# 2023 Report on the State of Training in Manufacturing
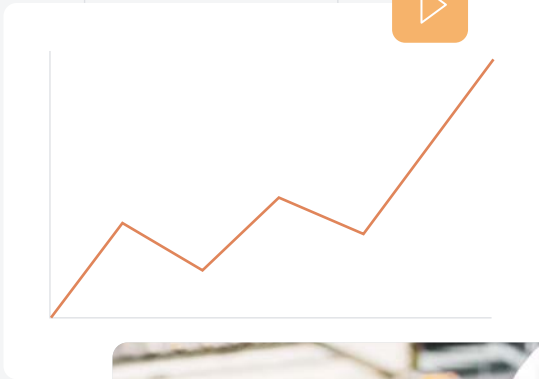
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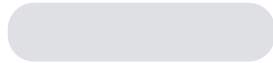
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# Methodology

To understand workforce development strategies in manufacturing companies, POKA commissioned research from independent research firm Verdantix. This included a study of 50 decision-makers in manufacturing, across corporate, operations and plant roles. Respondents were drawn from North America and Europe, from large enterprises with revenues above $200 million. Interviewees answered questions relating to KPIs, investments for workforce development, business challenges and preferred solutions.

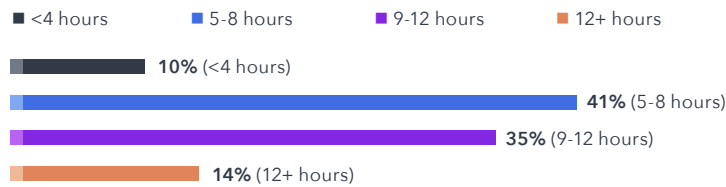# Today's manufacturing workforce development landscape

Discussions with respondents provided insights into the strategies used by manufacturing firms for workforce learning and development, which have been significantly shaped by the transformation in workplace culture following the pandemic. Our research shows that a considerable amount of time and effort is being spent training factory workers:
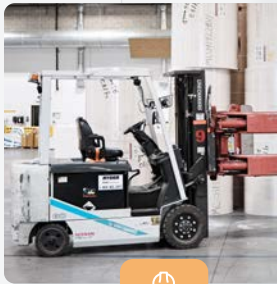
## Half of respondents spent a minimum of nine hours on role-specific training each month.

**Figure 1: Approximately how many hours per month is spent per worker on the following tasks?**

Role specific training - Existing employee

■ <4 hours    ■ 5-8 hours    ■ 9-12 hours    ■ 12+ hours

**10%** (<4 hours)
**41%** (5-8 hours)
**35%** (9-12 hours)
**14%** (12+ hours)

Compliance Training (Health, safety, quality) - Existing employee

■ 1-2 hours    ■ 3-4 hours    ■ 5-6 hours    ■ 6 hours+

**31%** (1-2 hours)
**39%** (3-4 hours)
**24%** (5-6 hours)
**6%** (6 hours+)
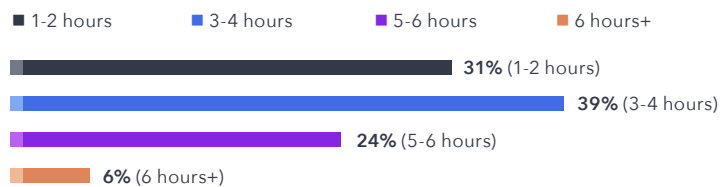
Role-specific employee training is fundamental in the manufacturing sector, with data showing 49% of staff members dedicating at least nine hours monthly to role-specific training (see **Figure 1**). Compliance training, while important, sees most respondents spending less than four hours per month. When considering the challenges and potential solutions tied to training, it is important to keep this relative difference in mind.

# New hire onboarding is a high priority for nearly three-quarters of firms.

## Figure 2: Of your learning and workforce development use cases, which are a priority for this year?
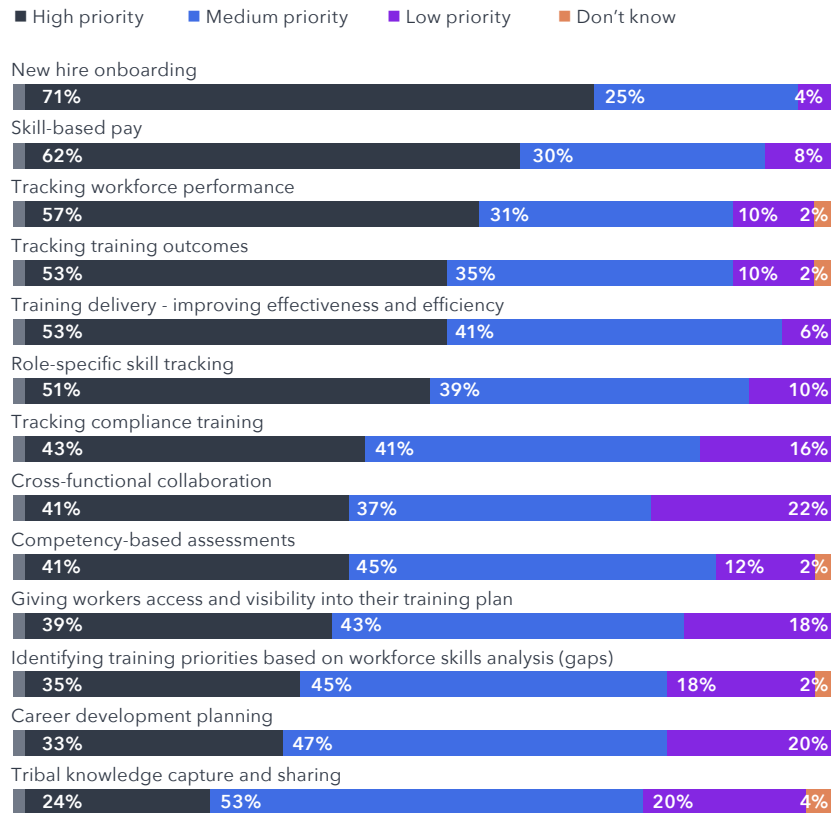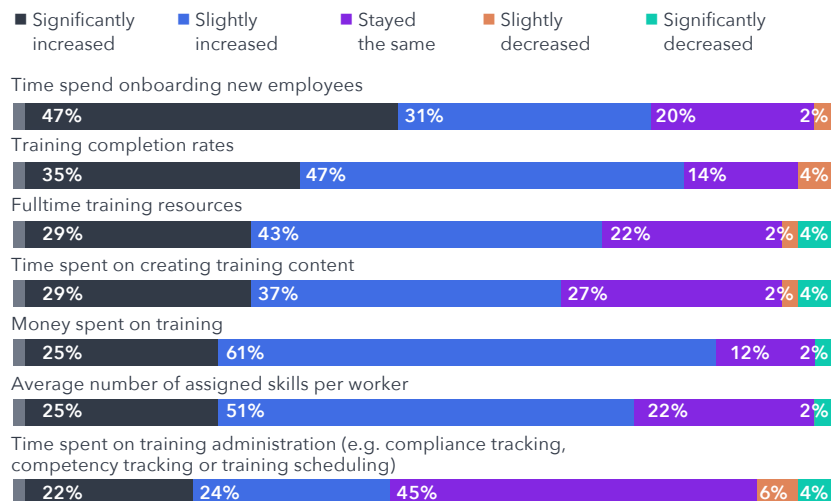
■ High priority  ■ Medium priority  ■ Low priority  ■ Don't know

**New hire onboarding**
| 71% | 25% | 4% |

**Skill-based pay**
| 62% | 30% | 8% |

**Tracking workforce performance**
| 57% | 31% | 10% | 2% |

**Tracking training outcomes**
| 53% | 35% | 10% | 2% |

**Training delivery - improving effectiveness and efficiency**
| 53% | 41% | 6% |

**Role-specific skill tracking**
| 51% | 39% | 10% |

**Tracking compliance training**
| 43% | 41% | 16% |

**Cross-functional collaboration**
| 41% | 37% | 22% |

**Competency-based assessments**
| 41% | 45% | 12% | 2% |

**Giving workers access and visibility into their training plan**
| 39% | 43% | 18% |

**Identifying training priorities based on workforce skills analysis (gaps)**
| 35% | 45% | 18% | 2% |

**Career development planning**
| 33% | 47% | 20% |

**Tribal knowledge capture and sharing**
| 24% | 53% | 20% | 4% |

## Figure 3: How have the following changed over the last two years?

■ Significantly increased  ■ Slightly increased  ■ Stayed the same  ■ Slightly decreased  ■ Significantly decreased

**Time spend onboarding new employees**
| 47% | 31% | 20% | 2% |

**Training completion rates**
| 35% | 47% | 14% | 4% |

**Fulltime training resources**
| 29% | 43% | 22% | 2% | 4% |

**Time spent on creating training content**
| 29% | 37% | 27% | 2% | 4% |

**Money spent on training**
| 25% | 61% | 12% | 2% |

**Average number of assigned skills per worker**
| 25% | 51% | 22% | 2% |

**Time spent on training administration (e.g. compliance tracking, competency tracking or training scheduling)**
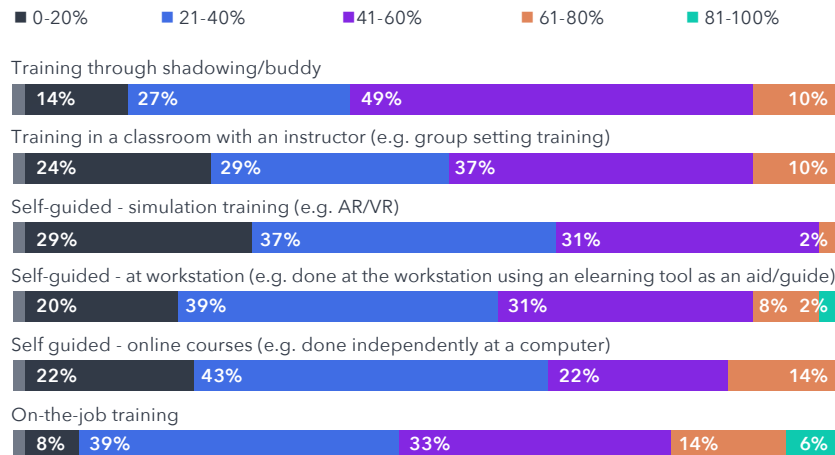| 22% | 24% | 45% | 6% | 4% |

**By 2024, a quarter of the US workforce will be over 55, with a third of those being 65 or older, amplifying the demand for new talent.**

Seventy-one per cent of respondents identify new hire onboarding as a high priority this year, as they grapple with an aging workforce, chronic turnover, persistent skills gaps and a changing work environment induced by the COVID-19 pandemic (see **Figure 2**). The US Bureau of Labor Statistics projects that by 2024, a quarter of the US workforce will be over 55, with a third of those being 65 or older, amplifying the demand for new talent. This situation has been exacerbated by the pandemic, which has led to high voluntary resignation rates and record vacancies, as well as chronic turnover at factories. As such, nearly half of respondents have had to significantly increase the time spent onboarding new hires (see **Figure 3**).
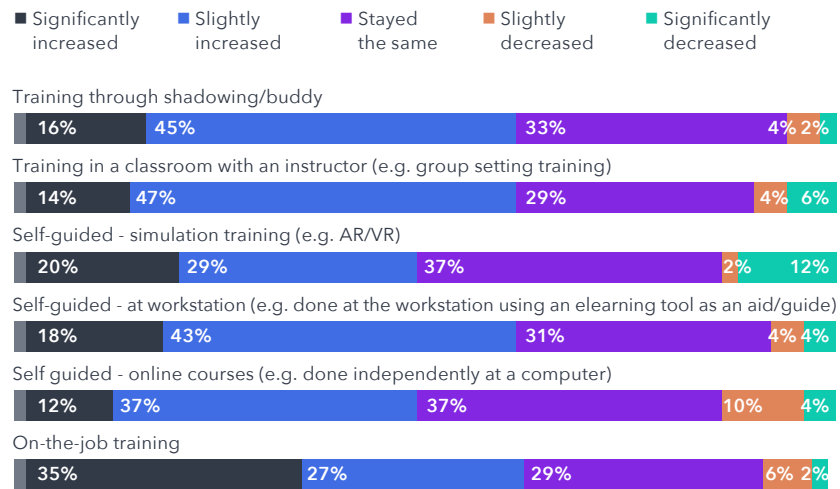
**Businesses plan considerable increases in on-the-job training methods in the next two years.**

**Figure 4: To what extent do you use the following training delivery methods, as a percentage of overall training delivery?**

■ 0-20%   ■ 21-40%   ■ 41-60%   ■ 61-80%   ■ 81-100%

Training through shadowing/buddy

| 14% | 27% | 49% | 10% |

Training in a classroom with an instructor (e.g. group setting training)

| 24% | 29% | 37% | 10% |

Self-guided - simulation training (e.g. AR/VR)

| 29% | 37% | 31% | 2% |

Self-guided - at workstation (e.g. done at the workstation using an elearning tool as an aid/guide)

| 20% | 39% | 31% | 8% | 2% |

Self guided - online courses (e.g. done independently at a computer)

| 22% | 43% | 22% | 14% |

On-the-job training

| 8% | 39% | 33% | 14% | 6% |

Survey data reveal that shadowing remains the most common method of training in factories. Some 59% of respondents use shadowing to deliver more than 40% of their training (see **Figure 4**).

**Figure 5: How do you anticipate usage of those training delivery methods changing over the next two years?**

■ Significantly increased   ■ Slightly increased   ■ Stayed the same   ■ Slightly decreased   ■ Significantly decreased

Training through shadowing/buddy

| 16% | 45% | 33% | 4% | 2% |

Training in a classroom with an instructor (e.g. group setting training)

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Self-guided - simulation training (e.g. AR/VR)

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Self guided - online courses (e.g. done independently at a computer)

| 12% | 37% | 37% | 10% | 4% |

On-the-job training

| 35% | 27% | 29% | 6% | 2% |

## 14% of respondents anticipate a decrease in the use of AR/VR training methods over the next two years.

Over the next two years, manufacturing firms are strategically shifting towards on-the-job training (OJT), favouring this hands-on approach for its promotion of a deep understanding of job requirements and higher work standards (see **Figure 5**). 62% in fact said they expected OJT to increase. This approach to training is also facilitated through mobile applications, which enable self-service learning. While augmented reality (AR), virtual reality (VR) and online courses have shown benefits, such as the ability to perform complex and dangerous tasks in a digital environment, they have high implementation costs, require specialized equipment and involve change management issues. As a result, 14% of respondents anticipate a decrease in the use of AR/VR training methods over the next two years.
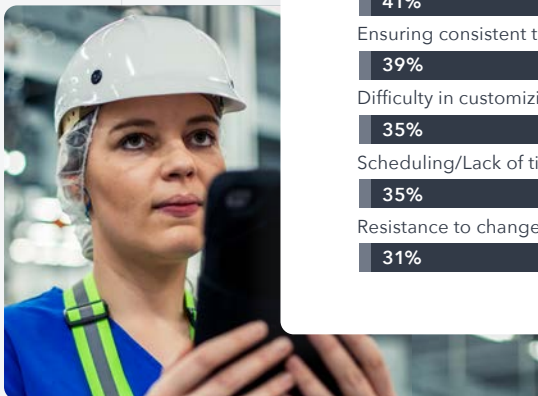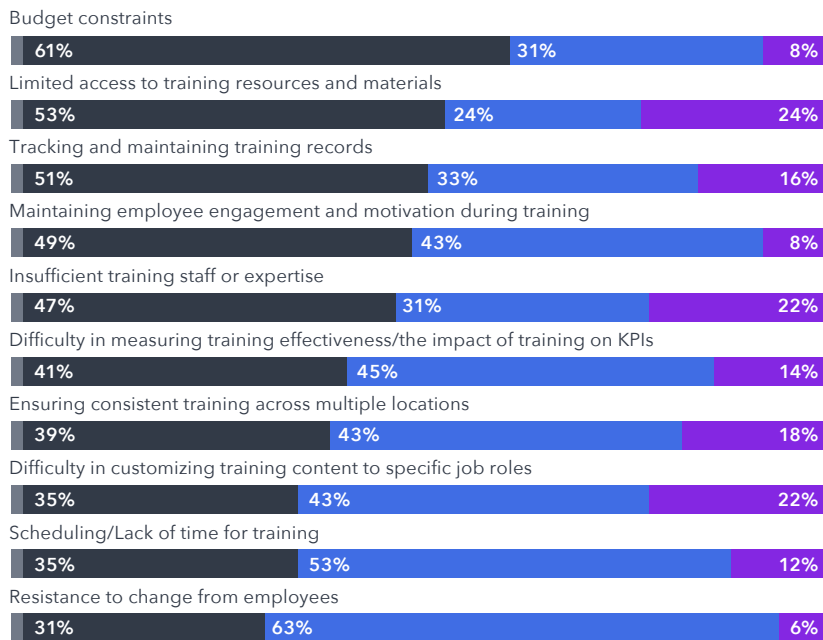
# Unstable labour market conditions exacerbate multiple training challenges for manufacturing firms
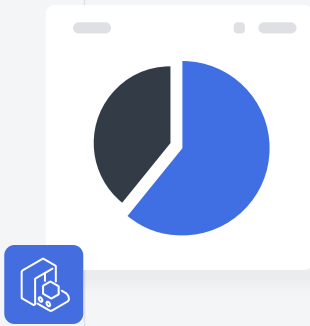
To combat knowledge loss and skills gaps from an aging workforce and workforce volatility, firms are prioritizing onboarding and role-specific training, increasingly shifting to OJT for skills enhancement. Current methods of training delivery, administration and content creation are placing increasing demands on companies' already stretched resources, as they attempt to deliver a higher volume of training to new staff and upskill existing employees. Survey data reveal that:

## Budget constraints are a 'very significant' challenge among respondents.

### Figure 6: How significant are the following challenges when implementing training?

■ Very Significant ■ Slightly Significant ■ Not Significant

Budget constraints

| Very Significant | Slightly Significant | Not Significant |
|---|---|---|
| 61% | 31% | 8% |

Limited access to training resources and materials

| Very Significant | Slightly Significant | Not Significant |
|---|---|---|
| 53% | 24% | 24% |

Tracking and maintaining training records

| Very Significant | Slightly Significant | Not Significant |
|---|---|---|
| 51% | 33% | 16% |

Maintaining employee engagement and motivation during training

| Very Significant | Slightly Significant | Not Significant |
|---|---|---|
| 49% | 43% | 8% |

Insufficient training staff or expertise

| Very Significant | Slightly Significant | Not Significant |
|---|---|---|
| 47% | 31% | 22% |

Difficulty in measuring training effectiveness/the impact of training on KPIs

| Very Significant | Slightly Significant | Not Significant |
|---|---|---|
| 41% | 45% | 14% |

Ensuring consistent training across multiple locations

| Very Significant | Slightly Significant | Not Significant |
|---|---|---|
| 39% | 43% | 18% |

Difficulty in customizing training content to specific job roles

| Very Significant | Slightly Significant | Not Significant |
|---|---|---|
| 35% | 43% | 22% |

Scheduling/Lack of time for training

| Very Significant | Slightly Significant | Not Significant |
|---|---|---|
| 35% | 53% | 12% |

Resistance to change from employees

| Very Significant | Slightly Significant | Not Significant |
|---|---|---|
| 31% | 63% | 6% |

## 61% of respondents identify budget constraints as a paramount challenge for their training programs.

Over the next two years, manufacturing firms are strategically shifting towards on-the-job training (OJT), favouring this hands-on approach for its promotion of a deep understanding of job requirements and higher work standards (see **Figure 5**). 62% in fact said they expected OJT to increase. This approach to training is also facilitated through mobile applications, which enable self-service learning. While augmented reality (AR), virtual reality (VR) and online courses have shown benefits, such as the ability to perform complex and dangerous tasks in a digital environment, they have high implementation costs, require specialized equipment and involve change management issues. As a result, 14% of respondents anticipate a decrease in the use of AR/VR training methods over the next two years.

Economic headwinds have made budget constraints a pressing concern for the manufacturing industry. In fact, 61% of survey respondents identify these as a paramount challenge for their training programs (see Figure 6). Economic uncertainties – including rising energy costs, inflation and geopolitical factors – have forced companies to allocate resources more judiciously. Meanwhile, supply chain disruptions and labour shortages have elevated operational costs, which, along with higher borrowing costs, have intensified budgetary pressures.

## Firms are still experiencing significant issues around access to training resources and maintaining records.

Although 72% of respondents reported an increase in the use of full-time training resources over the last two years, 77% noted that limited access to training resources was a significant challenge when implementing training. Digital solutions allow companies to scale training delivery by making it available on demand in multi-media formats, providing flexibility to trainers and reducing dependence on training personnel. Interviewees also highlighted challenges with tracking and maintaining records, compounded by an increase in the number of skills employees must learn (25% of respondents have seen a significant increase in the number of skills workers must learn during training over the last two years). With training shifting away from structured training events with built-in tracking moments (such as sign-in sheets and eLearning methods), new methods of training admin have developed, via digital solutions. These allow for simplified tracking and training delivery on the shop floor.
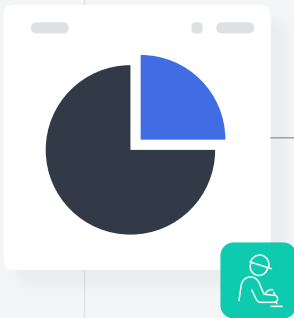
## 25% of respondents have seen a significant increase in the number of skills workers must learn during training over the last two years

## Training completion rates are improving, but are still not optimum.

Encouragingly, 82% of respondents said that training completion rates either 'significantly' or 'slightly' increased over the past two years; however, rates at respondent firms remain below target, with less than 50% achieving a rate of 85% or higher. Several factors contribute to this shortfall, including a lack of resources, while manual or out-of-date training records make it hard to monitor, plan, prioritize and deliver training. Moreover, miscommunication about the benefits or purpose of training programs, coupled with resistance to change, can hinder the completion rate. Potential hurdles can be amplified by limited technological resources. The implications of such low completion rates are substantial: productivity decreases when employees lack necessary skills; turnover rates rise as undertrained employees seek better opportunities; costs increase due to high turnover and retraining needs; and morale diminishes owing to a lack of development.
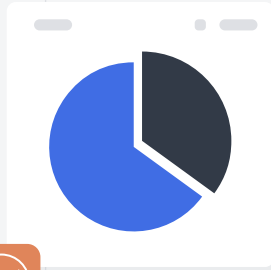
**Only 35% of respondents describe their training programs as 'highly effective'.**

In the manufacturing sector, the effectiveness of training programs is a key concern, with only 35% of respondents viewing their programs as 'highly effective'. This relatively low figure indicates a potential disconnect in achieving the intended goals of training and meeting employees' training needs. Overall performance KPIs, chronic turnover and poor worker feedback are measures of low training programme efficacy. Accommodating the changing expectations of new generations entering the workforce is increasing pressure to adjust the approach to training.  In response to these challenges, many firms are moving beyond legacy solutions such as pen and paper, spreadsheets and learning management systems (LMSs), towards innovative training solutions such as mobile learning and development apps and training analytics, to deliver insights into areas to improve in the future.
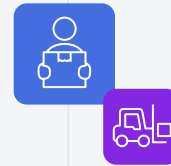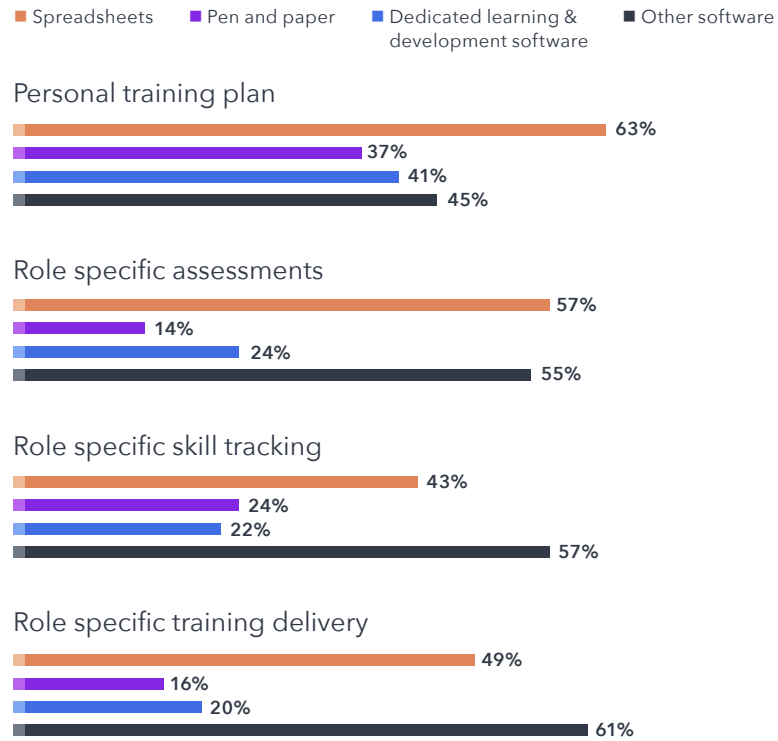
# Digital solutions help solve workforce development challenges

In the face of market instability, knowledge loss from an aging workforce, and economic uncertainties, firms are experiencing low completion rates and low confidence in training frameworks. To counteract these challenges, companies are expanding digital transformation in training.

Our research shows that:

## Most respondents rely on spreadsheets to track training use cases.

### Figure 7: Which tools do you currently use to track the following use cases?

■ Spreadsheets   ■ Pen and paper   ■ Dedicated learning & development software   ■ Other software

**Personal training plan**

- Spreadsheets: 63%
- Pen and paper: 37%
- Dedicated learning & development software: 41%
- Other software: 45%

**Role specific assessments**

- Spreadsheets: 57%
- Pen and paper: 14%
- Dedicated learning & development software: 24%
- Other software: 55%

**Role specific skill tracking**

- Spreadsheets: 43%
- Pen and paper: 24%
- Dedicated learning & development software: 22%
- Other software: 57%

**Role specific training delivery**

- Spreadsheets: 49%
- Pen and paper: 16%
- Dedicated learning & development software: 20%
- Other software: 61%

## The survey data indicate a reliance on spreadsheets for tracking training, with 57% using spreadsheets for role-specific skill tracking (see Figure 7).

While spreadsheets are easily customizable and cost-effective, they are prone to human error, can be time-consuming to manage, and struggle with scalability as an organization grows. Most firms have already adopted LMSs; however, the continued reliance on spreadsheets indicates a gap in functionality to address the skill tracking needs of the factory floor. Focus has now shifted towards mobile learning apps, which are emerging as a more viable solution. These apps not only streamline the training process, and make it possible for workers and supervisors to maintain training records, but also provide a more flexible, user-friendly experience.

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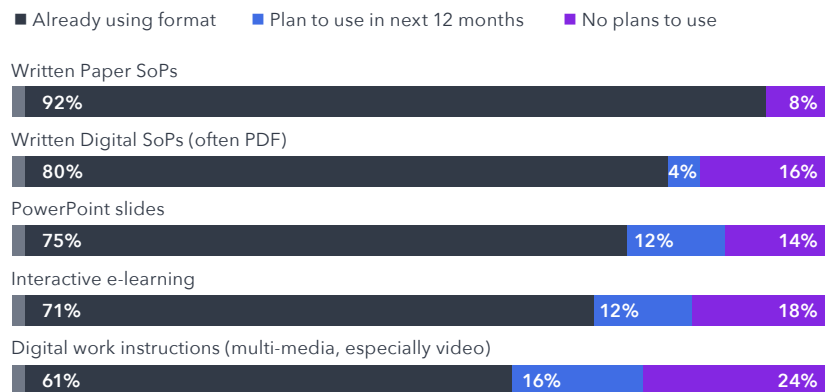An IFS company

## What is a 'mobile learning app'?

**Mobile learning apps make it possible for workers to access important knowledge and training content at the point of need. This type of solution supports the trend towards on-the-job training.**

In the manufacturing sector, digital work instructions are rapidly supplanting traditional printed instructions, solidifying their place as the fastest-growing training delivery format, with 16% of respondents planning to use them in the next 12 months (see **Figure 8**). Digital work instructions are more visual and therefore easier to understand and retain. They not only eliminate the limitations of paper-based instructions, but enhance accessibility, control and standardization across organizations, reducing errors and promoting consistency. They also improve comprehension and retention through multi-media features such as photos and video. Enhanced user-friendliness, such as the accessibility of digital work instructions via QR codes, combined with easy configurability through no- or low-code functionality, leads to improved employee productivity and process efficiency. Furthermore, the compatibility of digital work instructions with skill-based training provides managers with a holistic view of workforce utilization and efficiency, setting the stage for continuous improvements in the sector.
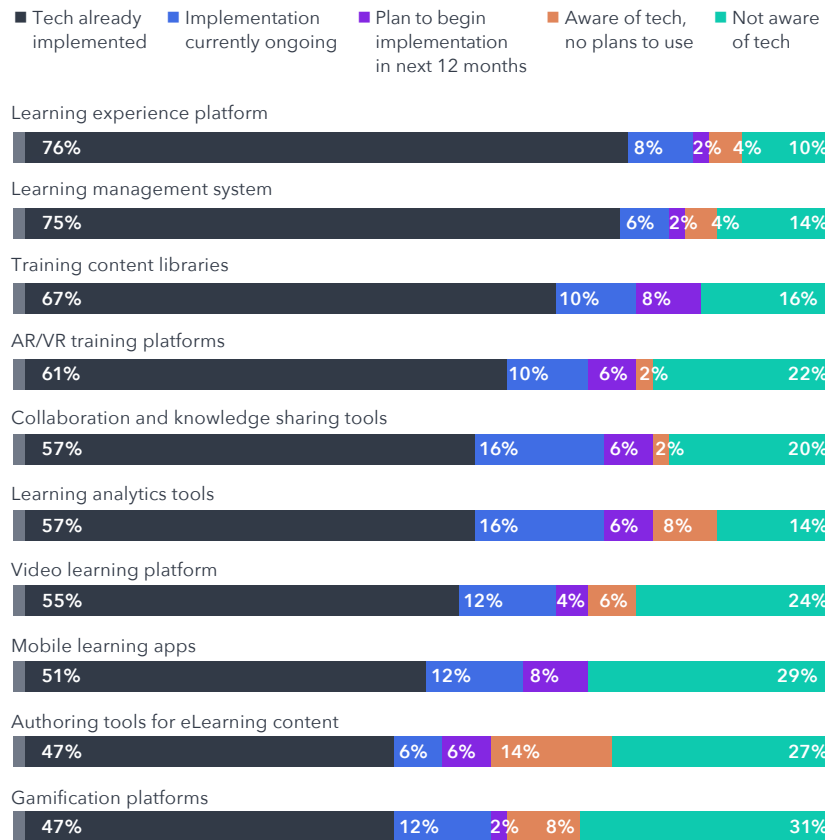
### Digital work instructions are the fastest-growing training content format.

**Figure 8: How is your company using or planning to use the following training material content formats?**

■ Already using format   ■ Plan to use in next 12 months   ■ No plans to use

Written Paper SoPs

| 92% | | 8% |
|---|---|---|

Written Digital SoPs (often PDF)

| 80% | 4% | 16% |
|---|---|---|

PowerPoint slides

| 75% | 12% | 14% |
|---|---|---|

Interactive e-learning

| 71% | 12% | 18% |
|---|---|---|

Digital work instructions (multi-media, especially video)

| 61% | 16% | 24% |
|---|---|---|

## Most companies have an LMS, but new tools such as analytics and mobile apps are gaining traction.

**Figure 9: How are you using, or plan to use, the following technologies to support your learning and development programme?**

■ Tech already implemented  ■ Implementation currently ongoing  ■ Plan to begin implementation in next 12 months  ■ Aware of tech, no plans to use  ■ Not aware of tech

Learning experience platform

| 76% | 8% | 2% | 4% | 10% |

Learning management system

| 75% | 6% | 2% | 4% | 14% |

Training content libraries

| 67% | 10% | 8% | 16% |

AR/VR training platforms

| 61% | 10% | 6% | 2% | 22% |

Collaboration and knowledge sharing tools

| 57% | 16% | 6% | 2% | 20% |

Learning analytics tools

| 57% | 16% | 6% | 8% | 14% |

Video learning platform

| 55% | 12% | 4% | 6% | 24% |

Mobile learning apps

| 51% | 12% | 8% | 29% |

Authoring tools for eLearning content

| 47% | 6% | 6% | 14% | 27% |

Gamification platforms

| 47% | 12% | 2% | 8% | 31% |

LMSs have solidified their position within the manufacturing industry, with a notable 75% of respondents reporting an established implementation (see **Figure 9**). However, challenges remain, and the landscape of learning tools is therefore expanding. We see this with the 16% of respondents currently integrating analytics tools into their learning and development strategies. These tools elevate the learning and development landscape by offering insights into training effectiveness, personalizing learning paths and predicting skill gaps, thus enabling proactive planning. Furthermore, the prominence of mobile apps has dramatically surged in the manufacturing sector over the last three years, due to a rising emphasis on digital transformation induced by COVID-19.

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These apps offer accessible, user-friendly training environments that integrate into daily workflows, while fostering a collaborative learning atmosphere. Twenty per cent of firms are planning to implement, or are currently implementing, mobile apps into their training.

## Leveraging digital tools for training helps firms improve plant KPIs.

The survey reveals that leveraging digital tools leads to noticeable improvements in plant KPIs. Traditional systems provide some advantages, but mobile apps significantly enhance training administration, tracking and delivery, compliance, completion and follow-up workflows. It may come as little surprise that seventy-three per cent of firms with very significant challenges in tracking and maintaining training records are spreadsheet users. Meanwhile, a rise in plant performance is associated with the use of digital tools; 75% of firms with an overall equipment effectiveness (OEE) above 80% utilize mobile learning apps. The correlation holds true when examined from the opposite direction, where usage drops to 46% among firms with an OEE below 80%.

The employee turnover rate also reflects the digital disparity - 94% of firms reporting the lowest employee turnover rates below 5% are investing in dedicated learning experience solutions.

**75% of top performing plants with OEE +80%** are leveraging digital tools for training & workforce development