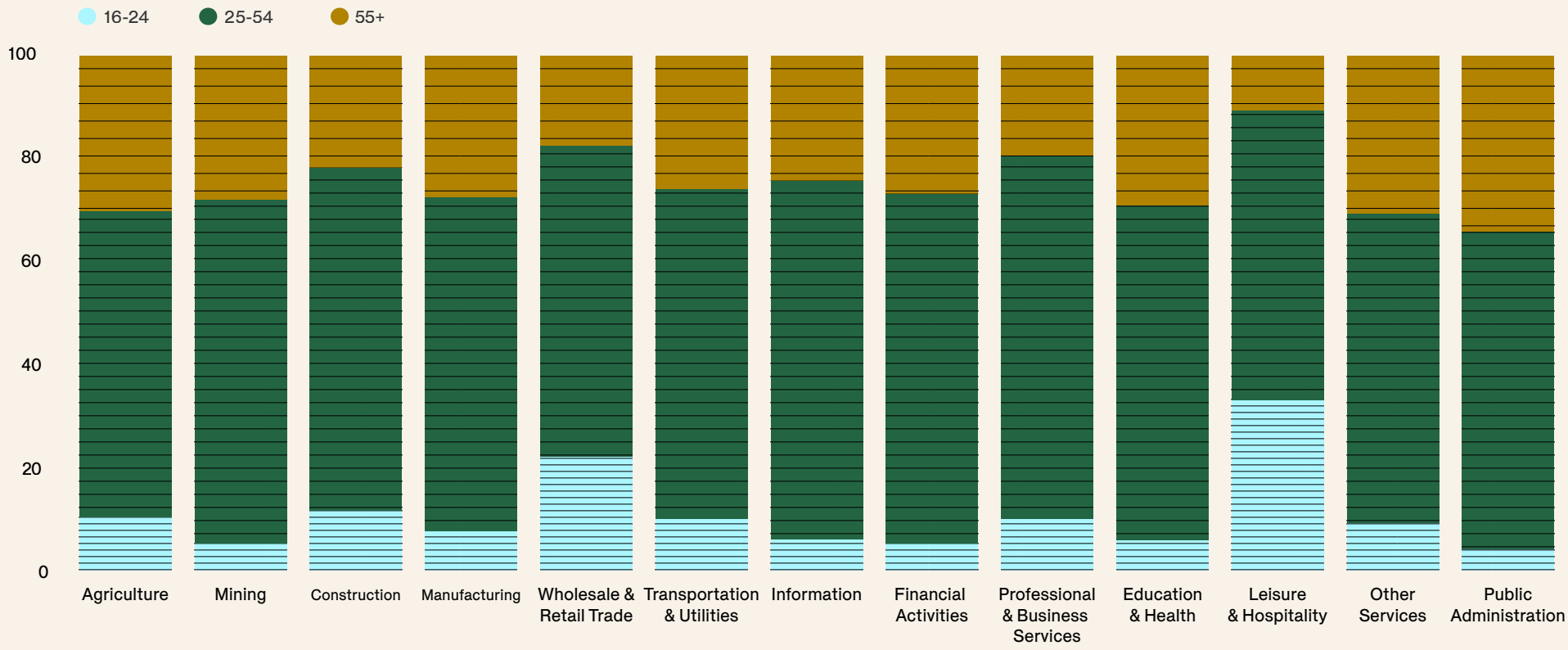
Roughly 27% of manufacturing workers are over the age of 55 and nearing retirement

Reshoring is accelerating hiring needs across facilities

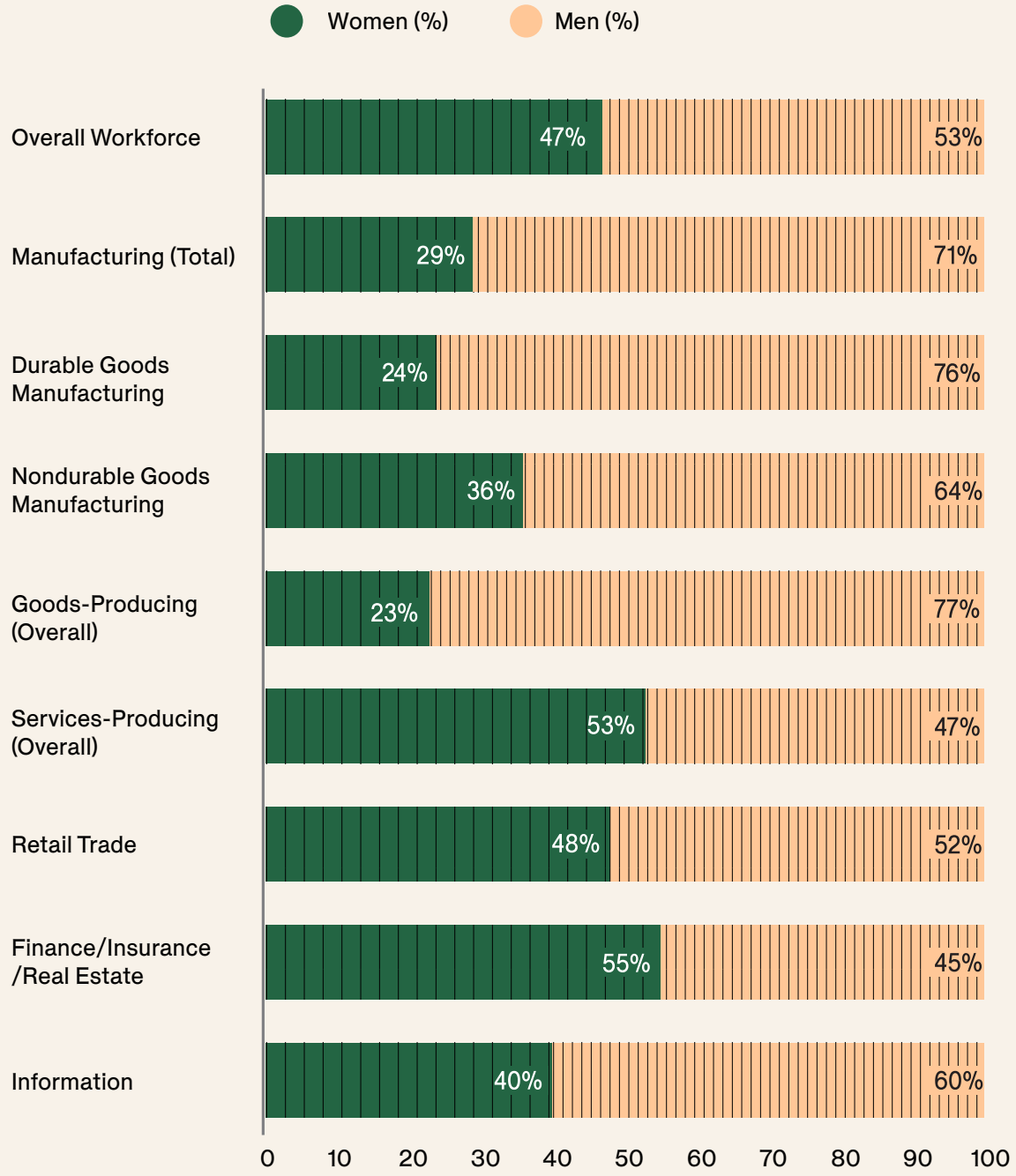
Labor force participation, particularly among prime-age men, is in long-term decline with just 29% women in the industry, compared to 47% across the total US labor force



Age Distribution of U.S. Workforce by Industry (with Average Age)



Gender Distribution Across U.S. Workforce Sectors



In this environment, traditional hiring models—those focused on external pipelines—are no longer sufficient. Sourcing ready-made talent from a limited labor pool won't close today's gaps or prepare teams for tomorrow's demands.

What will? An investment in building talent from within.

Across five of the most critical roles to fill in Manufacturing, Transportation, and Logistics, recent data shows a compelling ROI: employers save an average of nearly $30,000 per role when they invest in development instead of acquisition.

When we analyze the top five roles in manufacturing where building from within is more cost-effective than buying from the market, the numbers speak for themselves:

Over a 12-month period, employers could save $2.8 billion collectively by developing these roles internally—rather than recruiting from outside.

This represents nearly 28% of the $10 billion spent on talent acquisition across the industry in the US last year.

The business case is clear, and the opportunity is immediate.

This report from Guild and Lightcast explores how intentional talent development can help manufacturers solve persistent hiring challenges while building stronger, more adaptable organizations in the process to drive real business outcomes.

Filling roles starts with growing talent

Upskilling and reskilling are more than short-term solutions. They are long-term strategies for workforce resilience that become critical levers for operational resilience and sustained growth.

Prioritizing internal pipeline development for key roles unlocks multiple advantages:

Reducing time-to-fill for high-priority roles by expanding the internal talent pool

Lowering total labor costs by avoiding inflated market wages for high-demand skills

Improving retention through clearer career paths and advancement opportunities

Preserving institutional knowledge while increasing adaptability

Enabling more diverse thinking and problem-solving across teams

Protecting against skill shortages by aligning training content with emerging production and technology needs

These aren’t just stopgaps or workforce development tactics—they’re strategic levers for growth and continuity.

While this approach may seem overwhelming for many organizations to build themselves, focusing on just a handful of the most critical roles, such as production workers, quality technicians, and operations supervisors, can provide significant leverage and make an impact.

As an employer, do you know where you stand? Ask yourself

1. Talent Pipeline Strategy

To what extent do we rely on internal talent development versus external hiring to fill critical roles, and how has that ratio changed over the last three years?

2. Internal Mobility & Upskilling

Do we have structured, measurable pathways for frontline workers to advance into technician, engineering, or supervisory roles—and are these pathways aligned with projected skill needs over the next 3–5 years?

3. Partnerships & External Training Alignment

Are we proactively partnering with educational institutions, talent development providers, and workforce boards to shape programs that deliver the skills we will need, rather than simply reacting to what the labor market offers?

4. Regional Talent Alignment

How effectively are we adapting workforce strategies to local realities—such as urban competition, rural talent shortages, or proximity to strong education systems—so that our approach reflects the conditions on the ground rather than relying on a one-size-fits-all model?

Building pays off

Examples of where growing talent in-house beats buying from the market

While major manufacturers like Amazon, Raytheon, and Boeing can outspend for top talent, mid-sized and lesser-known companies face a steeper challenge. Without strong brand pull or large recruiting teams, every unfilled role hits harder—impacting operations and efficiency.

For these employers, the build-vs-buy decision is about more than cost—it's a survival strategy. Building from within avoids bidding wars and creates sustainable pipelines.

Top 5 "Build Occupations"	**Number of Employers Competing for Top Build Occupations**	**Total Talent Acquisition Investments** (Latest 12 months)	**Total Build vs Buy Savings**	**Top Employers Competing for Occupations**
1. Tractor-Trailer Truck Driver 2. Production Worker 3. Packaging Machine Operator 4. Operations Supervisor 5. Quality Technician	18,928	10 billion	2.8 billion	1. Amazon 2. Raytheon Technologies 3. Ford 4. General Dynamics 5. Boeing

Note: Buy Cost is calculated as the annual non-salary costs of hiring one worker, including benefits, taxes, onboarding, recruitment and productivity loss (10% of salary) expenses.

Build Savings is calculated as the difference between Buy Cost and Build Cost. Build Cost reflects the total cost of upskilling or reskilling one FTE (Full-Time Equivalent), including training expenses, productivity loss during training, and promotion costs associated with developing talent internally.

Source: Lightcast data and calculations for the United States, 2024-2025

Consider this: One large employer saw hiring demand grow by more than 100% for 40% of its top manufacturing roles—and by 5x for roles like Quality Technician.

Competing for talent at that pace isn't feasible for smaller manufacturers, making internal talent development not just smart, but necessary.

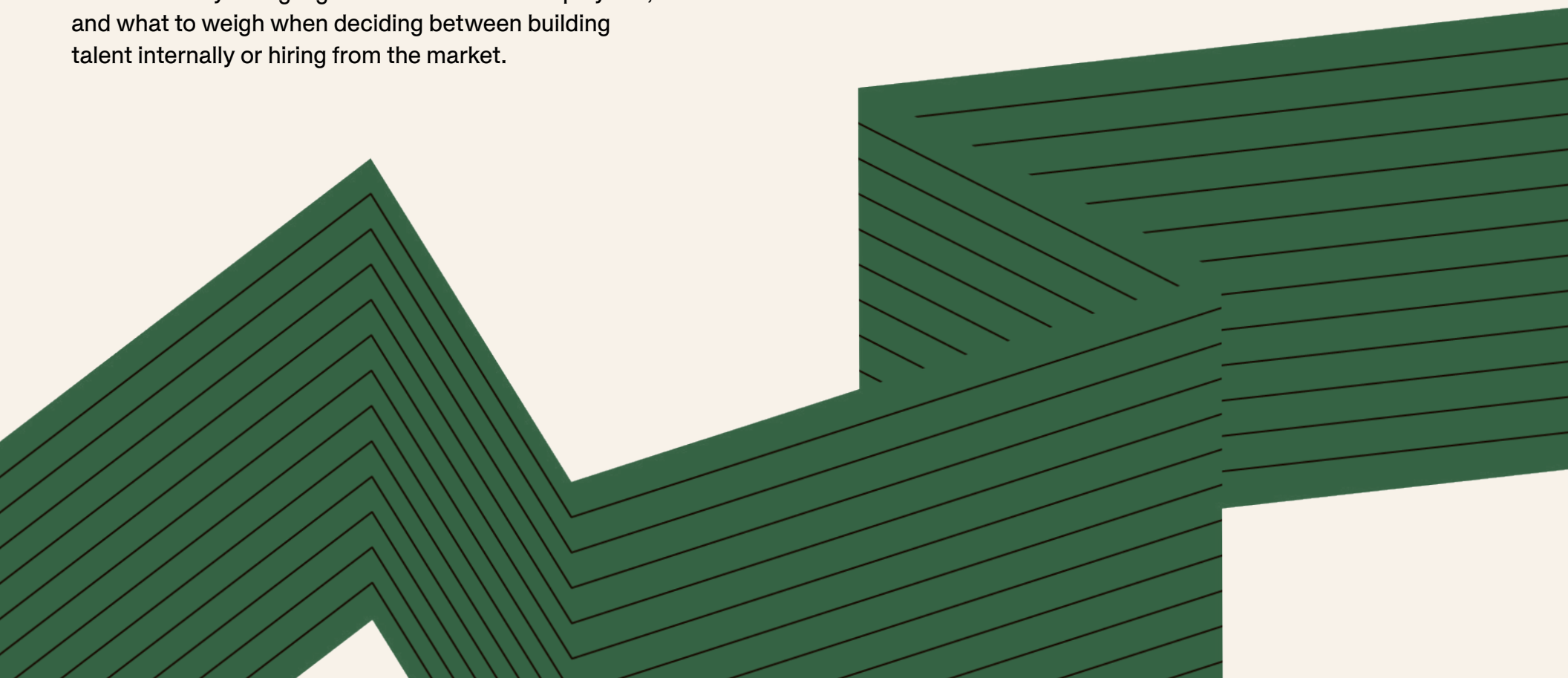
Build vs buy: What to consider

Smart workforce investments require more than budget considerations. They demand a clear view of local talent supply, wages, turnover, and training infrastructure. And while upskilling often delivers higher ROI, especially for technical roles, the best path forward depends on a mix of factors: cost, time-to-productivity, and external talent availability.

The next analysis highlights how those factors play out, and what to weigh when deciding between building talent internally or hiring from the market.

As an employer, do you know where you stand? Ask yourself ...

To what extent do we rely on internal talent development versus external hiring to fill critical roles, and how has that ratio changed over the last three years?



Manufacturing Role	Labor Market Availability (Supply Stress)	Buy Cost	Build Profit	Build Time
Tractor-Trailer Truck Driver (General)	Abundant Labor Availability Note: Current supply is high due to turnover and competitor poaching, but looming driver shortages make long-term stability uncertain	$55,219	$42,360	Quick Build
Manufacturing Production Supervisor	Abundant Labor Availability Note: Elevated turnover inflates current supply, but the pipeline of experienced supervisors is thin, creating risk for future availability	$56,951	$30,789	Quick Build
Mechanical Engineer (General)	Balanced Supply and Demand	$77,130	$34,172	Moderate Build Time
Field Operations Manager	Tight Labor Availability	$106,060	$29,250	Long Build Horizon
Warehouse / Distribution Supervisor	Abundant Labor Availability Note: Represents churn rather than long-term supply, requiring careful consideration of career pathways to keep attrition low	$51,067	$13,974	Moderate Build Time
Maintenance Manager	Balanced Supply and Demand	$88,689	$15,913	Long Build Horizon
Production Worker	Abundant Labor Availability Note: Entry-level supply remains steady, but high attrition rates demand continuous hiring and strong retention practices to ensure workforce reliability	$38,175	$22,969	Quick Build
Quality Technician	Abundant Labor Availability Note: Growing demand and evolving skill requirements are intensifying competition for experienced technicians	$38,546	$18,267	Moderate Build Time

Note: Buy Cost is calculated as the annual non-salary costs of hiring one worker, including benefits, taxes, recruitment, onboarding and productivity expenses.

Build Profit is calculated as estimated savings from building talent internally vs. hiring externally, based on cost differences per role or in total.

Source: Lightcast data and calculations for the United States, 2024-2025

It's important to note, labor availability above reflects a current supply snapshot, not a future projection. Roles that show "abundant availability" today often do so because of high turnover and poaching, which inflate supply measures in the near term. That doesn't eliminate future risk—many of these same jobs face projected shortages, making investments in training, upskilling, and retention critical both to stabilize turnover today and to build resilient pipelines for tomorrow.

Investing in internal development is only the first step. To make it stick—and truly close the talent gap—employees need to see what's possible. That's where career visibility comes into play.

Career visibility is a competitive edge

Upskilling alone is not enough. To retain skilled talent and maximize ROI, workers need to see a future for themselves inside the organization, not just in their current role.

As an employer, do you know where you stand? Ask yourself ...

Do we have structured, measurable pathways for frontline workers to advance into technician, engineering, or supervisory roles—and are these pathways aligned with projected skill needs over the next 3–5 years?

This means creating:

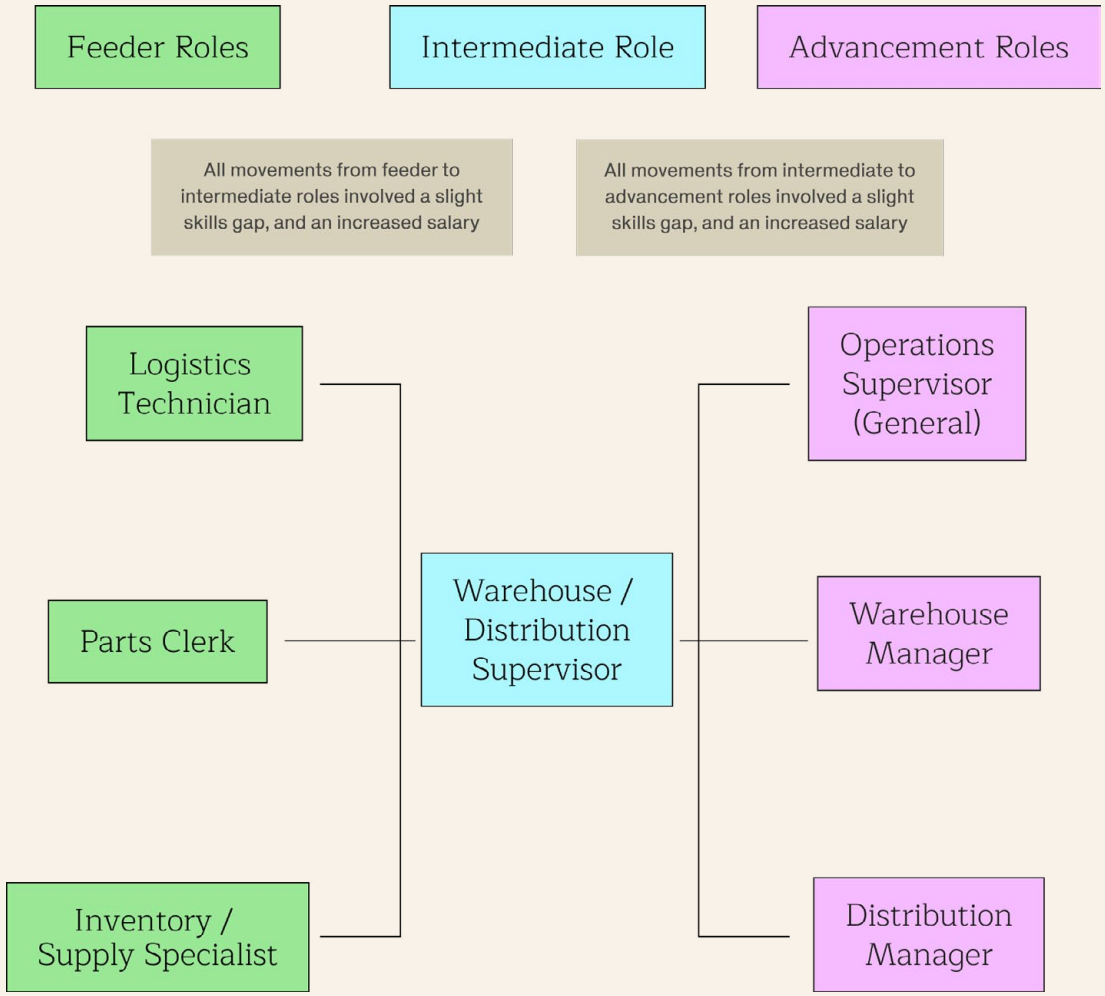
- Clearly defined career pathways with visible milestones and promotions
- Support systems like tuition assistance, mentorship, and shift flexibility
- Success stories that spotlight real employee growth
- A culture of belonging where learning and upward mobility are the norm

Recognizing and socializing these pathways can reduce turnover, improve succession planning, and fill critical roles with employees who already know the business.

For manufacturers, the challenge is not only to train, but to inspire. Workers must see manufacturing not just as a job—but as a viable, rewarding career. That's especially true for the next generation of talent.

Many younger workers still associate manufacturing with outdated images of repetitive, low-skill work. In reality, modern manufacturing is powered by automation, robotics, precision engineering, and AI-enabled systems—all things that align with the digital fluency and problem-solving mindset of Gen Z.

When younger workers see this reality, through job shadowing, plant tours, internships, and early work-based learning, perceptions shift. **And when that exposure includes clear mobility, competitive wages, and purpose-driven work, the field becomes more desirable.**



What modern manufacturing offers:

- Cutting-edge technology work: Programming robots, operating CNC machinery, using digital twins for design and testing, etc.
- Clear career progression: Defined pathways from entry-level operator to technician, engineer, or manager.
- Competitive pay and stability: Jobs that can rival or exceed earnings in other sectors without requiring a four-year degree.
- Purpose-driven work: Opportunities to build essential products, from EV batteries to medical devices, that have a tangible impact.

Closing the information gap is critical. And it starts with helping younger workers see what's really possible in modern manufacturing — not just by telling them, but by showing them.

That's why many regions and employers are investing in career awareness campaigns, school partnerships, and early work-based learning—because once younger workers see the opportunity, they're more likely to pursue it.

In fact, over half of learners in manufacturing, transportation, and logistics programs across employer sponsored education programs through Guild are ages 20–34, a proportion nearly double the industry average of 29% for that age group (BLS). This signals strong interest from younger workers when they have access to relevant, flexible, and career-aligned learning.

Career visibility helps employees see what's possible. But to turn potential into progress, they need more than a path—they need the skills to walk it. That's where the demands of next-generation manufacturing come into focus.

Next-gen manufacturing demands next-gen skills

Advanced manufacturing has entered a new era: one defined by automation, AI, and data-driven systems. Where once mechanical aptitude was enough, today's factory roles require software fluency, systems thinking, and the ability to work with code, sensors, and predictive tools. Diagnosing issues now might mean troubleshooting a machine learning algorithm or interpreting outputs from a computer vision system, not just grabbing a single, physical tool.

As an employer, do you know where you stand? Ask yourself ...

Are we actively partnering with educational institutions, training providers, and workforce boards to shape programs that deliver the skills we will need, rather than simply reacting to what the labor market offers?

As production equipment becomes more efficient and more expensive to idle, the cost of downtime rises—along with the need for highly skilled workers who can prevent it. But these skills are increasingly difficult to hire for, and harder to find on the open market.

And when you do find them, they come at a premium. Job postings that mention at least one AI skill advertise salaries 28% higher, or roughly $18,000 more per year, than postings that don't. The cost of hiring tech-savvy or AI-ready talent is climbing fast, making the case for internal skilling not just strategic, but financial.

The skill profiles of these roles are also changing fast. In just the past 12 months, **Manufacturing Machine Operators have seen a 22% increase in the specialized skills required. And for warehouse and distribution specialists, that shift is 37%.** With change happening this quickly, relying on external hiring alone is no longer sustainable.

The work itself is changing, too.

Modern factories are no longer just industrial; they're intelligent. The rise of Industry 4.0 is transforming operations into integrated ecosystems powered by automation, AI, robotics, and additive manufacturing. That shift brings new talent demands:

Reshoring and regionalization are bringing production to U.S. soil, especially in semiconductors, EVs, and clean energy.

Workforce transformation is shifting the focus from manual roles to those requiring digital literacy, with skills like systems integration and problem-solving now essential.

Sustainability goals and clean tech are driving investment in green processes, renewable energy integration, and circular economy models.

Customization and agility are powered by flexible production lines, faster prototyping, real-time quality control, and product customization at scale.

In short, new manufacturing requires new capabilities. And staying competitive means building those capabilities from the inside out.

Examples of innovative learning that drives upskilling and reskilling

Engineering Unbundled Degree: Purdue University

Instead of committing to a full master's program, learners can access focused, skills-based coursework in areas like smart factory systems, systems control, and mechatronics—all in a fraction of the time. This modular format offers a faster track for career advancement and helps employers fill critical roles sooner.

PURDUE UNIVERSITY

Technician Programming: Indiana Tech

Indiana Tech is reimagining technician training with immersive simulations, hands-on lab kits, and case-based projects designed around real-world manufacturing challenges. Programs like these are built for immediate relevance in high-growth areas such as battery systems and additive manufacturing—not just degree completion.

INDIANA TECH

Regional realities require local talent solutions

When it comes to workforce strategy, geography matters. Labor availability, education infrastructure, cost of living, and industry maturity can vary widely from one region to the next—and so must employers' approach to talent.

In tight urban markets, external hiring is expensive and competitive, making internal development a more sustainable strategy. In rural or economically distressed areas, limited access to experienced talent makes growing your own workforce a necessity. And in regions with strong technical institutions, the opportunity lies in shaping—and scaling—local talent pipelines through education partnerships.

Across all regions, one trend is clear: while degrees remain a valuable part of the learning landscape, traditional pathways are not always the fastest or most flexible option for today's workforce. That's where innovative approaches—that meet working adult learners where they are through sharper and shorter paths to in-demand skills—are gaining ground.

These next generation programs are:

- Career-aligned and modular, allowing learners to build skills over time
- Stackable and credit-bearing, with clear ties to advancement
- Designed for real-world impact, not just classroom theory

Traditional industrial hubs in the Midwest and Southeast are still grappling with the effects of offshoring, automation, and aging workforces—despite strong infrastructure. Meanwhile, innovation-driven regions like California, Massachusetts, and North Carolina benefit from access to digitally fluent talent and proximity to research institutions, but face high costs and rising competition.

There's no one-size-fits-all strategy. But the common thread is clear: regions that embrace modern learning models—and align them to local talent needs—will be best positioned to build from within.

As an employer, do you know where you stand? Ask yourself ...

How effectively are we adapting workforce strategies to local realities—such as urban competition, rural talent shortages, or proximity to strong education systems—so that our approach reflects the conditions on the ground rather than relying on a one-size-fits-all model?

Dallas–Fort Worth Metro (Texas)

Labor Force Needs:

High demand for workers in aerospace, electronics, food processing, and metal fabrication.

Rapid growth in advanced manufacturing tied to nearshoring and logistics infrastructure.

Challenges:

Labor supply is tight—unemployment is low, and other sectors (e.g., construction, tech) compete for similar workers.

Skilled trades shortages, particularly in maintenance, machining, and automation tech.

Limited penetration of apprenticeship models or industry-aligned training programs.

Population growth helps, but many new entrants lack manufacturing experience or credentials.

Workforce Strategy Implications:

Prioritize short-term credentialing and internal upskilling.

Expand partnerships with local community colleges and tech training providers.

Address retention through career pathway visibility and wage competitiveness.

Company Profile: General Motors

GM's manufacturing footprint in DFW is centered on Arlington Assembly, which is the company's SUV powerhouse and one of its most strategically important plants worldwide. GM as a company is hiring at a pace above average for major manufacturers, and that aggressive pace means that building the talent they need is critical in order to grow their workforce in a competitive labor market.

Detroit Metro (Michigan)

Labor Force Needs:

Significant demand for EV-related skills, including battery systems, high-voltage electronics, software integration, and advanced machining.

Continued need for traditional skilled trades as legacy systems are phased out gradually.

Challenges:

Aging workforce—large share of workers over 55.

Higher unemployment than the national average, but skills mismatch is persistent.

Pressure to reskill tens of thousands of engineers and technicians as the auto industry electrifies.

Strong union presence shapes labor availability and training dynamics.

Workforce Strategy Implications:

Major focus on EV transition training programs, especially for incumbent workers.

Reskilling and cross-functional engineering education are critical.

Deep partnerships with automakers, suppliers, and local training institutions are key.

Company Profile: Ford

Detroit remains Ford's core hub for manufacturing and engineering, with major facilities supporting both traditional combustion vehicles and the company's growing EV portfolio. Operations Managers are pivotal to both. By developing this talent internally, Ford stands to not only capture a per-role build savings of about $60,000–totaling a potential ROI of $16.6M across recent postings–but also strengthen its leadership pipeline and accelerate its EV transformation.

Carolinas (NC + SC Metros: Charlotte, Raleigh, Greensboro, Greenville, Spartanburg, Charleston)

Labor Force Needs:

High concentration of automotive, aerospace, chemicals, and advanced materials manufacturing.

Growing demand in EV battery plants, clean energy, and logistics-linked production.

Challenges:

Severe skilled labor shortages due to rapid industrial growth.

Manufacturing density is among the highest in the U.S., but pipelines haven't kept up.

Rural-urban divide: talent often clustered in metros while plants are distributed more broadly.

Workforce Strategy Implications:

Expand registered apprenticeships, dual-enrollment CTE programs, and veteran workforce engagement.

Continue strong use of public-private partnerships to align training with employer needs.

Support mobility and transportation access to help workers reach job sites.

sanofi

Company Profile: Sanofi

Sanofi has a large biologics manufacturing site in Sanford, NC; this facility is a major hub for vaccine production and biotechnology and is one of Sanofi's largest U.S. manufacturing operations. Sanofi is poised to gain significantly by building talent in critical roles such as Packaging Machine Operator, where building instead of buying could yield a Build ROI Profit of roughly $28,000 per role.

Public policy shifts raise the stakes for talent strategy

While regional differences shape day-to-day workforce realities, policy shifts are redefining the broader environment manufacturers must navigate. Trade, labor, and education reforms are changing the rules and raising the bar for talent strategy.

Why it matters:

- Trade policy volatility (tariffs, export controls, reshoring incentives) continues to alter production economics and workforce needs
- Labor regulations around safety, scheduling, and overtime are increasing compliance demands
- Federal education policy is expanding access to short-term skilling—especially through the expansion of Pell Grants to include high-quality, non-degree programs

These forces introduce complexity, but also opportunity. For example, new Pell Grant rules open doors for adult learners and career switchers to pursue manufacturing-aligned credentials. But funding alone isn't enough: employers must engage with education partners to ensure those programs actually reflect industry needs.

Meanwhile, global peers are acting fast. The UK's Modern Industrial Strategy, for instance, has focused on regional skills development and sector-specific training partnerships—a model designed to align workforce readiness with long-term industrial competitiveness. U.S. manufacturers must respond with similar urgency and coordination.

What forward-looking companies are doing:

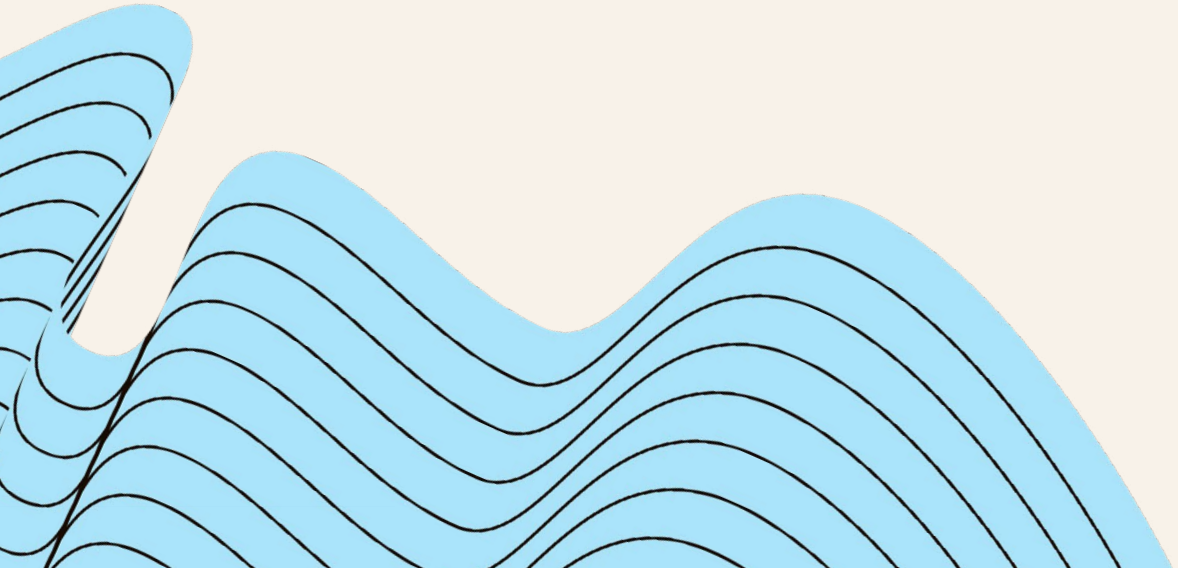
Building modular, stackable pathways that evolve with policy and skill demand

Investing in cross-functional training to create more agile, adaptable teams

Co-designing public-private partnerships to align with emerging funding streams and regulatory priorities

Exploring innovative skilling solutions for hands-on learning that fill local staffing shortages in licensed roles

In a fast-changing policy environment, the most resilient manufacturers will be those that treat talent strategy as an evolving infrastructure.



The long-term payoff of building talent from within

In today's manufacturing landscape, internal talent development isn't a nice-to-have—it's a business imperative. The companies that prioritize growing talent from within will be the ones best equipped to navigate disruption, close skills gaps, and compete for the long term.

That takes more than one-off programs. It means embedding development into business strategy, expanding access to opportunity, and evolving alongside the technologies that shape the work.

The labor market will keep shifting. Technologies will keep evolving.

The manufacturers who thrive will be the ones building teams ready to move with it.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