Training Methods and their Impact on Workforce Performance in Manufacturing
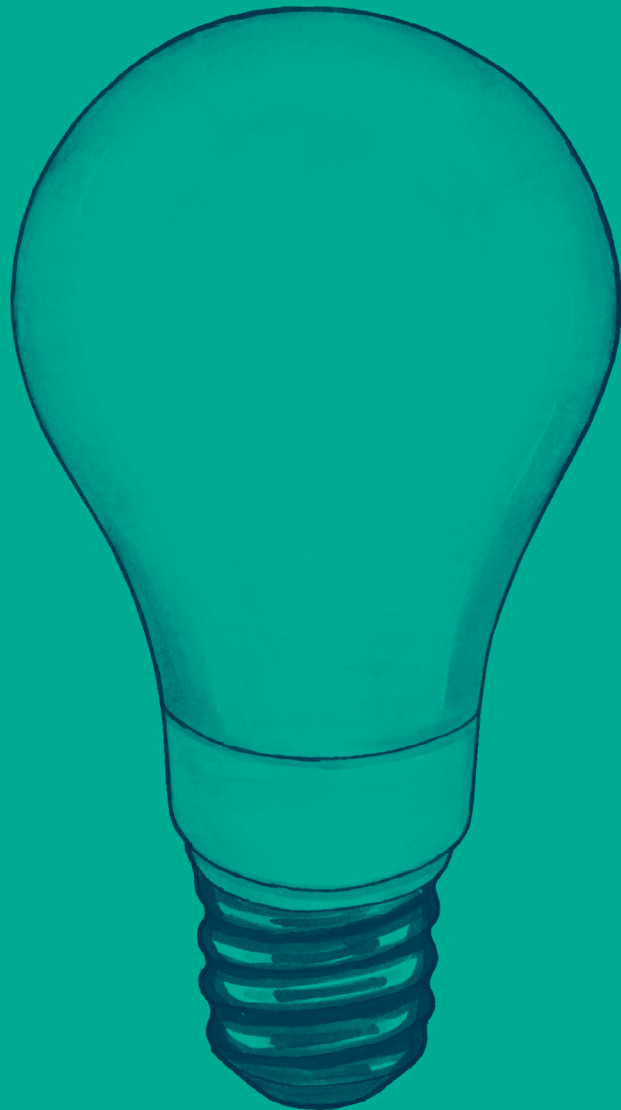
Results from the 2024 Survey of Frontline Employee Training Programs

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Purpose, Methodology, and Tips for Reading

Purpose of this Research

Companies universally understand "you are only as good as your people," a mantra that finds its way in most corporate manifestos in some form. It makes sense, as most work is (still) done by people. This is especially true in manufacturing, where frontline workers perform tasks that are interconnected with the tasks of other workers in the facility.

Given the intrinsic tie between employee performance and company success, it is no wonder there is a wide field of study dedicated to maximizing worker performance. However, there is a bias, or gap, in this field of study, as it is nearly universally focused on white collar professionals. There is very little research focused explicitly on what it takes to motivate and engage frontline manufacturing workers to perform up to their highest potential.

That is the purpose of this research: to provide the much-needed, data-driven insights into how manufacturing organizations can keep their workforce engaged and motivated to perform their best.

Methodology

The "Survey of Frontline Employee Training Programs" was conducted in early 2024. Invitations to take the survey were delivered via email to over ten thousand professionals with some connection to the training program in their facility. 1,028 individuals completed the survey.

The survey included 57 questions related to the nature of training and workforce development programs within manufacturing facilities. An additional eight questions provide demographic details about the survey participants' companies; see Appendix for this demographic detail.

The data and data analysis from this survey are by far the most comprehensive research into training and development programs within the manufacturing industry. In addition to tabulating results for each survey question, we have sliced the data countless ways to illuminate which characteristics have the biggest impact (positive or negative) on employee performance.

Tips for Reading

Attribution: This report frequently cites data as "X% of companies _____." Technically the survey responses are not responses from companies. The data represents answers from individual survey respondents, which may differ from what an official company representative may report for an official record. (Among the many reasons the survey responses are anonymous.) Perhaps this could most accurately be stated as "X% of individuals who are responsible, or at least somewhat responsible, for training at their company believe that their company _____." But for sake of simplicity, this report often distills that attribution to "X% of companies _____."

Percentages of percentages: Throughout this report are findings to the effect of "X% improvement" by doing something versus not doing something. This percentage is measuring the delta between two percentages. Thus, an improvement from 30% to 50%, while an increase of 20 percentage points, the increase from 30 to 50 will be represented as a 66.7% increase.

Multiple formats: There is a lot of data to dissect. For this reason, some of the more impactful data points are presented more than once. In particular, the section "Overcoming Challenges to Yield Better Outcomes" presents findings in narrative format, responding to the preceding "Benchmark Metrics" and "Biggest Challenges" sections. The volume of data can be overwhelming, so many of the lessons learned in the "Overcoming Challenges" section are recapped in the "Summary of Best Practices to Implement Now" section. While we suggest reading the entire report for more context and greater understanding, a reader short on time could glean a majority of takeaways in this "Summary of Best Practices" section.

Introduction: How to Spot Success
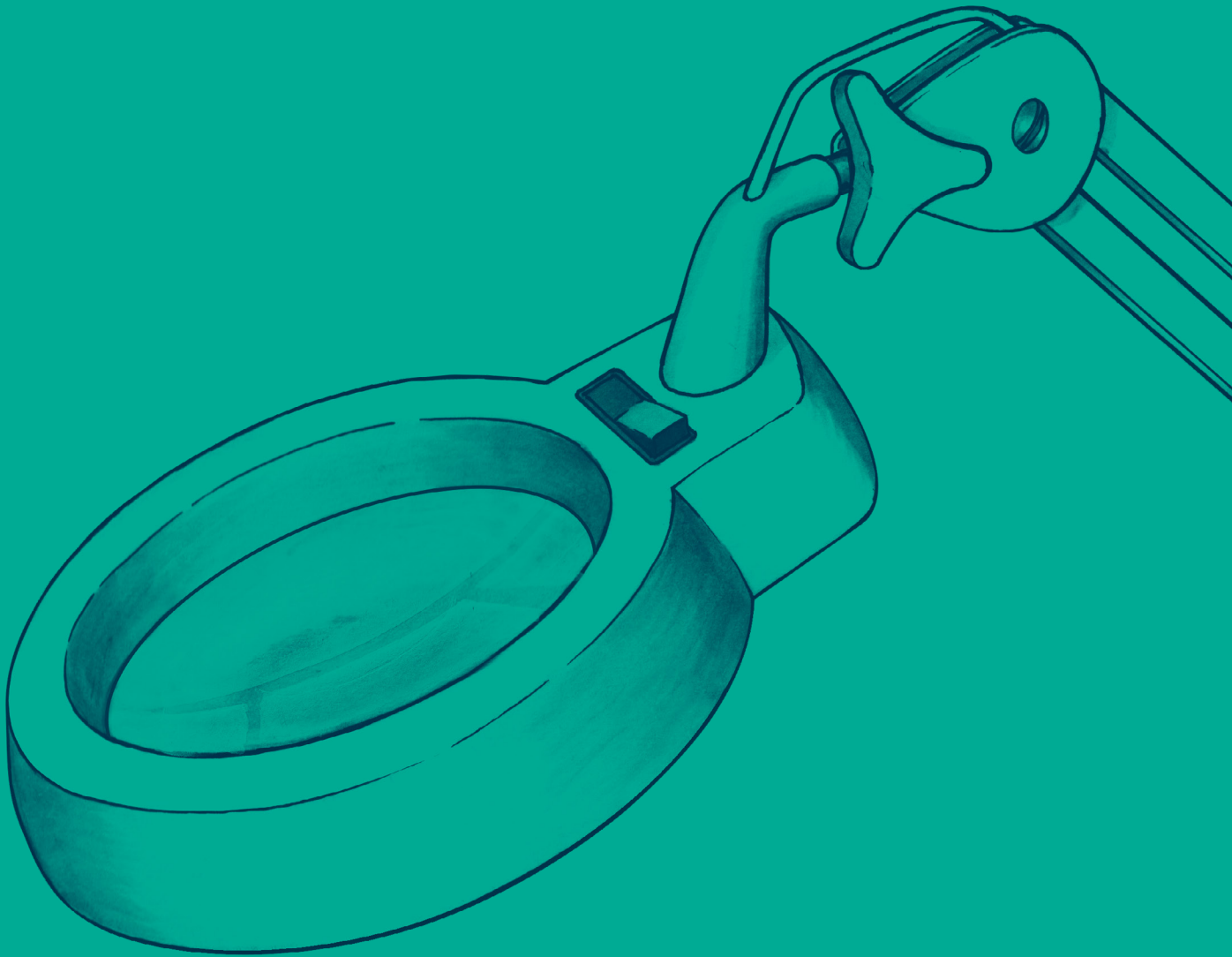
Employee performance in manufacturing can be measured in many ways: yield, efficiency, safety metrics, quality defects, and so on. There are two fundamental necessities for an organization to find themselves on the positive side of these metrics:

1. Their employees need to have the knowledge and ability to perform the tasks they are assigned.

2. Their employees must remain engaged and motivated to perform well, which is the catalyst to applying their knowledge on the plant floor consistently.

This is simplifying things, but that, nonetheless, is the crux of the matter. Proper training and education should satisfy part one. Part two — engagement and motivation — comes from a mix of continuous learning, compensation, growth opportunities, and efforts to improve the work environment.

This study asked facility-level manufacturing leaders 57 questions regarding the state of their training and engagement programs as well as the workplace experience for their frontline employees. Compensation, while a factor in motivation, is not part of this research. The results illuminate clear practices that lead to more successful outcomes. But first, what does success even look like?

Keeping things simple (for the time being), there are some rather straightforward ways to measure if a training program is succeeding.

1. Are employees doing the work correctly?

2. Can employees pre-emptively spot *and* stop potential risks to quality, production, safety?

3. Can an employee teach someone how to do their tasks correctly, according to company policy?

The first two points are obvious for their measure of successful training, the third perhaps not as obvious. It is included for two reasons that we will soon learn in this research. First, supervisor-to-employee coaching and employee-to-employee instruction are among the most common forms of training in manufacturing, present in 73% and 61% of facilities respectively. Given that employees training employees is near universal, its accuracy and effectiveness cannot be in doubt. The second reason, employee preference to do things "the old way" is the most commonly cited reason employees do not apply protocols on the floor. And how else could a worker learn "the old way" but from another, more tenured employee?

Now that we have established what success looks like, let's follow the data to learn how to attain that success. This study will first report the baseline metrics and biggest challenges to establish a flag in the sand, enabling you to benchmark your efforts to those of your peers. We will then outline what can be done to improve performance in your facility, based on hundreds of computations slicing the data to isolate the factors and best practices that lead to success.

That's enough preamble, let's dive in.

Benchmark Metrics: Assessing Common Characteristics of Manufacturing Training Programs
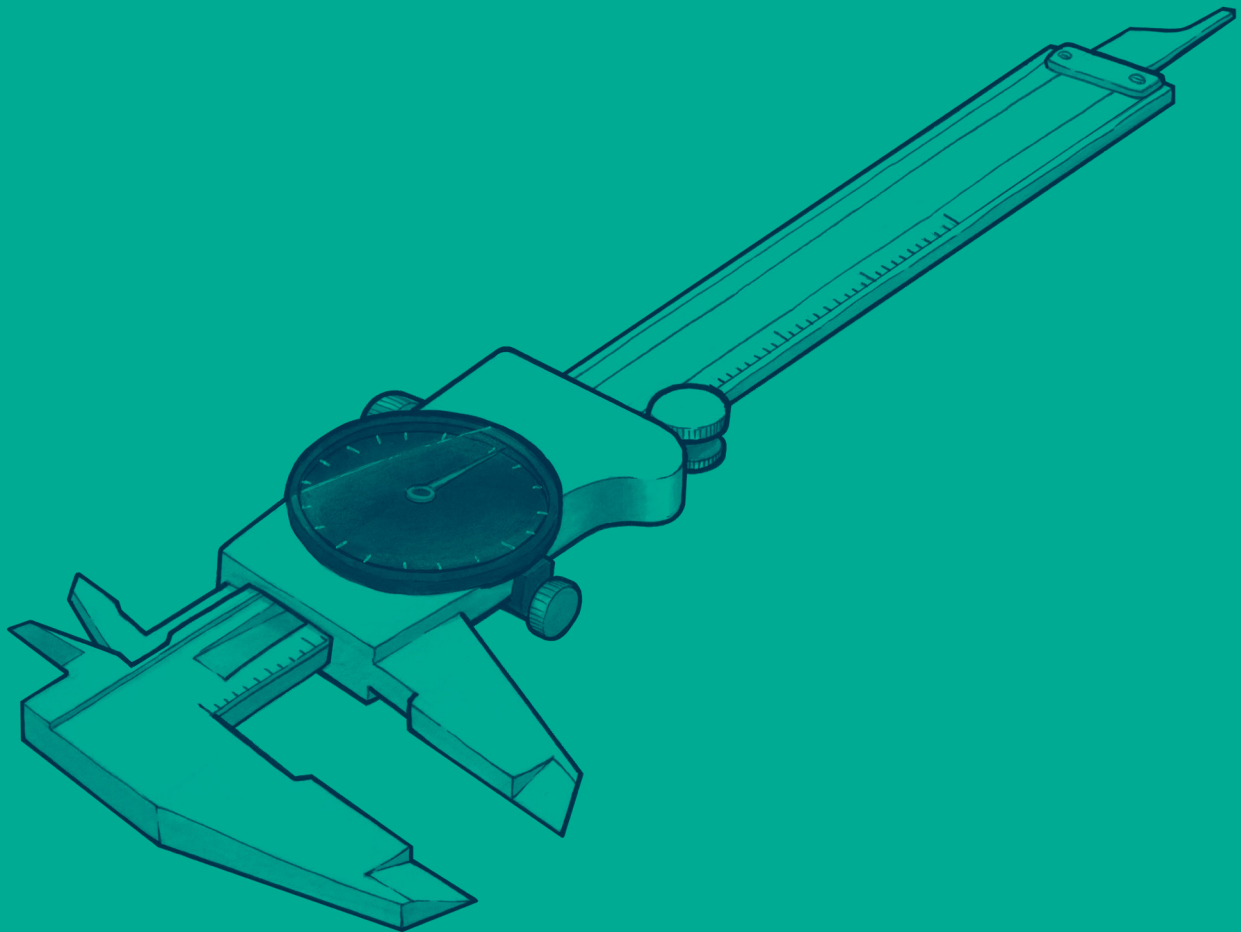
The purpose of this research is to help manufacturing organizations understand what can be done to improve workforce performance. But first, let's look at the who, what, when, where, and how of employee training programs. This section, in large part, sets the stage for the data analysis to come. But you can also use this section to benchmark where your organization lies on the spectrum of training maturity.

What types of training are provided, to whom, and how?

Training cannot be a one-and-done exercise. And most manufacturing organizations not only recognize this, but put it into practice. Figure 1 shows what types of training are provided to each segment of worker in a facility. A large majority, 83% of companies, provide refresher training to their frontline workers. Though only 39% of frontline workers receive professional development training. This can be problematic, since quite often when a new supervisor is needed, they are pulled from the rank and file of frontline workers, thrust into a position of leadership without leadership training.

Figure 1

Types of Training Delivered to Each Employee Level

- Temporary/Seasonal
- Frontline Employees
- Supervisors
- Managers
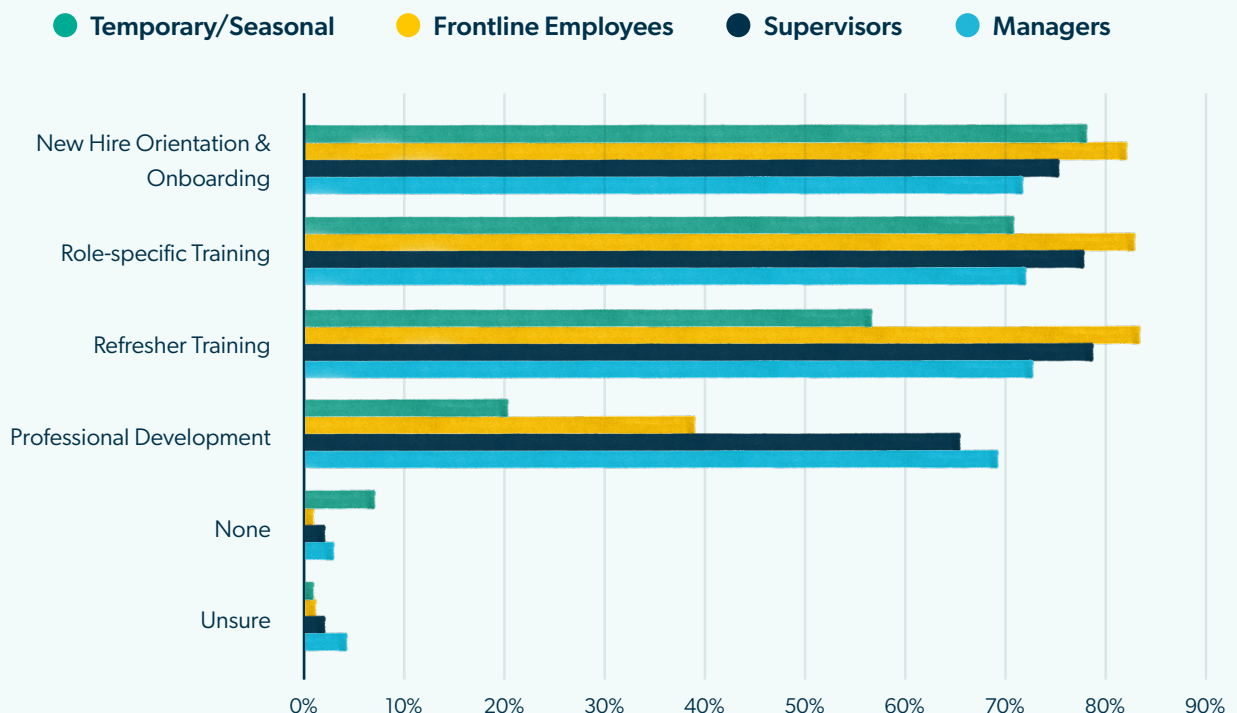
How much training is provided (Figures 2 and 3) varies more than the types of training provided. It is not surprising that temporary/seasonal workers receive the least amount of training. Yet, even a third (34%) of full-time frontline workers receive less than seven hours of new hire training/onboarding. More troublesome is 40% of frontline workers receiving only ten hours or less of additional training throughout the year — that is less than an hour per month. Only 30% of frontline workers receive more than 20 hours of additional training per year (combining the top two tiers), which we will soon learn is a benchmark that training leaders should be aiming for.

Figure 2

Hours of New Hire/Onboarding Training Provided
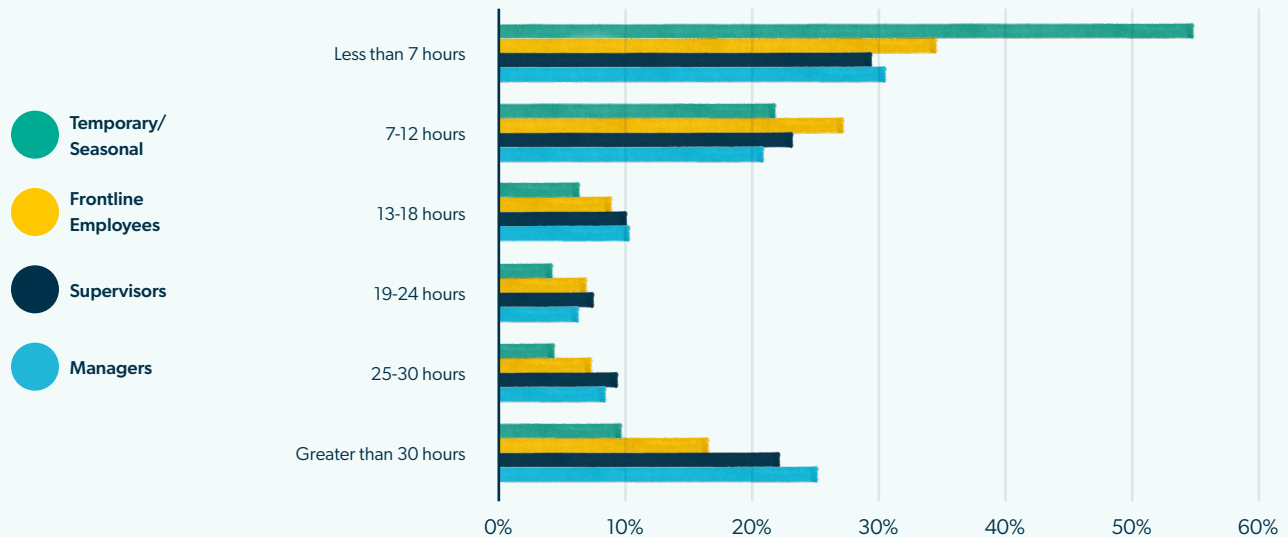
Figure 3

Additional Training Hours Provided Annually (beyond New Hire/Onboarding)
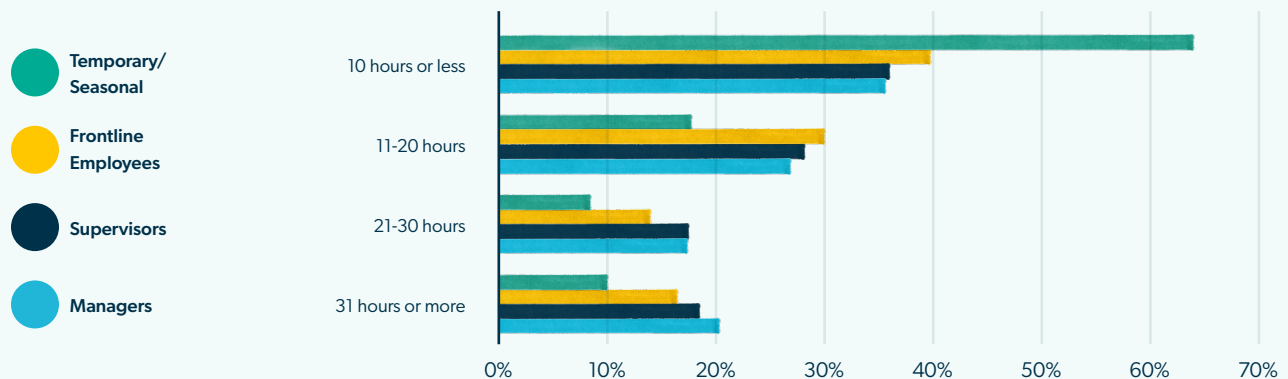
How training is delivered is of particular interest. Much of it happens on the floor, with supervisor coaching and peer-to-peer training occurring in most facilities, 73% and 61% respectively (Figure 4). Regrettably, this instruction is often incorrect as we will soon learn. Thankfully, we will also learn the methods to ensure its accuracy.

Some may find it surprising that less than half of manufacturers are utilizing eLearning to deliver training (47%) to frontline workers, a rather standard form of training in most other industries. But this hints to the unique environmental challenges of training in manufacturing facilities, where employees often do not have company emails, WiFi can be spotty, and computer labs are a luxury. Group training with "clickers" is used by a respectable 46% of manufacturers. Though, since it is among the few methods to provide real-time assessment and digital documentation of learner comprehension, it would be good to see that number rise in future surveys.

Figure 4

How Training is Delivered to Frontline Employees

Method	Percent
On-the-Job Supervisor Coaching	73%
Read to Learn (SOPs, policies, etc.)	67%
Peer to Peer	61%
Instructor-led Training (ILT)	58%
eLearning Courses	47%
Group-based Training with Clickers/Remotes	46%
Virtual Instructor-led Training (VLT)	22%
Other	2%

Percent of companies using this method of training
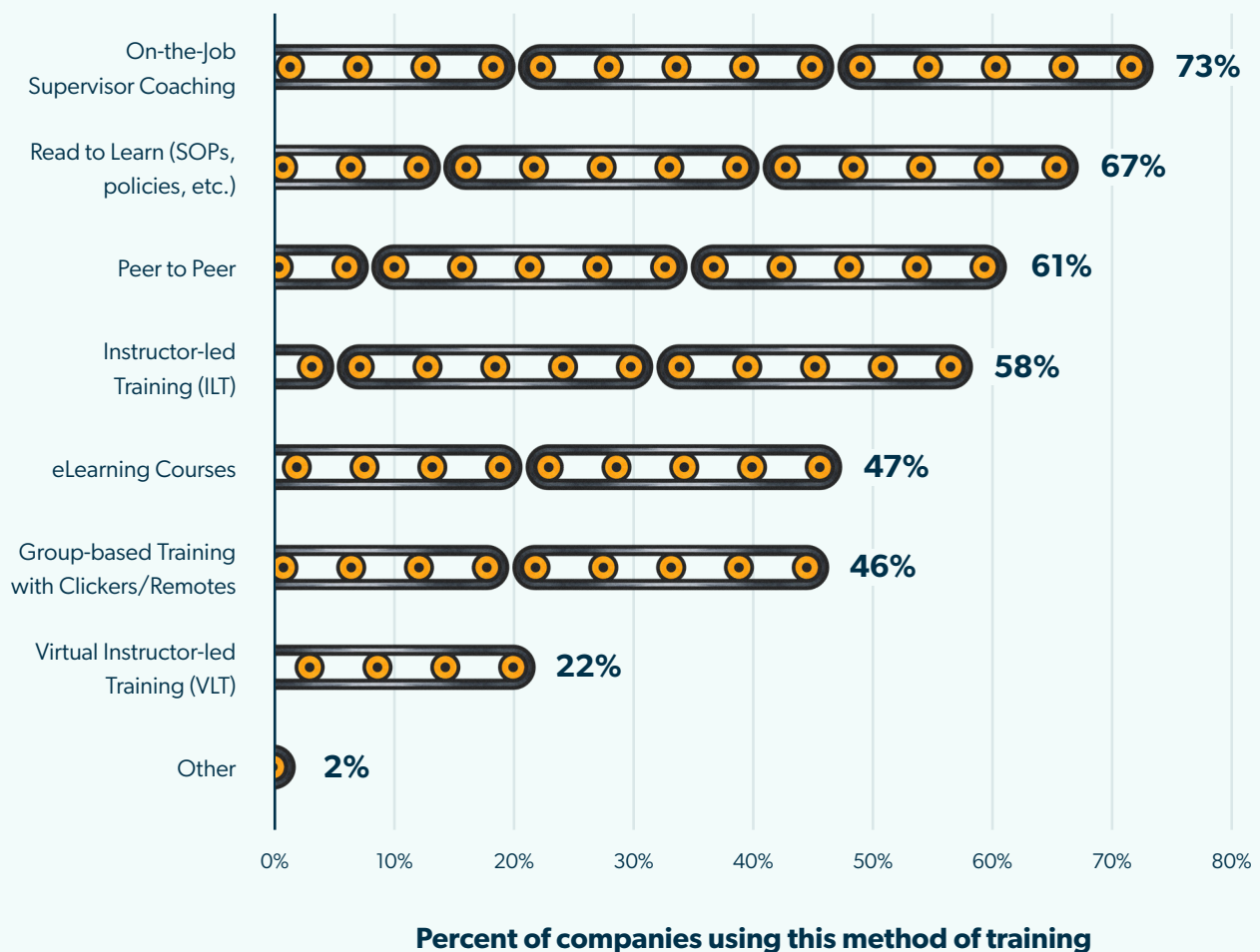
Acknowledging again that training must go beyond one-and-done, is a look at methods employed to reinforce the training that has been provided (Figure 5). Team meetings are the most common opportunity for training reinforcement at 77%. A positive trend is the 67% of companies that utilize coaching from team leaders on the floor. This provides an opportunity for focused, individual attention given to a frontline worker — a characteristic we will learn leads to positive outcomes. Additionally, 65% of companies utilize visuals in the workplace (posters, breakroom monitors, etc.), which are more passive, but their always-on presence and affordability make them attractive.

It is worth noting that just 28% of companies use all five of the reinforcement methods measured. Though we will soon learn that the quality of the training reinforcement you provide is almost more important than the method.

Figure 5

Methods Used to Reinforce Training

28% of companies use all five of these methods

Team meetings	Coaching from team leaders on the floor	Posters, breakroom monitors, etc.	Company emails, newsletters, etc.	Bulletin boards	None or nothing formal	Other
77%	67%	65%	61%	54%	6%	5%
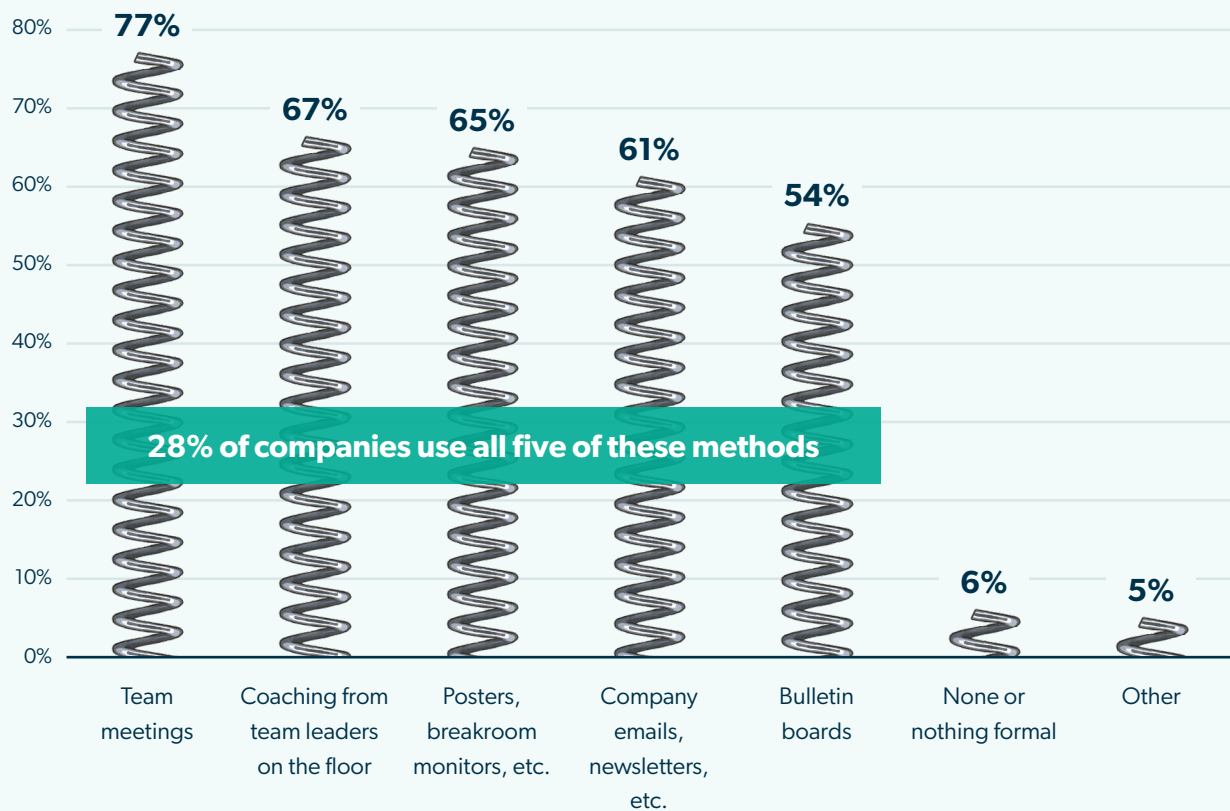
Training Management and Documentation: Room for Improvement

If an employee received training, but it is not documented…did it even happen? As far as regulatory, legal, and certification bodies are concerned, the answer is no. Going beyond legal and audit necessities, adequate documentation and reporting are essential for any endeavor to succeed. The ability to easily access accurate data on training activity, comprehension, and non-compliances is essential to apply continuous improvement. Unfortunately, two-thirds of manufacturing companies are making it harder on themselves.

When asked "how do you primarily document and manage employee training records," 33% report using pen and paper as their primary method, 32% rely on spreadsheets, and only 33% are using a learning management system (LMS) specifically built for the purpose of training management (Figure 6). The LMS industry has been around for decades, with hundreds of platform providers. It is somewhat shocking that so few manufacturing organizations utilize basic technology to aid their training efforts. It could be the case that many of these organizations do have an LMS in place, but do not utilize it as much as they should be, or some of the multi-function HR systems in place are too unwieldy for the specific needs of training administrators.

Figure 6

"How do you primarily document and manage employee training records?"

- Paper-based documentation
- Excel Spreadsheet
- Learning Management System (LMS)
- Other

2%

33%

33%

32%
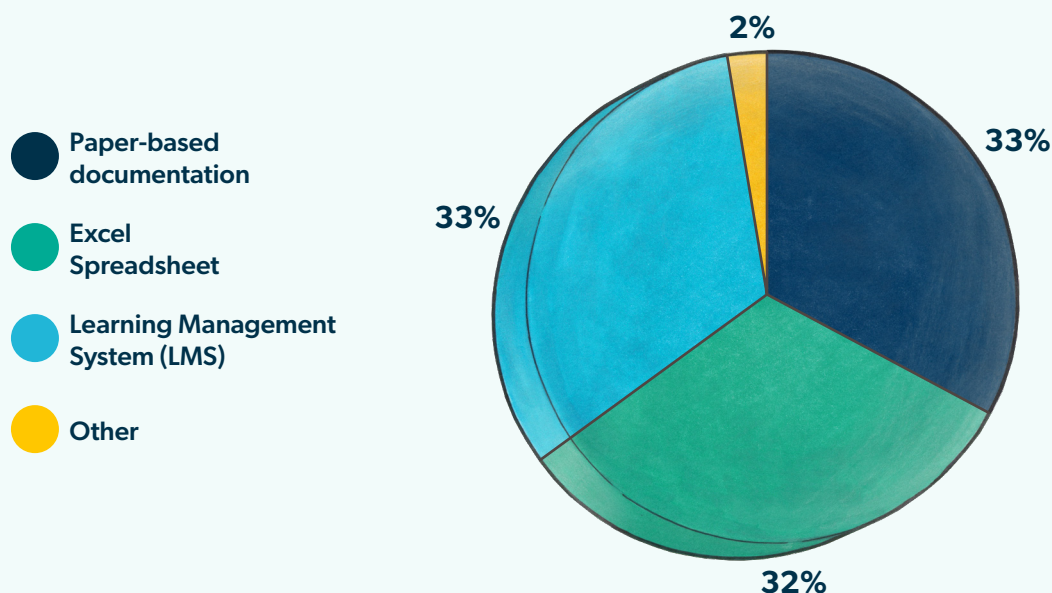
The survey also asked organizations how many staff members they employ whose job is dedicated specifically to delivering employee training and documenting employee training. The expectation would be that the larger the company, the more staff members they have dedicated to these tasks. While this proves true for the most part, what is alarming is the significant number of companies with zero staff members dedicated exclusively to training (Figure 7).

Even among the largest companies (over 1,000 employees) nearly 20% have zero staff members dedicated to training delivery or training documentation. Barely half of these largest companies have more than two staff members dedicated to the tasks, which hardly seems manageable for a company of 1,000 employees.

Figure 7

Staff Dedicated to Delivering Training

Staff Dedicated to Documenting Training

# of Staff Dedicated Specifically to Delivering Employee Training

# of Staff Dedicated Specifically to Documenting Employee Training

● Under 100 FTE   ● 101-500 FTE   ● 501-1,000 FTE   ● Over 1,000 FTE
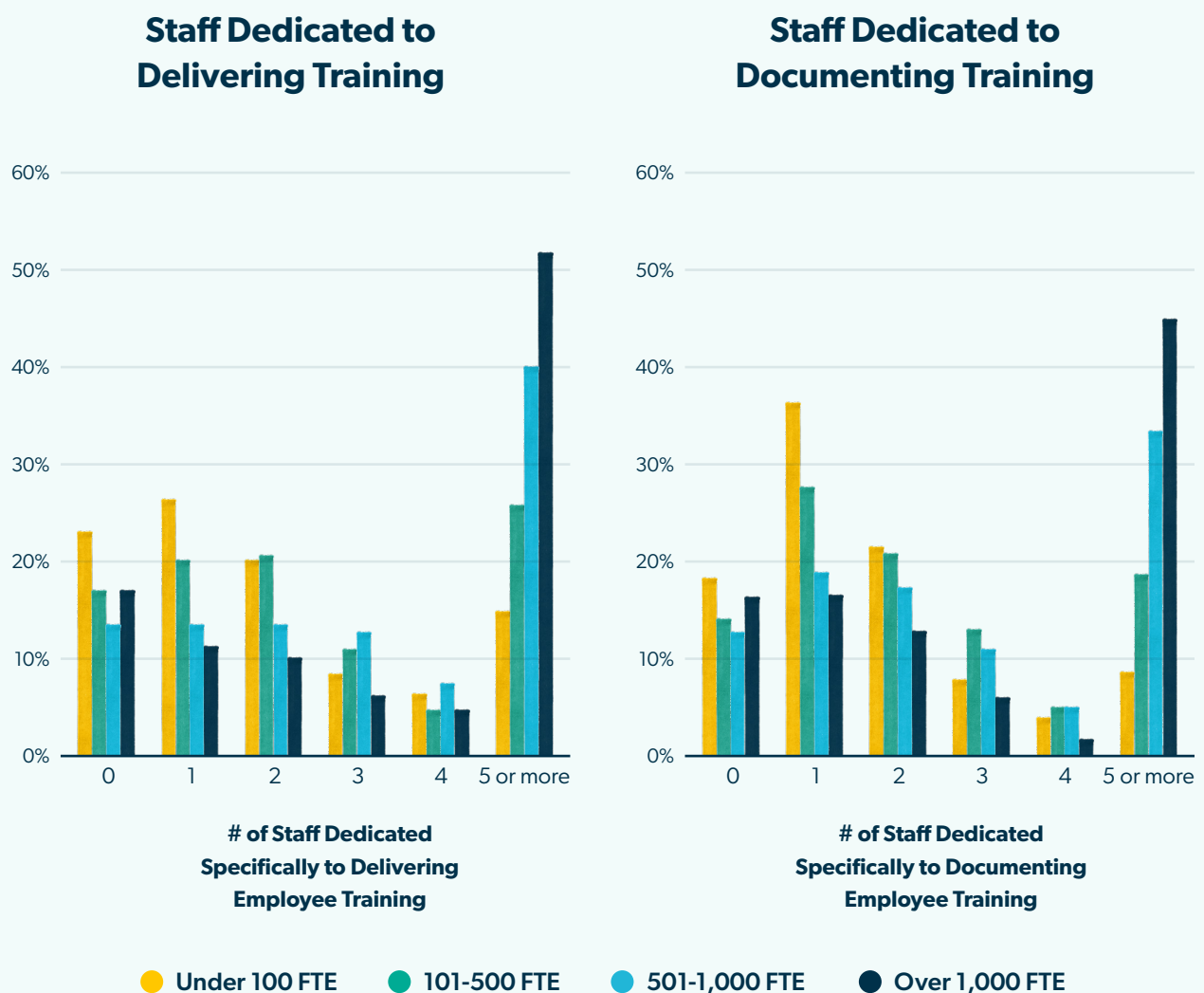
On a more positive note, 68% of companies say their learning management/training team includes cross-functional team members (Figure 8), an important factor to ensure a training program meets the needs of the entire organization. If your company is among the 38% for whom this is not true, you'll want to pay extra attention in the "Best Practices" section, as this practice alone can have some of the biggest impact on your program success.

Figure 8

Learning Management/Training Team Includes Cross-functional Team Members

● Yes   ● No   ● Unsure

10%

22%

68%
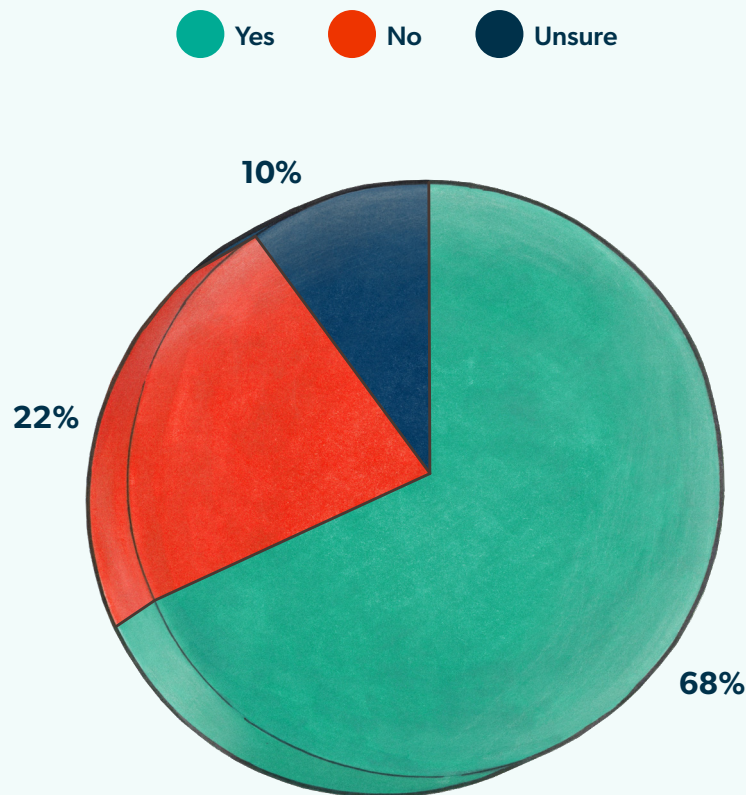
Let's shift gears from who is documenting and how, to *what* is being documented. In particular, how are organizations measuring that the training they provide is understood by the trainees?

Figure 9 starts with "record of attendance," which is used by 54% of companies to measure training comprehension. This might be a bit of a trick question, as likely closer to 100% of companies measure training attendance, but attending alone gives no indication of comprehension. So, it's a good thing half of companies do not count this as a proper measure of understanding. Also, a good thing is 77% of companies use knowledge checks during the training session, as this certainly should be considered a table stake of any training course provided.

A more advanced measure of training comprehension is the use of an on-the-job assessment of correct application. It is one thing to answer a question correctly just after seeing the information, it is another thing to later apply it correctly on the floor. The 58% of companies employing this measure are doing themselves a big favor, as we will learn in the "Overcoming Challenges" section.

Figure 9

Methods Used to Measure Training Comprehension
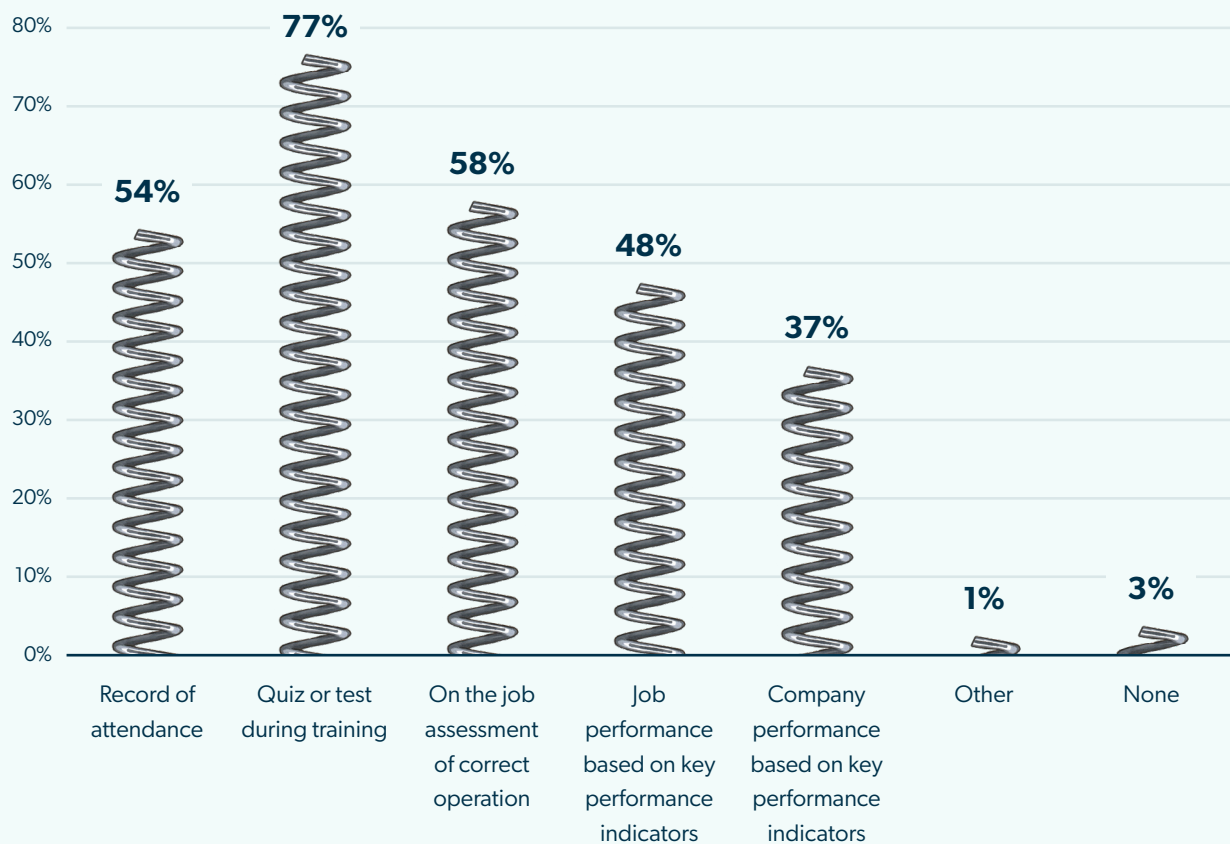
The Biggest Challenges to Training Manufacturing Employees

Industry Challenges: Strong Headwinds from the Start

If training manufacturing employees and keeping them motivated was easy, this research would not be necessary. To understand how to overcome the challenges we face, let's first identify the challenges.

The survey included a dozen commonly reported challenges by training leaders in manufacturing, and asked these leaders to choose only their top three biggest challenges, ranked in order. Figure 10 shows the cumulative results, when all three selections are combined.

"Scheduling time for training" is far and away the leading challenge, identified by 52% of companies as among their top three. "Resources/staff to manage training delivery and documentation" comes in second at 35% of companies — which aligns with what we learned earlier about the lack of dedicated staff for training. Many organizations simply pile these important tasks on the plates of staff with other responsibilities as well.

"Assessing training effectiveness" rounds out the top three challenges, with 33% of companies including it. While not sitting in the top three, "making training engaging" is only one percentage point from earning that (dis)honor with 32% of companies including it as a top challenge. Given the already taxing workloads of training admins, this suggests an opportunity to utilize third-party training content developed by organizations whose entire purpose is to make engaging training material — as long as the courses are customizable to insert site-specific images, which the data will show to be very important.

Figure 10

Biggest Training Challenges: Top 3 Combined

Challenge	Percentage
Scheduling time for training	52%
Resources/staff to manage training delivery & documentation	35%
Assessing training effectiveness	33%
Making training engaging	32%
Leadership support	25%
Providing job-specific training	23%
Offering training in multiple languages	23%
Keeping training content up to date	21%
Creating training content	18%
Lack of adequate budget	15%
Documenting training	10%
Providing refresher training	10%
Other	3%

When isolating the responses to solely what was selected as the #1 challenge (Figure 11), we see a similar pattern, with a few notable exceptions. "Scheduling time for training" is still far ahead as the most challenging. But we find "leadership support" jumping up two spots to enter the top three when honing in on a facility's #1 challenge only. Also of note, "offering training in multiple languages" jumps two spots, entering the top five when looking at #1 challenge only. This indicates foreign language training is not as universal as some other notable challenges, but for those companies that do face this hurdle, it is a critical issue.

Figure 11

Biggest Training Challenge: #1 Only
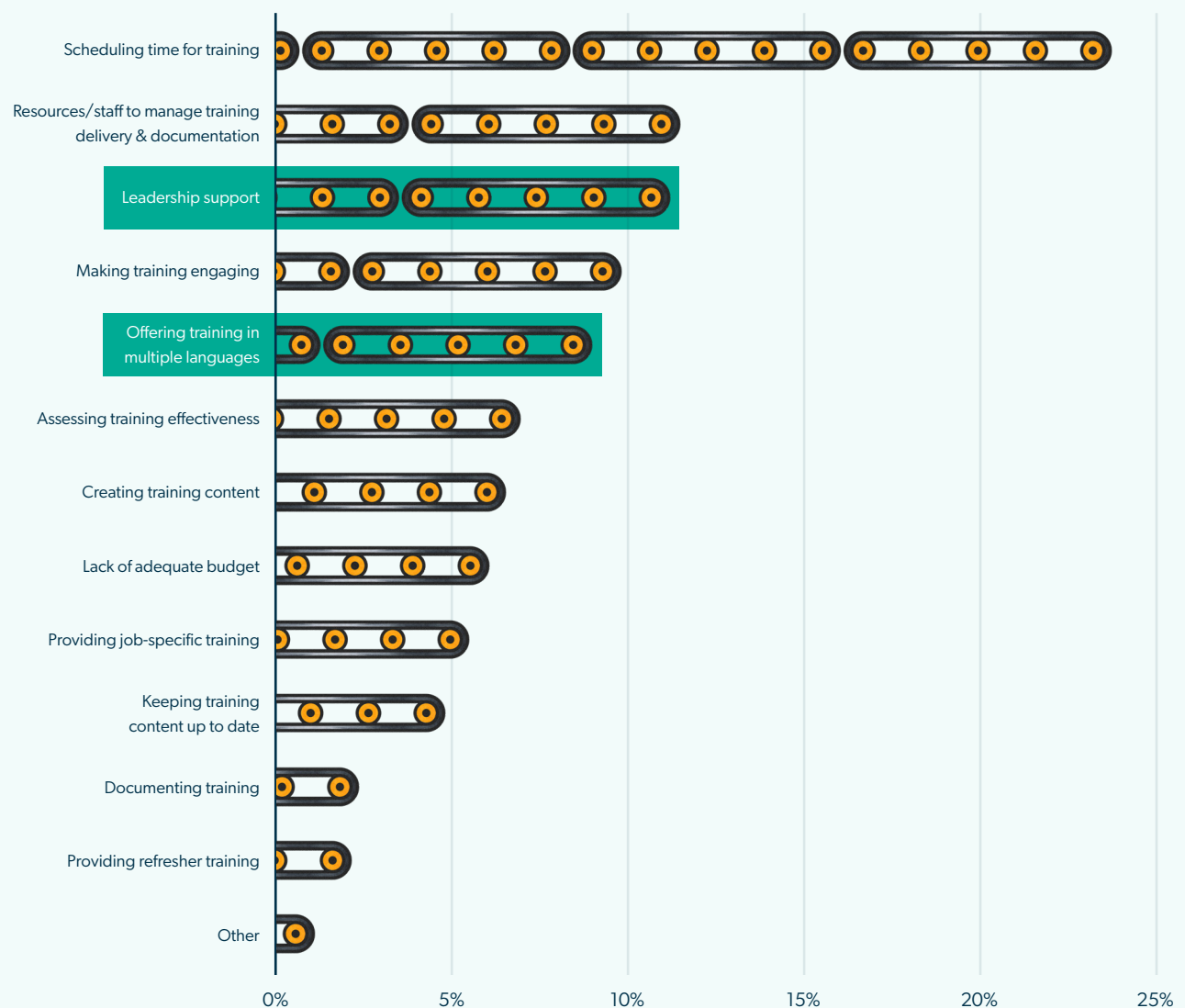
Recognizing that the operational challenges of small manufacturing facilities versus very large ones differ in many ways, it is worth looking at these top challenges at both ends of that spectrum (Figure 12). We find that "resources/staff for training" is a bigger hurdle for larger manufacturers, with 38% citing staffing among top three challenges compared to 28% among the smaller manufacturers. "Training in multiple languages" is also more problematic for larger companies, 26% struggling compared to 17% of smaller companies. Smaller manufacturers, however, have a harder time "creating training content," with 24% citing among top three challenges, compared to 14% of larger manufacturing companies.

Figure 12

	Size of Company					
	Less than 100 Employees		**101-1,000 Employees**		**> 1,000 Employees**	
	Cumulative Top 3 Challenges	#1 Biggest Challenge	Cumulative Top 3 Challenges	#1 Biggest Challenge	Cumulative Top 3 Challenges	#1 Biggest Challenge
Scheduling time for training	51%	21%	54%	26%	51%	23%
Resources/staff to manage training delivery & documentation	**28%**	8%	38%	13%	**38%**	12%
Assessing training effectiveness	30%	7%	34%	7%	36%	7%
Making training engaging	34%	10%	32%	10%	30%	9%
Leadership support	24%	11%	27%	11%	24%	12%
Providing job-specific training	24%	5%	23%	6%	23%	6%
Offering training in multiple languages	**17%**	8%	25%	8%	**26%**	12%
Keeping training content up to date	23%	6%	19%	4%	22%	4%
Creating training content	**24%**	7%	16%	6%	**14%**	6%
Lack of adequate budget	19%	10%	13%	5%	13%	4%
Documenting training	13%	3%	8%	2%	9%	2%
Providing refresher training	11%	3%	9%	1%	10%	2%
Other	3%	1%	3%	1%	4%	1%

People Challenges:
The Quest for Compliance

The eye chart above presents hurdles in the path toward an excellent training program. But even if training leaders clear every hurdle, any program is equally dependent on the people operating within it. We have identified that supervisor-to-employee training and employee-to-employee training are present in nearly every manufacturing facility. So, how well are they doing it?

It is encouraging that 79% of companies are confident their workers are teaching other workers correctly and according to company policies (Figure 13). It would be better if more than a mere 14% fell in the "strongly agree" camp. More concerning, however, is the 21% of companies whose employees are passing along misinformation to other employees. Shortcuts, unsafe habits, operational risks, and lack of quality control are sure to follow in these situations — and the data in the "Overcoming Challenges" section will emphasize this fact, and how to correct the problem.

Figure 13

"When a worker is teaching another worker, they are teaching them correctly and according to company policies."

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

2%
14%
19%
65%
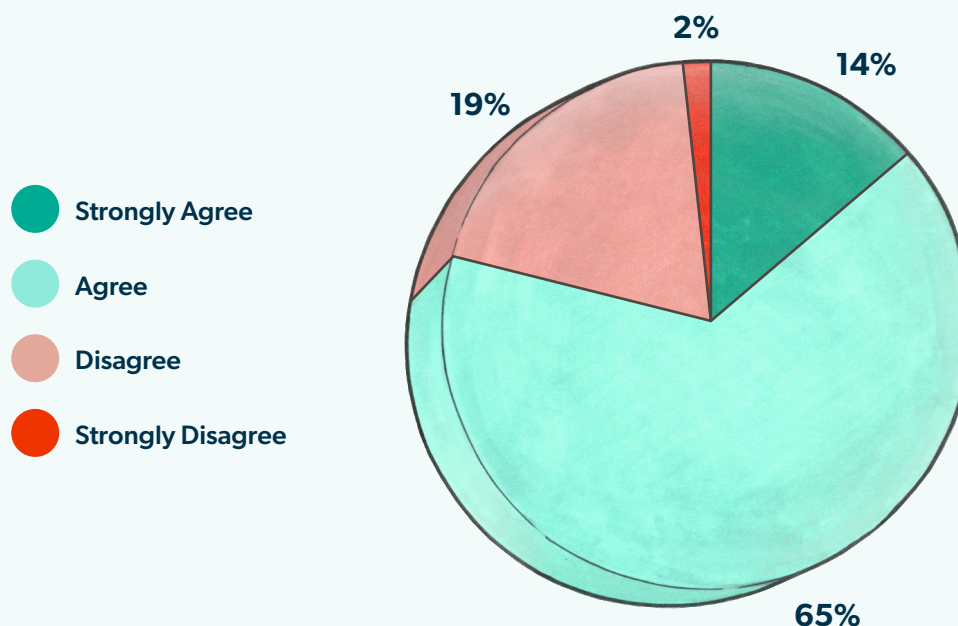
Ultimately, however, there are a multitude of reasons that employees do not always follow company procedures on the floor — an alarming amount according to the research. **When presented the scenario, "despite our training efforts, we still have employees not following established protocols on the floor," a staggering 73% of companies agree with that statement** (Figure 14).

Figure 14

"Despite our training efforts, we still have employees not following established protocols on the floor."

Legend:
- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

4%
10%
23%
63%
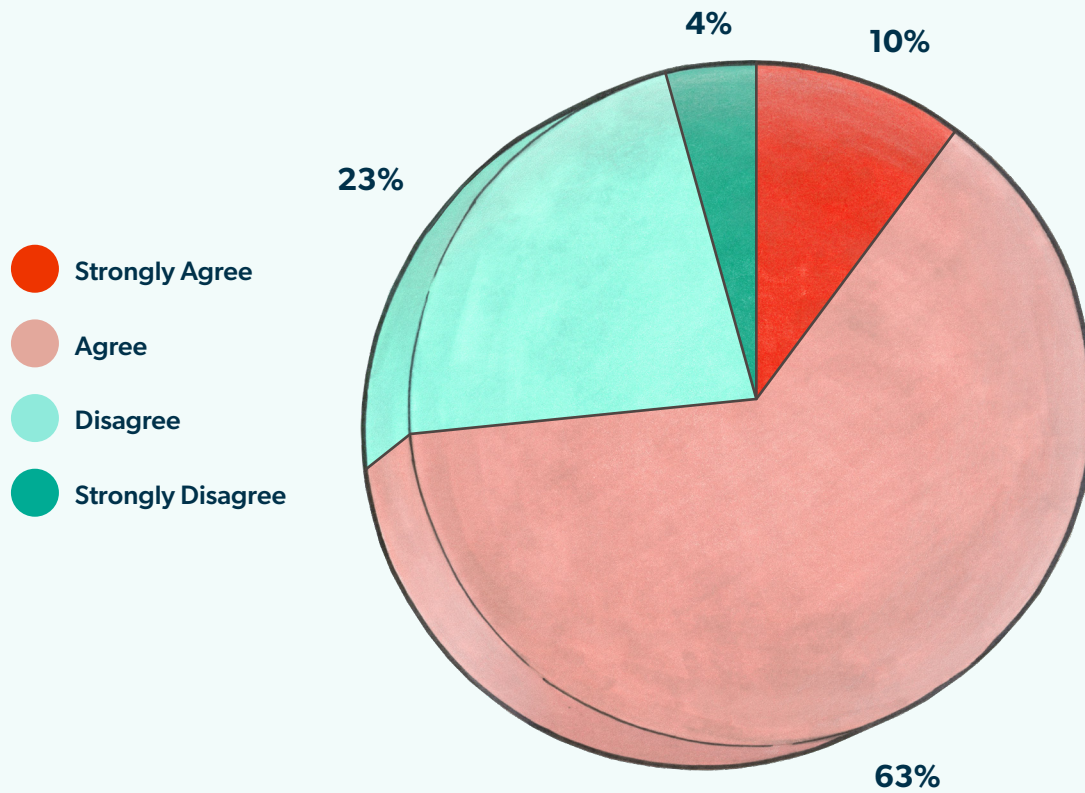
A lot of people put a lot of effort into training, and yet it is still the norm that at least some employees are not applying their training correctly. Why? The survey asked this question too.

Participants selected their top three reasons. "Bad habits" and preference for "the old way" was the clear winner, with 57% of manufacturers blaming this tendency (Figure 15). This suggests a need for more on-the-floor assessments and better reinforcement when SOPs change. "The old way" also suggests these bad habits are being learned from other employees who had to know the "old way" to begin with. Combine that with the 21% who cited the more blatant "employee was not trained correctly by a peer," and the 25% calling out "supervisors do not exhibit correct behaviors," for more evidence that employees learning from other employees should be a practice that is closely monitored.

Unengaged employees came in second place at 34% (breaking the statistical tie with "lack of severe consequences" by one vote). The importance of keeping employees motivated and engaged is a theme that will recur consistently as we explore the data further.

Figure 15

Why Employees Do Not Follow Training Program Consistently
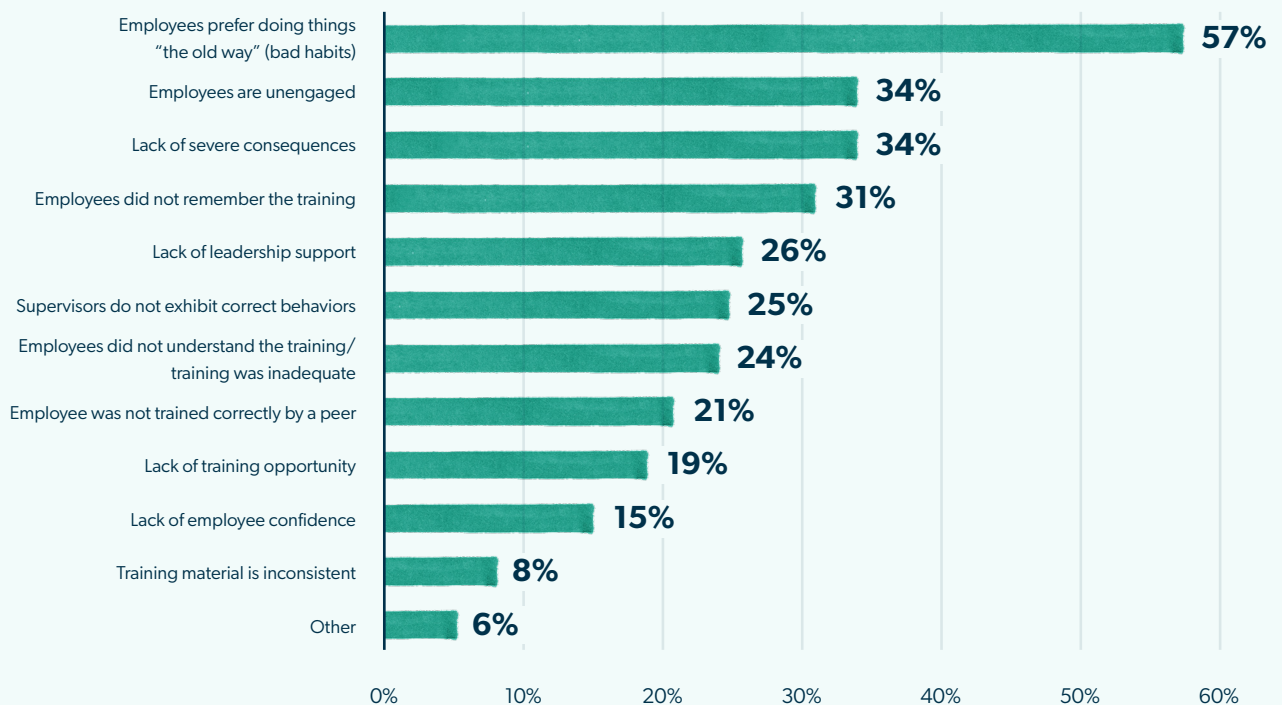
We have established baseline metrics and examined common challenges. It is time to dissect the data further to examine, among other things, what characteristics those 27% of companies with perfectly compliant employees share.

Overcoming Challenges to Yield Better Outcomes
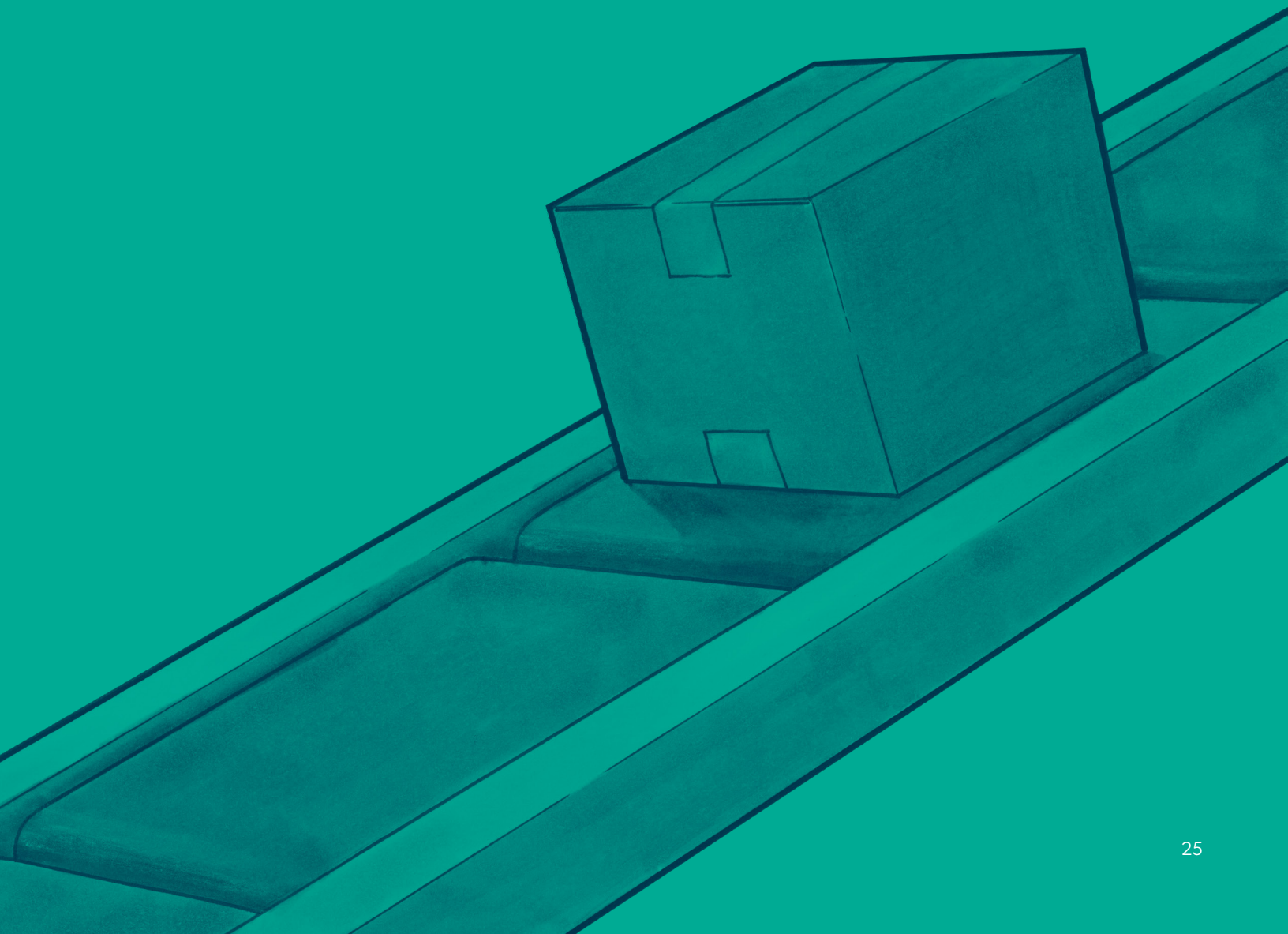
Improving Adherence to SOPs

The previous section highlighted the sobering fact that only 27% of manufacturing companies can attest their employees consistently follow established protocols on the floor. Of great interest, then, is what are these companies doing differently than the other 73%?

The factor that has the greatest impact on adhering to SOPs is employee motivation, improving the metric by 240% (Figure 16). As revelatory as this fact is — that motivated employees are more than 3X more likely to properly follow established protocols on the floor — it is also common sense. An employee that does not really care is going to deliver work that reflects that attitude.

Again, the all-employees-all-the-time nature of this measure made it the hardest to achieve, but we will learn in every measure that employee motivation plays a major factor in better results. The more burning question then is how to ensure your employees stay motivated. Thankfully, the research also reveals how to achieve this state of workforce nirvana. Given the great significance of employee motivation, an entire section of this research is dedicated to it. (See "How to Motivate Employees to Perform Their Best.")

Figure 16

Performance of Employees that are NOT Motivated

Performance of Employees that ARE Motivated

● Employees **DO** follow protocols on the floor

● Employees do **NOT** follow protocols on the floor

10%

90%

34%

66%
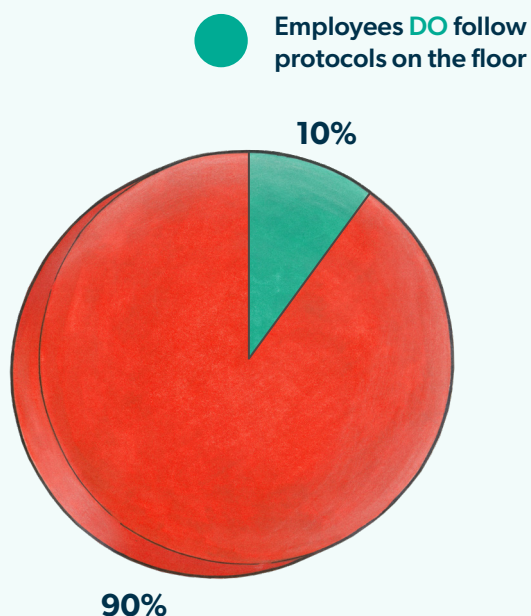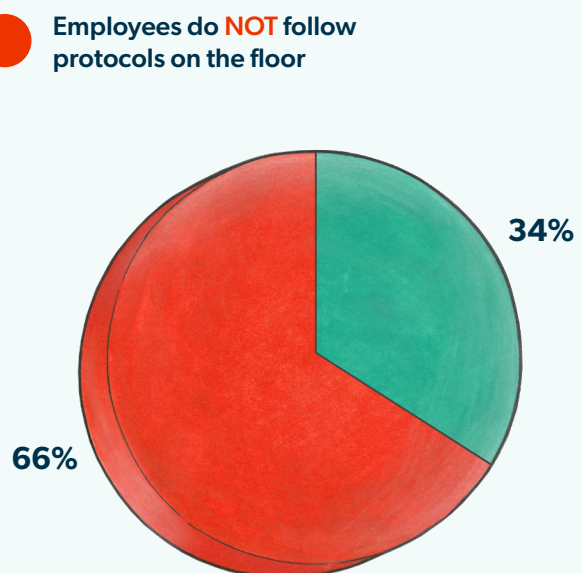
But employee motivation is not the only factor affecting performance. **The better a company does at providing reinforcement to initial training, the better their employees perform, improving the metric by 215%** (Figure 17). This, again, is quite logical. And thankfully the realm of training reinforcement is squarely within a company's control. Evidence that companies with a strong reinforcement program are more than 3X more likely to have employees adhering to SOPs should move the needle on getting approval for greater reinforcement initiatives. The data will also point to some reinforcement suggestions, including on-the-floor validation that prior training is being applied correctly.

Figure 17

Training Reinforcement Effect on Adherence to SOPs

Employees **DO** follow protocols on the floor

Employees do **NOT** follow protocols on the floor

POOR training reinforcement program — 87% / 13%

SUFFICIENT training reinforcement program — 72% / 28%

ABOVE AVERAGE training reinforcement program — 59% / 41%

...
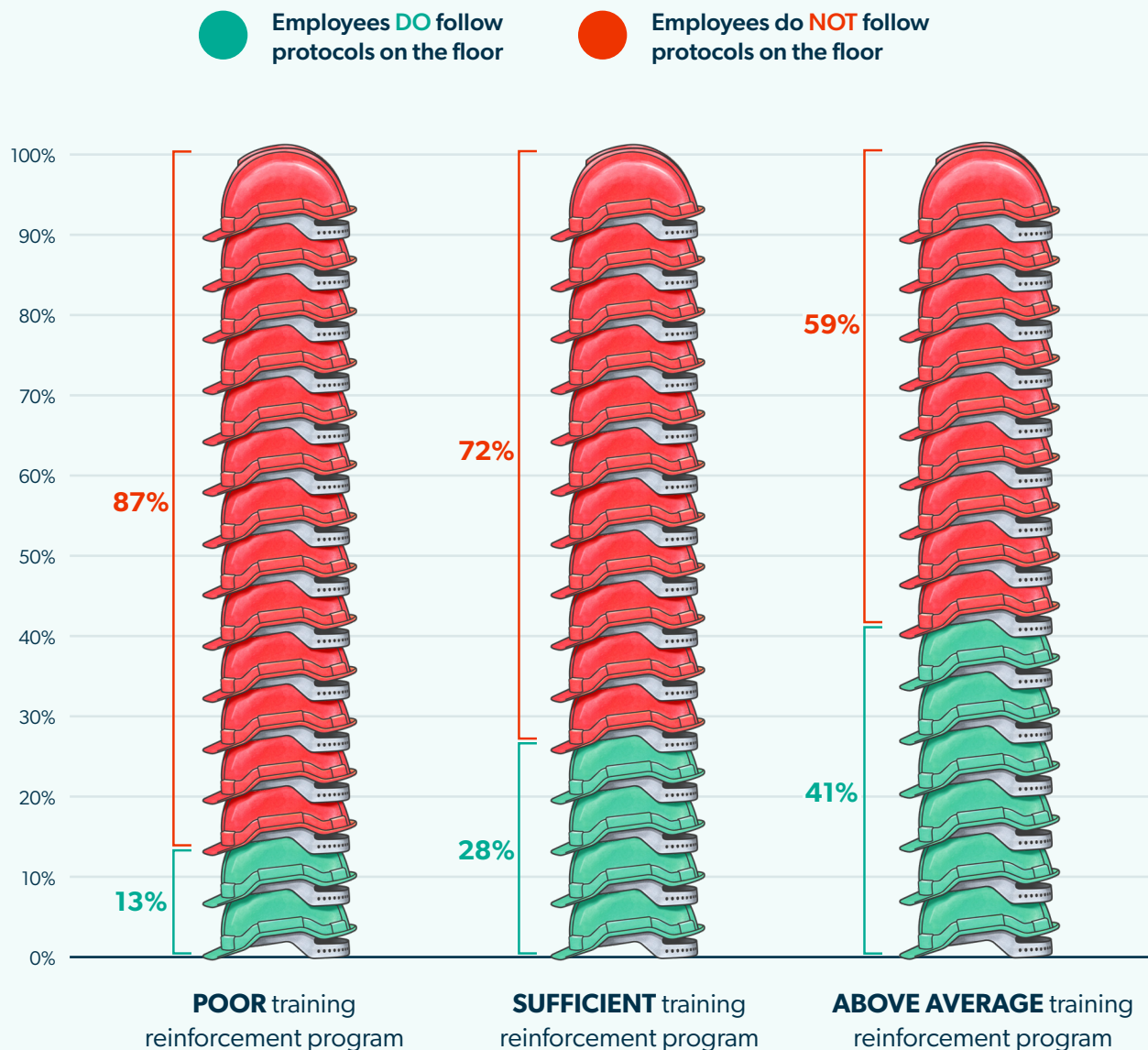
Providing frontline workers more opportunity and career trajectory also has a positive impact on the work they are currently doing. **Companies with a mature professional development program can double adherence to SOPs** (Figure 18). Even simply providing cross-training on more types of work has a positive effect, increasing the likelihood employees follow established protocols by 61% (Figure 19).

Figure 18

NO Professional Development Program

MATURE Professional Development Program

● Employees **DO** follow protocols on the floor

● Employees do **NOT** follow protocols on the floor

21%

79%

40%

60%

Figure 19

NO Cross-training Program

MATURE Cross-training Program

● Employees **DO** follow protocols on the floor

● Employees do **NOT** follow protocols on the floor

23%

77%

37%

63%
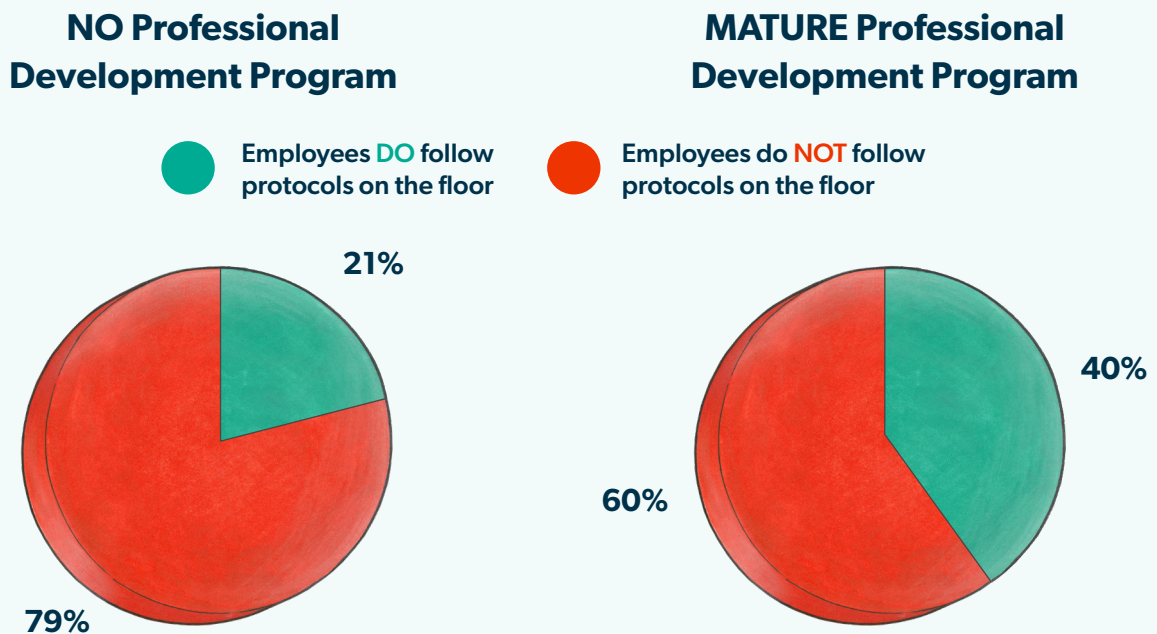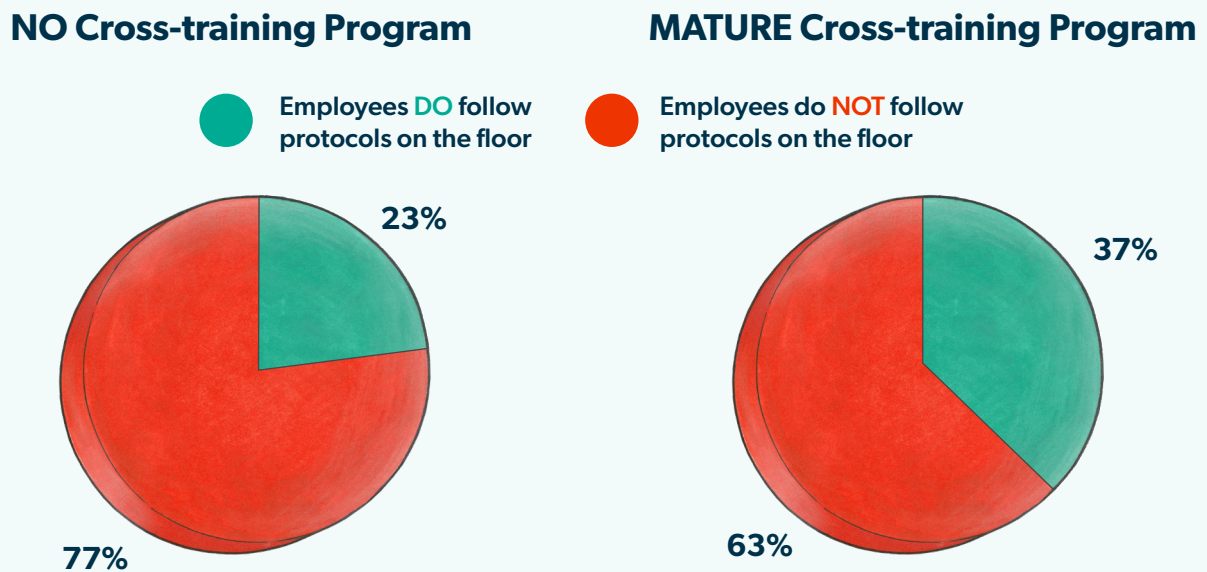
Employees Solving Problems, Eliminating Risks

Another excellent indicator of well-trained employees engaged in their work is if they have the ability to proactively prevent an incident or defect from occurring on the production floor. This requires that employees can: a) recognize a potential problem, b) have confidence in their risk assessment, and c) have the ability to do something about it, up to pausing production when necessary. Overall, 82% of companies see frontline employees achieving this level (Figure 20), which is quite impressive.

Figure 20

"We prevent problems/incidents because our employees have the knowledge, confidence, and ability to stop production because they identified a potential risk or defect."

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

4%
14%
20%
62%
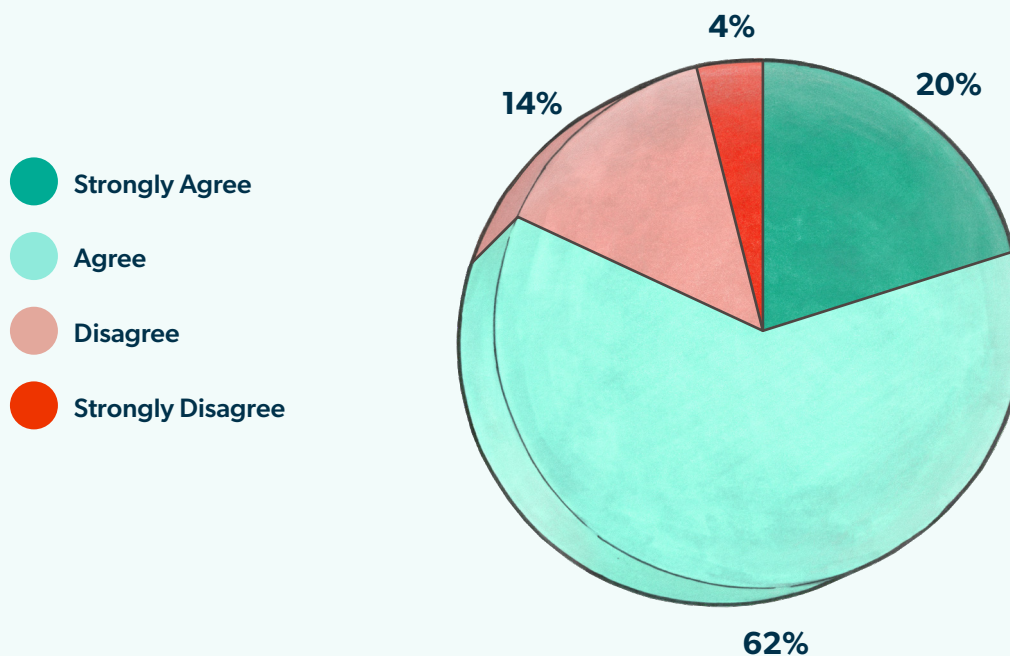
Given the critical nature of this ask, it is worth exploring what can be done if you are among those companies that have not achieved this level of workforce performance, or if you are among the 62% seeking to level up from "agree" to "strongly agree."

One takeaway is to utilize site-specific examples (photos, videos, etc.) in training materials.
Companies that make standard practice of inserting examples from their own facility into training score 91% on employee ability to recognize and prevent problems on the floor (Figure 21). For comparison, this is 40% better than the score of 65% for companies never using site-specifics in training courses. Also of note, the number of companies that "strongly agree" their employees can prevent floor issues more than doubles when going from "often" using site-specific examples (17%) to "always" using site-specific examples (38%).

Figure 21

Using Site-Specific Examples in Training Helps Prevent Incidents

"We prevent problems/incidents because our employees have the knowledge, confidence, and ability to stop production because they identified a potential risk or defect."

● Strongly Agree   ● Agree   ● Disagree   ● Strongly Disagree

Frequency using site-specific examples in training materials

Always: 38% | 53% | 5% | 4%
Often: 17% | 69% | 10% | 3%
Sometimes: 10% | 63% | 24% | 3%
Never: 10% | 55% | 33% | 2%

(0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%)
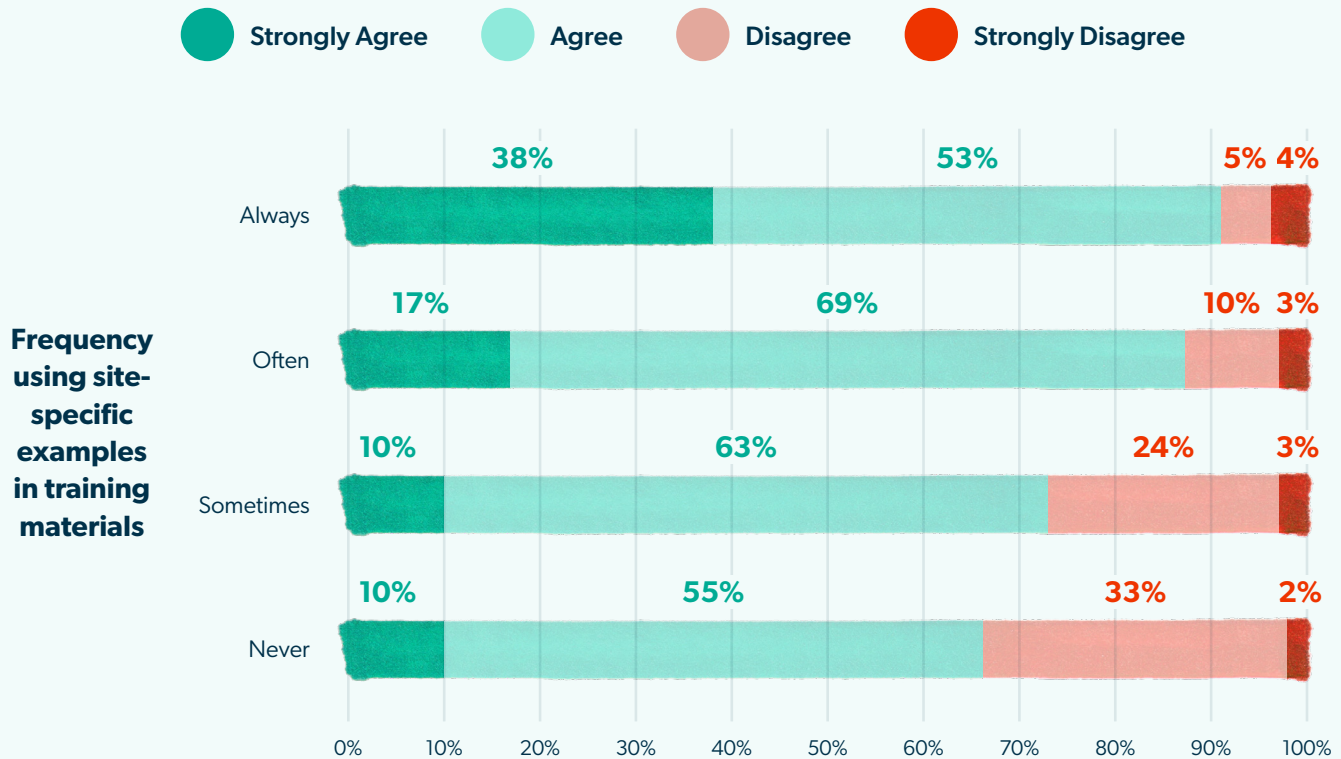
Motivated employees are also key to preventing incidents before they happen on the floor (Figure 22). **The least motivated employees are only 45% likely to recognize a potential risk and take action, which more than doubles to 92% for the most motivated employees.**

Figure 22

Motivated Employees Are More Likely to Prevent Incidents Before They Happen

"We prevent problems/incidents because our employees have the knowledge, confidence, and ability to stop production because they identified a potential risk or defect."

CAN prevent problems

Can **NOT** prevent problems

	Strongly Agree	Agree	Disagree	Strongly Disagree
Can NOT prevent	8%	12%	27%	55%
CAN prevent	92%	88%	73%	45%

"Our employees are highly motivated to do their job well."

It would also stand to reason, **the more elements of production an employee is exposed to, the more capable they are to spot potential risks to quality and safety.** This holds true, as companies with mature, well-utilized cross training programs are 33% more likely to have a workforce capable of preventing problems than companies with no cross-training (Figure 23).

Figure 23

Cross-training Employees Helps Prevent Problems on Production Floor

● Employees CAN prevent problems   ● Employees can NOT prevent problems

Have a fully mature cross-training program — 92% / 8%

Have a cross-training program, but it's not well-utilized — 84% / 16%

No program currently, but plan to implement within 12 months — 80% / 20%

No cross-training program, no plans to add — 69% / 31%

33% Improvement
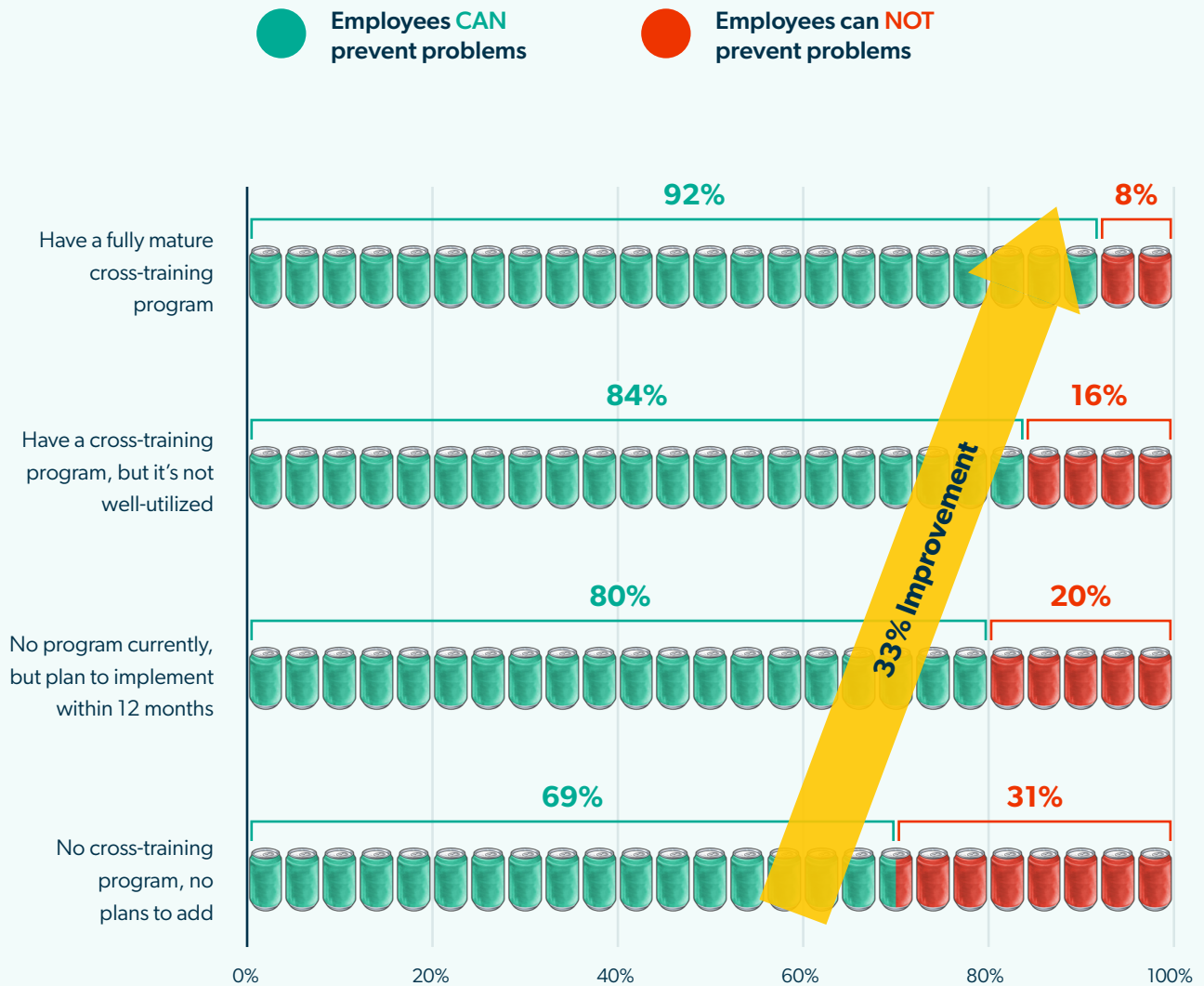
Finally, more proactive training leaders lay the groundwork to ensure their workforce is capable in this critical metric. **Companies that use both a quiz during training courses and a subsequent on-the-floor verification have more capable employees than companies that do not measure training comprehension accordingly** (Figure 24).

Figure 24

**No Quiz During Training,
No On-the-Job Assessment**

**Both Quiz During Training &
On-the-Job Assessment Utilized**

🟢 Employees **ARE** capable
of preventing incidents

🔴 Employees are **NOT** capable
of preventing incidents

33%

67%

11%

89%
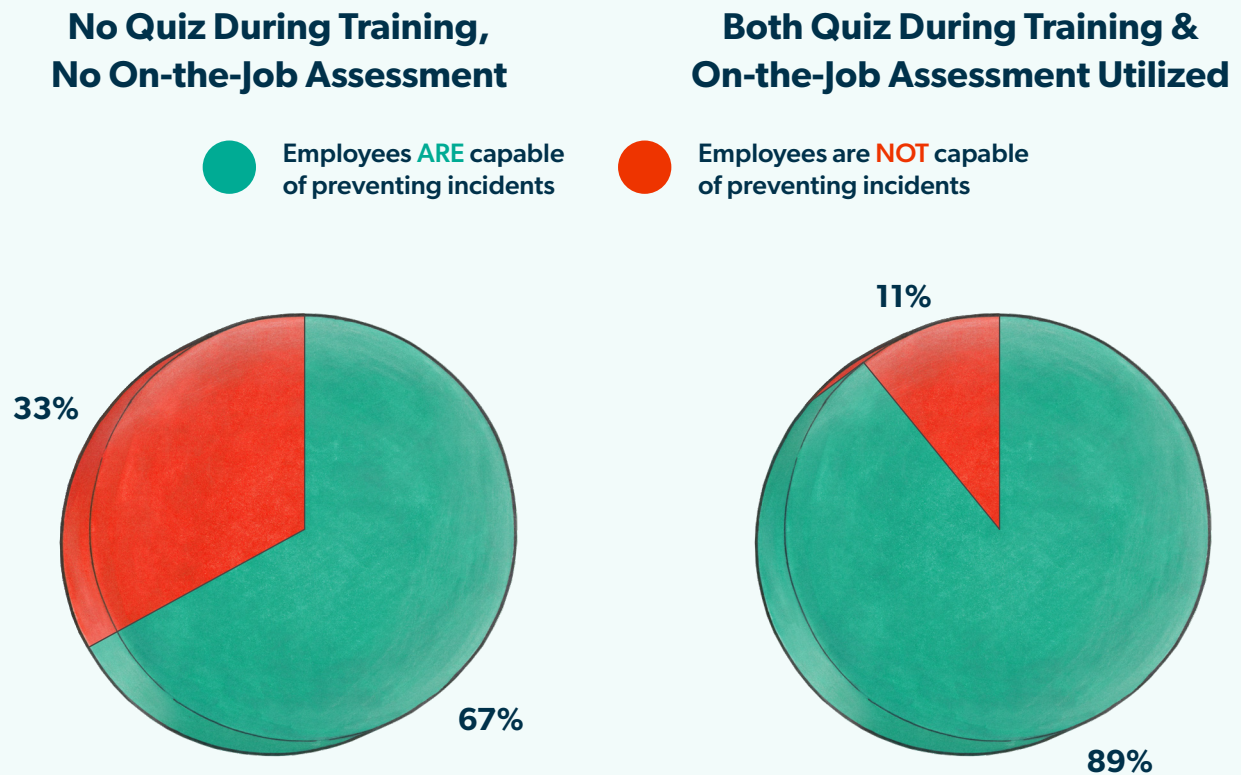
Preventing Bad Habits and Shortcuts from Spreading

We have learned that employees training other employees is near universal in manufacturing facilities. And it is also the largest root cause of employees not following established procedures correctly. So, what can an organization do to reverse that trend and ensure the knowledge transfer is accurate?

First, be sure everyone is on the same page, from the top down. And the best way to do that is ensure your training/learning management team is comprised of leaders from across your organization. In Figure 25, we see for companies without cross-functional training responsibilities, it is practically a coin toss if their employees will show other employees the right way or wrong way to do something. In comparison, **86% of companies with cross-functional training teams have more capable employees, effectively reducing the risk of bad habits spreading all the way down to 14%.**

Figure 25

Do NOT Have Cross-functional Learning Management Team

DO Have Cross-functional Learning Management Team

● Employees **CAN** teach other employees correctly

● Employees can **NOT** teach other employees correctly

45%

55%

14%

86%
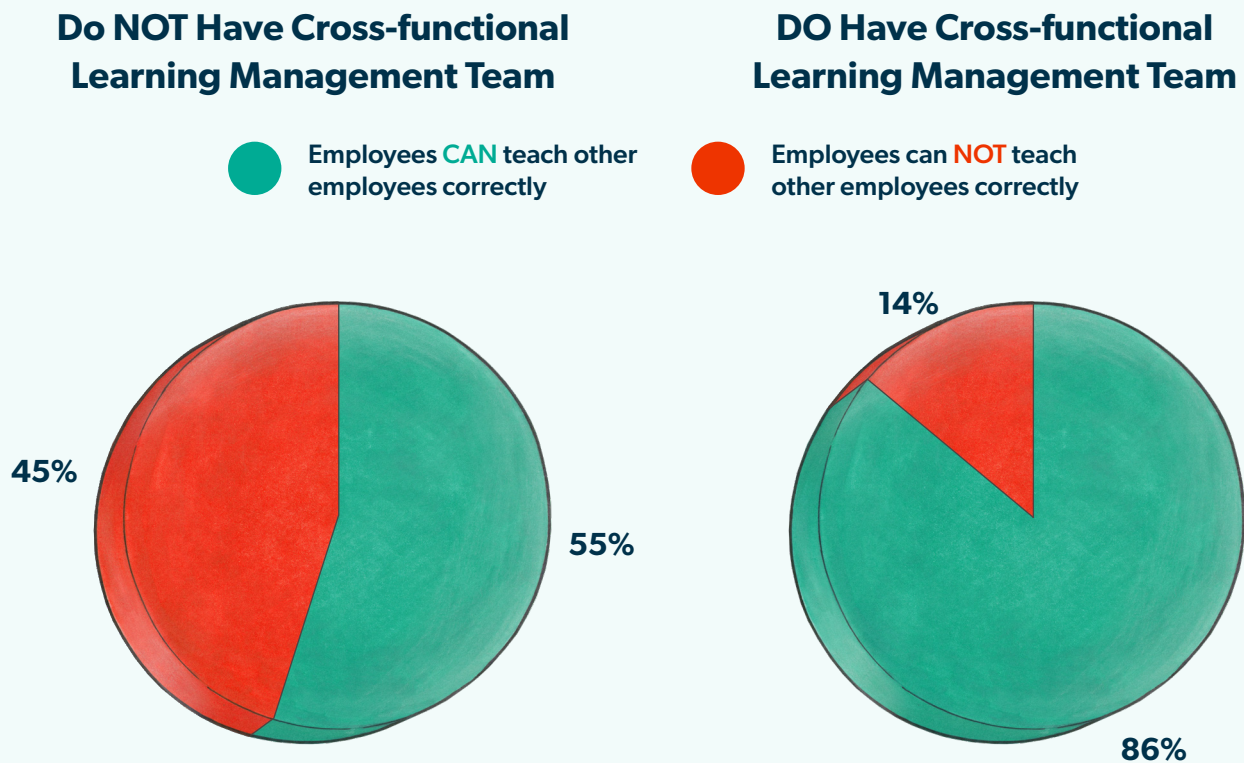
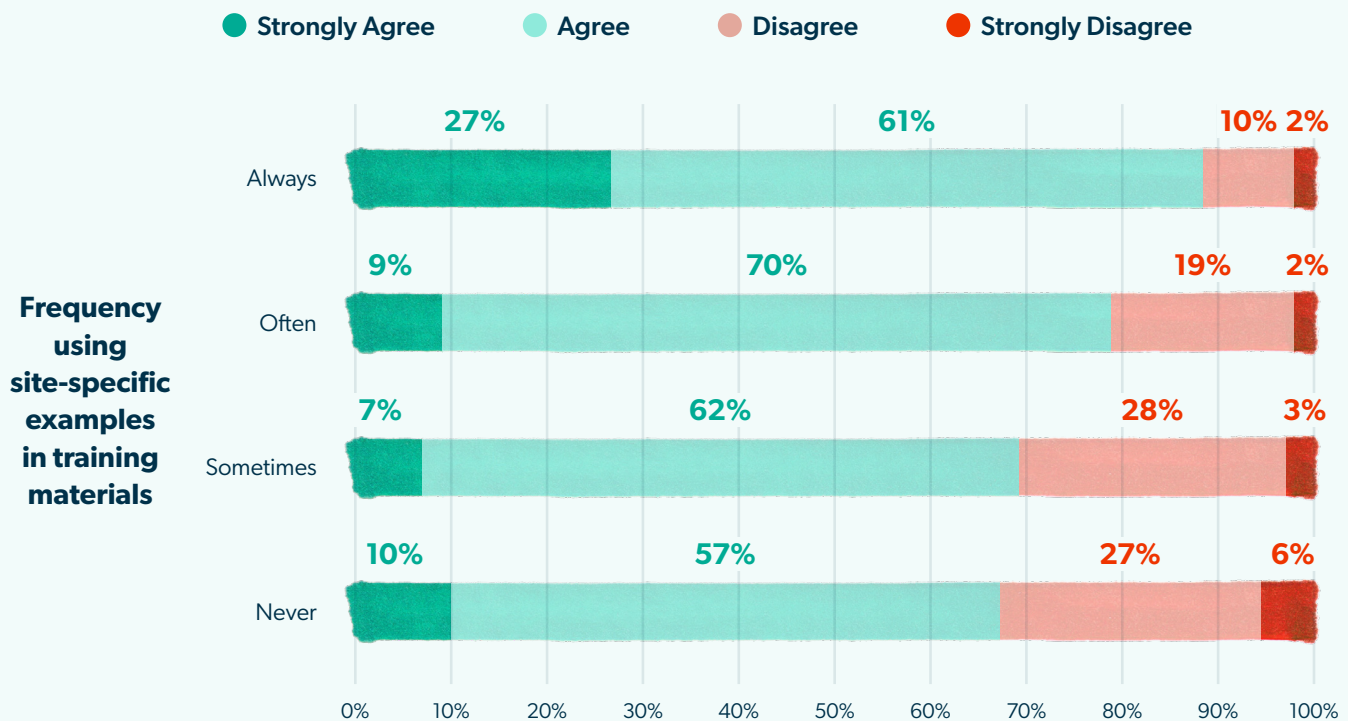Including site-specific imagery/content in training courses is a good way to ensure initial comprehension. And the impact has a ripple effect. **Employees who learned with site-specific examples are more likely to teach other employees correctly down the road.** Companies using site-specic examples in training content as standard practice tally in at 88% confident workers teach each other correctly (Figure 26). This is far more reassuring than the 67% for companies skipping the step of swapping out general imagery/content with site-specific examples.

Figure 26

Using Site-specific Examples in Training
Helps Employees Teach Other Employees Correctly

"We are confident that when a worker is training another worker,
they are teaching them correctly and according to company policies."

● Strongly Agree ● Agree ● Disagree ● Strongly Disagree

Frequency using site-specific examples in training materials

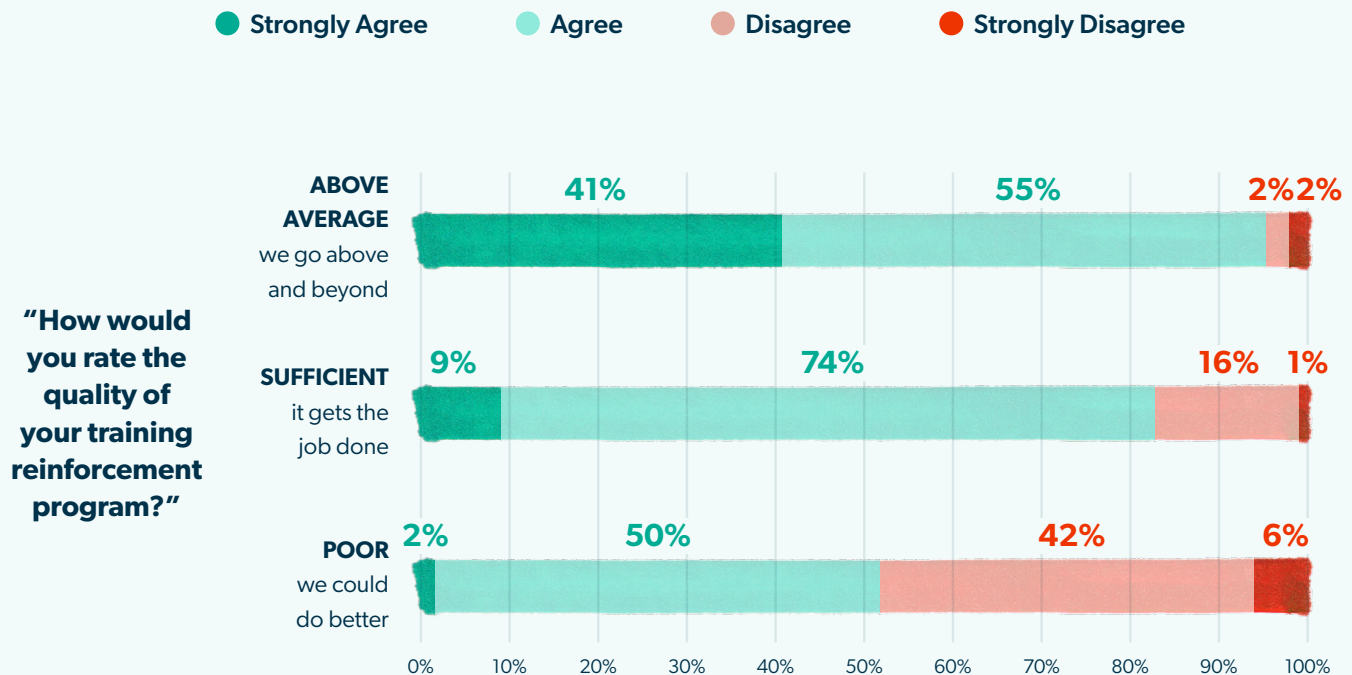|	Strongly Agree	Agree	Disagree	Strongly Disagree
Always	27%	61%	10%	2%
Often	9%	70%	19%	2%
Sometimes	7%	62%	28%	3%
Never	10%	57%	27%	6%

Not only will better initial training (with site-specific content) ensure workers can teach other workers correctly, but better reinforcement of training will have the same effect. This makes sense, **the more you keep correct procedures top of mind through training reinforcement efforts, the more likely the correct way to do things gets passed along.**

In Figure 27 we see that a near-perfect 96% of companies boasting an above-average training reinforcement program have employees capable of teaching other employees correctly and according to company policies. This remains a respectable 83% among "sufficient" reinforcement programs. But reduces to a risky 52% for companies with a poor training reinforcement program. Also of note is the giant leap of "strongly agree" from 9% to 41% when elevating from sufficient to above average reinforcement.

Figure 27

Training Reinforcement Impact on Peer-to-Peer Instruction

"We are confident that when a worker is training another worker,
they are teaching them correctly and according to company policies."

● Strongly Agree   ● Agree   ● Disagree   ● Strongly Disagree

"How would you rate the quality of your training reinforcement program?"

ABOVE AVERAGE we go above and beyond — 41%   55%   2% 2%

SUFFICIENT it gets the job done — 9%   74%   16%   1%

POOR we could do better — 2%   50%   42%   6%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Finally, motivated employees are yet again a linchpin for success. One would expect a more motivated and engaged employee to do a better job when sharing their knowledge with teammates. And the data support the assumption. **Employees that are motivated are 46% more likely to teach other employees the correct way to do something,** aligned with company policies (86% to 59% as shown in Figure 28).

Figure 28

If Employees are NOT Motivated

Employees **CAN** teach
other employees correctly
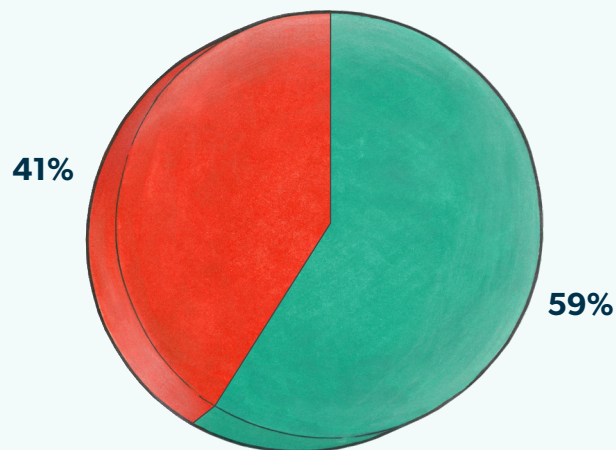
If Employees ARE Motivated

Employees can **NOT** teach
other employees correctly

41%

59%

14%

86%

How to Motivate Employees to Perform their Best

The data has shown repeatedly that motivated employees are a critical key to success in manufacturing. To recap, employees that are highly motivated are:

- 3X more likely to follow established protocols on the floor.
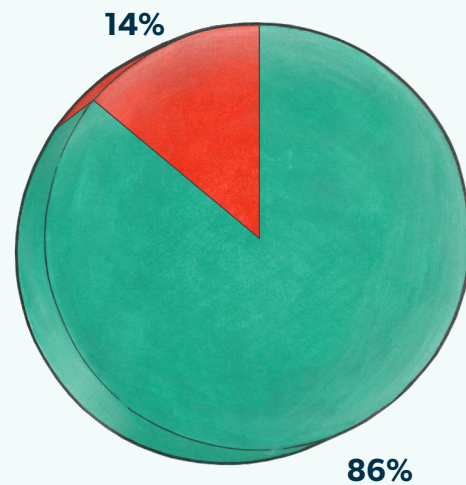
- 3X more likely to identify potential risks and proactively prevent problems on production floor.

- 46% more likely to teach other employees correctly, according to company policy.

This obviously begs the question: how can manufacturing companies keep their employees motivated and engaged at work?

The table below (Figure 29) is a perfect compendium for answering this question. It includes a list of seven traits a training program can have…or not have. The first column of results shows the likelihood employees will remain motivated when that trait is NOT present. The second column shows the likelihood employees are motivated when the trait IS present. The last column shows the percentage of improvement in employee motivation that occurs when the particular trait is present.

Figure 29

Training Program Traits Impacting Employee Motivation	"Our employees are highly motivated to do their job well."		
	Trait is NOT Present	Trait IS Present	% Improvement
1. Have a strong training reinforcement program.	47%	88%	87%
2. Have a mature professional development program.	59%	88%	49%
3. Have a cross-functional learning management/ training team.	54%	78%	44%
4. Have a mature cross-training program	60%	85%	42%
5. Validate training comprehension with quiz during training plus an on-the-floor assessment of correct application.	63%	76%	21%
6. Provide 20+ hours of additional training (beyond new hire/orientation) per year.	68%	78%	15%
7. Provide on-the-floor coaching from supervisors.	65%	73%	12%

We see in this table that **a strong training reinforcement program has the most significant impact on employee motivation,** creating an 87% improvement. This aligns with human nature. People are more comfortable when they are confident in their actions, which is the outcome of strong training reinforcement. Consistent reinforcement also creates consistent interaction between frontline workers and their supervisors and managers. This engagement surely impacts motivation. Additionally, through one-one-one observations, you can discover reasons for noncompliant behavior and work on remediation plans.

The second greatest impact comes from having a mature professional development program, yielding a 49% improvement in employee motivation. This stands to reason that a visible path to career growth, and presumably higher pay, would lead to greater engagement and motivation. Professional development can also mean a track toward leadership positions, which are attractive to some workers.

Third in line, **having a cross-functional learning management/training team yields a 44% improvement in employee motivation.** It turns out motivation rubs off. Having cross-functional participation in your learning management team shows employees that leaders throughout the organization are motivated to succeed and, importantly, that they care about employee development. On the flipside, lack of participation shows lack of motivation from leadership. It is unsurprising this results in greater likelihood the staff is unmotivated to perform well. It is what they see from their leaders after all.

The next characteristic on our chart is cross-training, which helps frontline workers become more well-rounded, can lessen the monotonous nature of some manufacturing work, and creates a culture of collaboration. Thus, it is no surprise that **having a mature cross-training improves employee motivation by 42%.**

Dissecting cross-training programs a little further, however, does uncover a somewhat surprising element. In Figure 30 we see that having a cross-training program but not utilizing it can actually be more harmful than not having a cross-training program at all. Companies without a cross-training program, but making efforts to implement such a program increase their motivation score from 60% to 72%. It would seem their employees are responding positively to the efforts for improvement from leadership. But when a cross-training program exists — but goes underutilized — it has a demoralizing factor, dropping the motivation score back down to 66%. The key then, to achieve the 85% motivation score, is having a cross-training program and actively involving frontline employees in the program.

Earlier we discussed the importance of using an LMS to manage training rather than paper and Excel. Doing so makes maintaining a mature cross-training program much more feasible, as do skills management apps readily available to integrate with an LMS.

Figure 30

Cross-training Utilization Leads to More Motivated Employees

● Employees **ARE** highly motivated   ● Employees are **NOT** highly motivated
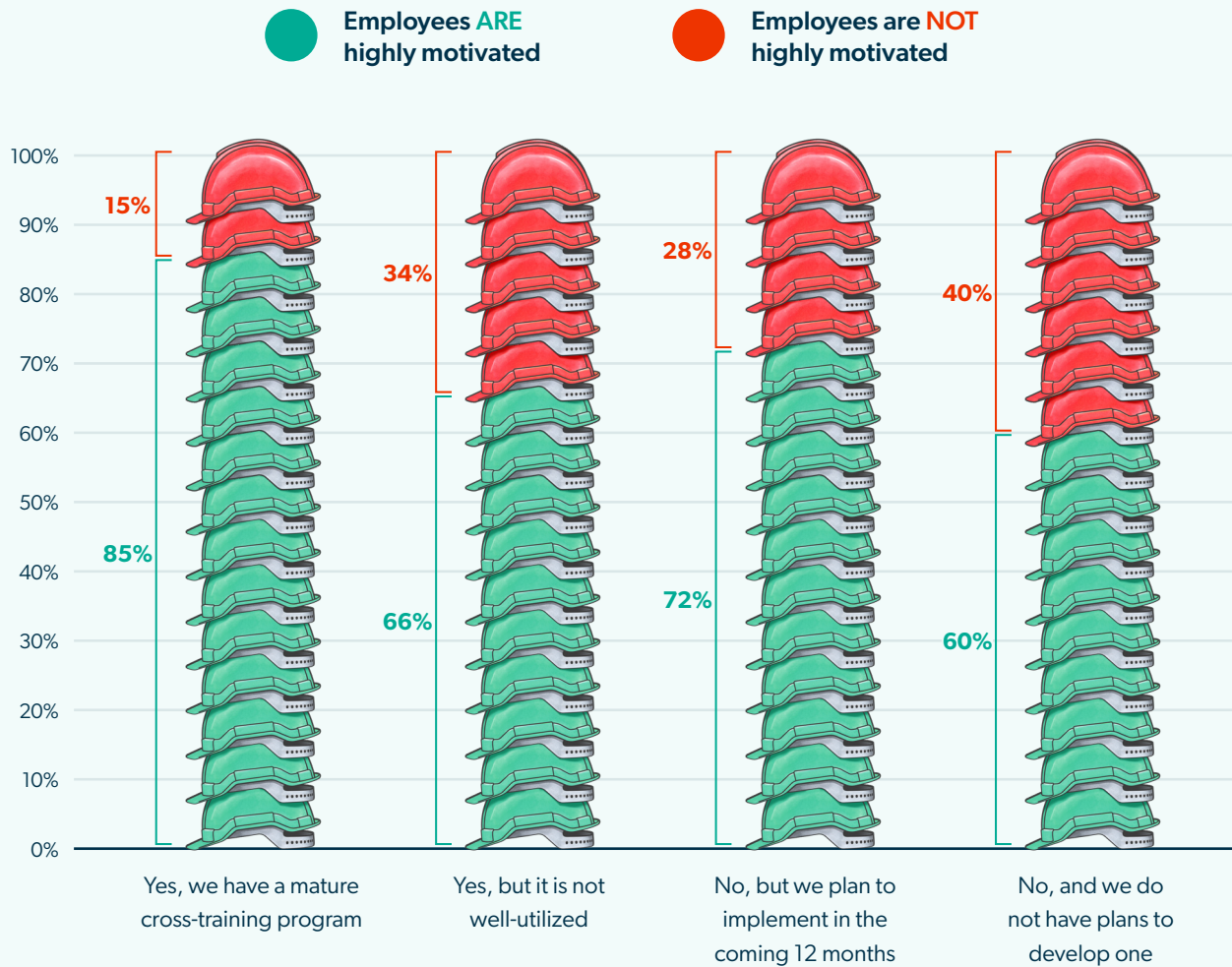
"Does your organization have a dedicated program for cross-training for your production employees?"

Traits five, six, and seven in our motivation table (Figure 29) are impactful for the same reasons outlined for having a strong reinforcement program: workers are more satisfied when they can succeed at their tasks, and positive interactions with supervisors and managers creates engagement. Which is why we see **validating that employees understand their training** both during the training and subsequently by an on-the-floor observation drives up employee motivation by 21%. **Providing at least 20 hours of training (beyond new hire/onboarding) per year** improves motivation scores by 15%. And rounding out our table, **supervisors providing coaching on the floor** as a standard practice improves frontline worker motivation by 12%.

Bonus Outcome: Making an Impact on Employee Retention

It would stand to reason that engaged and motivated employees are more likely to stay with your company longer. And, ergo, the factors we outline above that foster employee motivation will lead to greater employee retention. This train of logic holds true when examining the data (Figure 31).

The survey asked participants what impact their training program has on employee retention. **A training program that provides career advancement opportunities is 116% more likely to have a positive impact on employee retention than one without. A mature cross-training program also has a significantly positive impact on employee retention, nearly double, compared to no cross-training opportunities.**

While mature professional development and cross training programs can take some time to develop if not present already, there are some immediate measures a company can implement to improve employee retention. As we saw earlier, the more confident an employee is in what they are doing, the more comfortable they are in their work. **Using site-specific images and examples in training material improves employee retention** (Figure 31) by creating added confidence and job comfort. Even more compelling, **validating training comprehension both during training and after via on-the-floor assessments builds confidence and has an even greater impact on employee retention** (Figure 31).

Figure 31

Training Program Traits Improving Employee Retention	"Our Training Program has a Positive Impact on Employee Retention."		
	Trait is NOT Present	Trait IS Present	% Improvement
Have a mature professional development program.	37%	80%	116%
Have a mature cross-training program.	38%	75%	97%
Validate training comprehension with quiz during training plus on-the-floor assessment of correct application.	37%	66%	78%
Use site-specific images/content in training materials.	42%	64%	52%
Provide on-the-floor coaching from supervisors.	48%	62%	29%

A Summary of Best Practices to Implement Now

In the "Overcoming Challenges" section of this report we discovered a number of best practices that yield better outcomes. Each best practice is shown to have positive impacts on multiple objectives. This section presents the multiple effects of each best practice in table format for a quick reference guide.

Before we dive into the deep end of these data sets, here is a summarization of the summary, **a list of the best practices to implement now:**

- Have a strong training reinforcement program.

- Use site-specific images/content in training materials.

- Measure training comprehension both during training (via quiz) and after, via on-the-job assessment of correct application.

- Provide at least 20 hours of training annually beyond new hire/orientation.

- Include cross-functional team members on learning management/training team.

- Have a strong cross-training program and utilize it.

- Have a good professional development program and utilize it.

- Keep employees engaged and motivated.

While much of the data in the tables below is a recap, there are several new data points presented as well. Note that the format of these tables is the inverse of the "How to Motivate Employees" table in preceding section, where the individual rows were impacting the column statement. Here, the column statement is driving the impact to the statements in the rows. Also note, when there are more than two columns of data, the last "percent improvement" column is measuring the delta between the two ends of the extreme.

Best practice: Have a strong training reinforcement program. It is clear from this study that one-and-done training will not deliver the expected employee behaviors training intends. The data table in Figure 32 supports this concept emphatically. While each chart in this section highlights significant improvement, **having a strong reinforcement program creates the largest overall increase across multiple desired outcomes.** In particular, the 215% increase in employees consistently following your established protocols, while a significant stat, likely represents an immeasurable increase in peace of mind and true value to the organization.

The last row of this chart introduces a new measure, showing 94% of companies see positive return on investment (ROI) when their training program features a strong reinforcement program. This feature will show up in each of these best practices tables, which we'll explore further in the final section of this research.

Figure 32

Best Practice: Have a strong training reinforcement program.			
Desired Outcomes Impacted by Best Practice	**If Reinforcement Is Poor**	**If Reinforcement Is Sufficient**	**If Reinforcement Is Above Average**	**% Improvement From Best Practice**
Employees consistently apply established protocols on the floor.	13%	28%	41%	215%
Employees are highly motivated to do their job well.	47%	76%	88%	87%
Employees can spot risk/defect and prevent it from happening.	60%	89%	95%	58%
Workers teach other workers correctly.	52%	87%	96%	85%
Provide 20+ hours of training beyond new hire/onboarding per year.	17%	31%	46%	176%
See a positive ROI from our training program.	52%	86%	94%	81%

Best practice: Use site-specific images/content in training materials. This best practice takes training from theoretical to practical application when seeing the actual equipment/environment the instruction is to be performed. The 22% increase in accuracy of worker-to-worker instruction (Figure 33) can go a long way in preventing bad habits from spreading, which the data showed to be the #1 reason employees don't always follow protocols on the floor. Interestingly, while this best practice requires greater effort, those employing the tactic are 80% more likely to provide the most training to their employees.

Figure 33

Best Practice: Use site-specific images/content in training materials.			
Desired Outcomes Impacted by Best Practice	**If Best Practice is FALSE**	**If Best Practice is TRUE**	**% Improvement from Best Practice**
Employees are highly motivated to do their job well.	64%	74%	16%
Employees can spot risk/defect and prevent it from happening.	72%	88%	22%
Workers teach other workers correctly.	68%	83%	22%
Provide 20+ hours of training beyond new hire/ onboarding per year.	20%	36%	80%
See a positive ROI from our training program.	67%	85%	27%

Best practice: Measure training comprehension both during training (via quiz) and after, via on-the-job assessment of correct application. By validating comprehension more than once, in multiple settings, and introducing training reinforcement, it is no wonder this best practice leads to 33% increase in employee ability to proactively identify a risk and prevent it from happening (Figure 34). We also see a 34% increase in seeing a positive ROI. A theme is clearly emerging that organizations that put more effort into their training program see greater reward.

Figure 34

Best Practice: Measure training comprehension both during training (via quiz) and after, via on-the-job assessment of correct application.			
Desired Outcomes Impacted by Best Practice	**If Best Practice is FALSE**	**If Best Practice is TRUE**	**% Improvement from Best Practice**
Employees are highly motivated to do their job well.	63%	76%	21%
Employees can spot risk/defect and prevent it from happening.	67%	89%	33%
Workers teach other workers correctly.	69%	82%	19%
See a positive ROI from our training program.	64%	86%	34%

Best practice: Provide at least 20 hours of training annually (beyond new hire/orientation).

Manufacturing employees that receive more training perform better, it is as simple as that. Of note is that employee motivation also increases by 24% when on the upper end of training hours received (Figure 35). Keep this in mind if you ever hear employees grumble about training sessions; it is likely the quality of the training is what they find objectionable, not the fact they are being trained.

Figure 35

Best Practice: Provide at least 20 hours of training annually (beyond new hire/orientation).			
Desired Outcomes Impacted by Best Practice	**With Less Than 10 Hours Provided Annually**	**With 10-20 Hours Provided Annually**	**With Greater Than 20 Hours Provided Annually**	**% Improvement**
Employees are highly motivated to do their job well.	63%	75%	78%	24%
Employees can spot risk/defect and prevent it from happening.	78%	84%	89%	14%
Workers teach other workers correctly.	73%	77%	87%	19%
See a positive ROI from our training program.	69%	85%	86%	25%

Best practice: Include cross-functional team members on learning management/training team.

The table in Figure 36 outlines the benefits of cross-functional training teams. As mentioned earlier, it is clear from the data that effort and participation rub off. And given that "scheduling time for training" is the biggest identified challenge by far, the 75% improvement in providing at least 20 hours of annual training beyond onboarding is of tremendous value. This suggests the cross-functional collaboration makes it easier to coordinate schedules and better utilize the limited time and resources to achieve the organizational training goals.

Figure 36

Best Practice: Include cross-functional team members on learning management/training team.		
Desired Outcomes Impacted by Best Practice	**If Best Practice is FALSE**	**If Best Practice is TRUE**	**% Improvement from Best Practice**
Employees are highly motivated to do their job well.	54%	78%	44%
Employees can spot risk/defect and prevent it from happening.	63%	90%	43%
Workers teach other workers correctly.	55%	86%	56%
Provide 20+ hours of training beyond new hire/onboarding per year.	20%	35%	75%
See a positive ROI from our training program.	54%	89%	65%

Best practice: Have a strong cross-training program and utilize it. This study has shown the hardest measure of employee performance is consistent application of established protocols by all employees. Having and utilizing a strong cross-training program raises this probability by 68% (Figure 37). In the following section we will see cross-training has an equally positive impact on productivity. Considering these two points together shows that a solid cross-training program improves both quantity and quality of production at the same time.

Figure 37

Best Practice: Have a strong cross-training program and utilize it.			
Desired Outcomes Impacted by Best Practice	If Best Practice is FALSE	If Best Practice is TRUE	% Improvement from Best Practice
Employees consistently apply established protocols on the floor.	22%	37%	68%
Employees are highly motivated to do their job well.	60%	85%	42%
Employees can spot risk/defect and prevent it from happening.	69%	92%	33%
Workers teach other workers correctly.	64%	92%	44%
See a positive ROI from our training program.	62%	94%	52%

Best practice: Have a good professional development program and utilize it. Both cross-training and professional development — in addition to creating advancement opportunities — help frontline employees see the complete impact of their individual contributions. This bigger picture view provided by professional development sees a 90% lift in consistent application to protocols, among other positive gains (Figure 38), as employees gain a better understanding how they fit into the organization.

Figure 38

Best Practice: Have a good professional development program and utilize it.			
Desired Outcomes Impacted by Best Practice	If Best Practice is FALSE	If Best Practice is TRUE	% Improvement from Best Practice
Employees consistently apply established protocols on the floor.	21%	40%	90%
Employees are highly motivated to do their job well.	59%	88%	49%
Employees can spot risk/defect and prevent it from happening.	71%	96%	35%
Workers teach other workers correctly.	66%	96%	45%
See a positive ROI from our training program.	66%	96%	45%

Best practice: Keep employees engaged and motivated. This has been discussed at length, as employee motivation has the greatest impact on desired outcomes in manufacturing work performance. But our list of best practices would not be complete without this chart and repeating the 240% increase in employees following protocols consistently on the floor. If you skipped ahead to this "Summary of Best Practices" section, please see the preceding "How to Motivate Employees" section for action items to achieve this best practice.

Figure 39

Best Practice: Keep employees engaged and motivated.			
Desired Outcomes Impacted by Best Practice	If Best Practice is FALSE	If Best Practice is TRUE	% Improvement from Best Practice
Employees consistently apply established protocols on the floor.	10%	34%	240%
Employees can spot risk/defect and prevent it from happening.	71%	88%	22%
Workers teach other workers correctly.	59%	86%	46%
See a positive ROI from our training program.	59%	88%	49%

Coda: Trainers Measuring Themselves
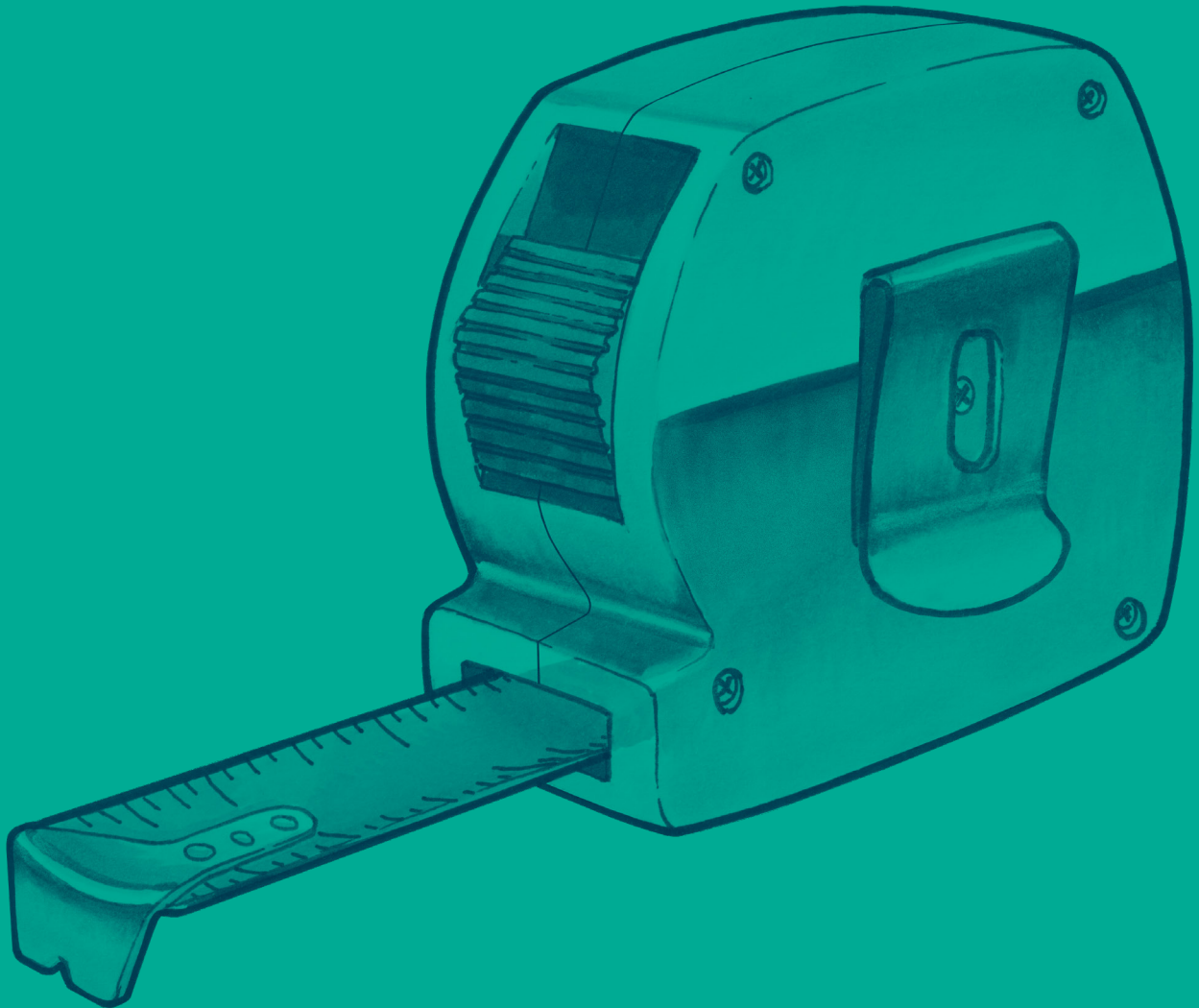
This research has analyzed numerous data points to pinpoint methods that improve training programs in manufacturing facilities. While researchers prefer to rely on the data itself in this manner, it is also of interest what the training leaders themselves believe makes a strong training program. So, let's examine the question from this angle. The survey did, after all, ask participants point blank, "How would you rate the quality of your overall training program for frontline workers?"

59% gave themselves a middle-of-the-road assessment, 22% rated their program poor, 19% rated their program "above average." When isolating survey responses to just those rating their program poor, and just those rating their program great….it is interesting to see how often certain elements that can (or cannot) be utilized in a training program show up. The table in Figure 40 lays it out for us.

Figure 40

Desired Traits	Frequency trait is present in poor training programs	Frequency trait is present in above average training programs	% Difference
Have mature professional development program	3%	51%	1,600%
Have a mature cross training program	6%	57%	850%
Have a cross-functional learning management/ training team	31%	90%	190%
Provide 20+ hours of training (beyond new hire/ orientation) per year	17%	47%	176%
Training budget is more than previous year	9%	23%	156%
Use site-specific images/videos in training (often or always)	52%	86%	65%

The survey made learning and development leaders measure themselves again, by asking what impact their training program had on important operational measures such as productivity, product quality, workplace safety, and employee retention. Participants could rate their programs as having a positive impact, no impact, or negative impact.

In figures 41- 44 we revisit the tables from "Best Practices to Implement Now," but this time looking at how the best practices impact these self-evaluations of training's impact on operations. Some of the most impactful takeaways from the below charts:

- Using site specific examples in training improves the positive impact on productivity by 33% (Figure 41).

- Measuring training comprehension both during training and after via on-the-floor assessment improves positive impact on workplace safety by 48% (Figure 42).

- Having a solid cross-training program and utilizing it improves positive impact on product quality by 31% (Figure 43).

- Having a good professional development program and utilizing it improves positive impact on employee retention by 116% (Figure 44).

Figure 41

Best Practice: Use site-specific images/content in training materials.			
Desired Outcomes Impacted by Best Practice	**If Best Practice is FALSE**	**If Best Practice is TRUE**	**% Improvement from Best Practice**
Our training program has positive impact on employee retention.	42%	64%	52%
Our training program has a positive impact on productivity.	54%	72%	33%
Our training program has a positive impact on product quality.	73%	89%	22%
Our training program has a positive impact on workplace safety.	75%	88%	17%

Figure 42

Best Practice: Measure training comprehension both during training (via quiz) and after, via on-the-job assessment of correct application.			
Desired Outcomes Impacted by Best Practice	**If Best Practice is FALSE**	**If Best Practice is TRUE**	**% Improvement from Best Practice**
Our training program has positive impact on employee retention.	37%	66%	78%
Our training program has a positive impact on productivity.	55%	73%	33%
Our training program has a positive impact on product quality.	70%	91%	30%
Our training program has a positive impact on workplace safety.	61%	90%	48%

Figure 43

Best Practice: Have and utilize a cross-training program.			
Desired Outcomes Impacted by Best Practice	**If Best Practice is FALSE**	**If Best Practice is TRUE**	**% Improvement from Best Practice**
Our training program has positive impact on employee retention.	38%	75%	97%
Our training program has a positive impact on productivity.	49%	79%	61%
Our training program has a positive impact on product quality.	71%	93%	31%
Our training program has a positive impact on workplace safety.	77%	91%	18%

Figure 44

| Best Practice: Have and utilize a professional development program.			
Desired Outcomes Impacted by Best Practice	**If Best Practice is FALSE**	**If Best Practice is TRUE**	**% Improvement from Best Practice**
Our training program has positive impact on employee retention.	37%	80%	116%
Our training program has a positive impact on productivity.	48%	84%	75%
Our training program has a positive impact on product quality.	72%	96%	33%
Our training program has a positive impact on workplace safety.	76%	93%	22%

Final Word: The Thing about Budgets Is…

As a final thought, let's look at budget and ROI. The strongest training programs — despite already being strong — are still 156% more likely to invest more into training by increasing budget. And that same group with strong training programs unequivocally sees a positive return on their investment, 98% confirming this, compared to just 43% of teams with poor training programs (Figure 45).

Figure 45

## "We see a positive ROI from our training program."
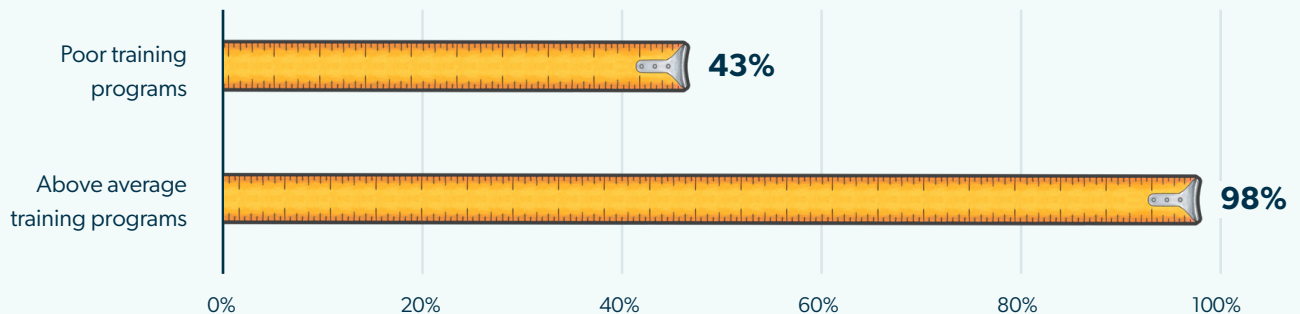
This question "we see a positive ROI on our training programs" showed up in most of the tables in the "Summary of Best Practices to Implement Now" section. Programs utilizing advanced methods were reporting positive ROI as much as 81% more often than programs not utilizing the same method.

The takeaway….organizations putting more time, more effort, and more money into their training programs are the same ones seeing the greatest return on their investment. So, any time leadership suggests "we don't have the budget" or "we can't spend the time," you should engage in a discussion about any gaps in your training program you have identified as compared to industry best practices identified here. This research gives you plenty of data to push back and show how *not* spending that time and money will have a far more negative impact than currently understood by senior management.

The research proves less investment in training has a correlation to more mistakes on the floor and employees unmotivated with their work. Anyone who has spent even just a single day in a manufacturing facility understands how this easily leads to injuries, quality defects, and lower productivity. The best practices outlined in this research will help manufacturers improve in these areas.

Appendix
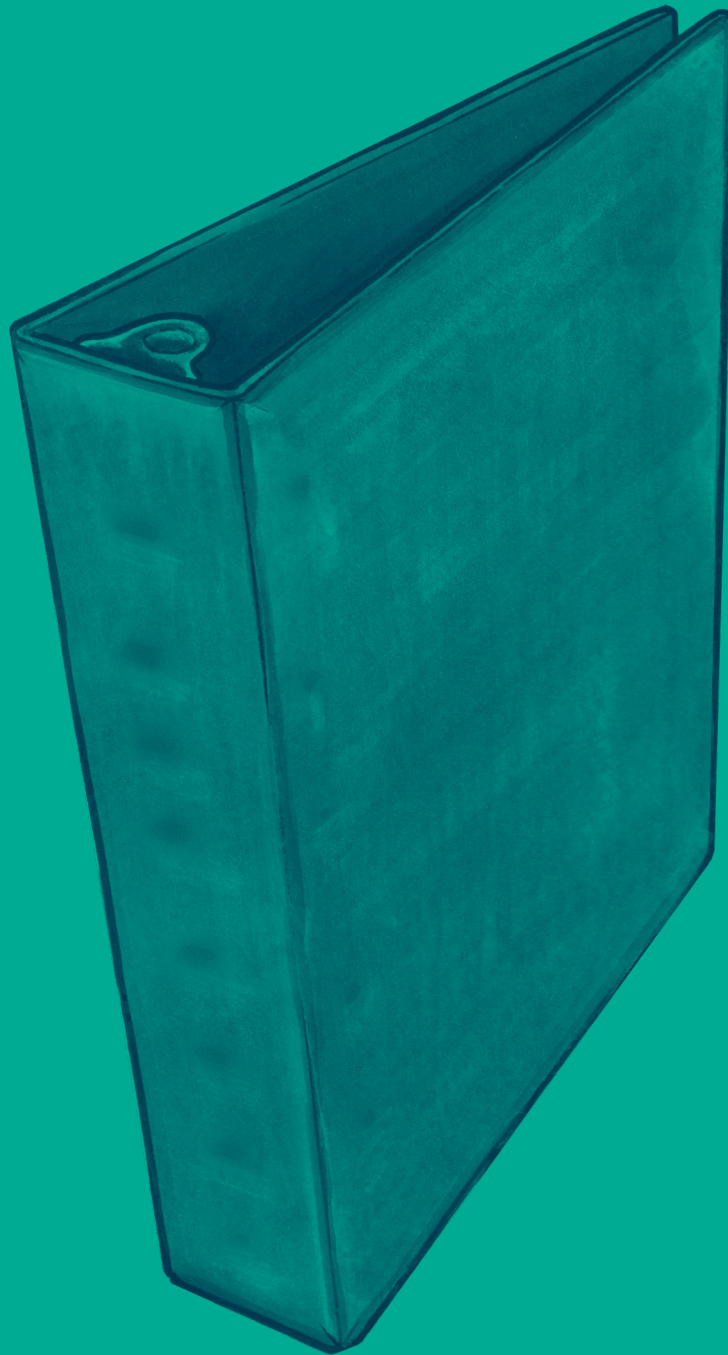
The "Survey of Frontline Worker Training Programs" was developed by Intertek Alchemy and Campden BRI.

The survey was administered electronically in January and February, 2024. A total of 1,028 individuals completed the survey. Below are details on survey participants and the companies they represent.

Total # of locations/facilities

	Count	%
1	339	33.0%
2 - 10	427	41.5%
11 - 50	133	12.9%
51 - 100	49	4.8%
Greater than 100	80	7.8%

Number of full-time (or equivalent) staff

	Count	%
1 - 25	118	11.5%
26 - 100	201	19.6%
101 - 250	197	19.2%
251 - 500	133	12.9%
501 - 1,000	96	9.3%
1,001 - 5,000	149	14.5%
Greater than 5,000	134	13.0%

Number of frontline workers/ operators in facility

	Count	%
25 or fewer	236	23.0%
26 - 50	140	13.6%
51 - 100	144	14.0%
101 - 250	185	18.0%
251 - 500	102	9.9%
501 - 1,000	91	8.9%
1,001 - 5,000	68	6.6%
Greater than 5,000	62	6.0%

Location

	Count	%
Africa/Middle East	145	14.10%
Asia (incl. China and India)	173	16.80%
Australia/NZ/Oceania	56	5.40%
Europe (excl. UK)	166	16.10%
UK	125	12.20%
United States	517	50.30%
Canada	128	12.50%
Mexico	59	5.70%
Central/South America	74	7.20%

Survey participants' job level

	Count	%
Administrator/ Coordinator	196	19.1%
Supervisor	127	12.4%
Manager	441	42.9%
Senior Manager/Director	226	22.0%
Executive Level (VP, President)	38	3.7%