

# Beyond Manuals:

## Setting the Right Expectations for Operator Training on Modern Packaging Lines



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## ABOUT THE REPORT

PMMI is the leading global trade association for the packaging and processing industries. Our core purpose is to unite the packaging and processing industries across the supply chain, helping our members to exchange knowledge and ideas so that they can continue to succeed in a rapidly evolving global market. We represent over 1,000 companies from across the value chain, and we work with them every day to ensure they can keep on developing innovative manufacturing solutions.

## ABOUT VISION 2030

PMMI's Vision 2030 focuses on discovery, discussion and solutions to the industry's most significant challenges for original equipment manufacturers (OEMs) and for the consumer packaged goods (CPG) sector. It is a critical component of PMMI's suite of continuous improvement forums for its members and the CPG companies they serve.

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This white paper presents a summary of the Vision 2030 session entitled **Beyond Manuals: Setting the Right Expectations for Operator Training on Modern Packaging Lines**, which took place at PACK EXPO Las Vegas 2025. Drawing on feedback from a pre-event survey, the session featured a question and answer portion with expert panelists, and roundtable discussions with mixed tables of participants.

The phrase “moving beyond manuals” means prioritizing dynamic, visual, and on-demand learning resources that align with the modern workforce’s needs and the increasing complexity of packaging automation. As one end user explained,

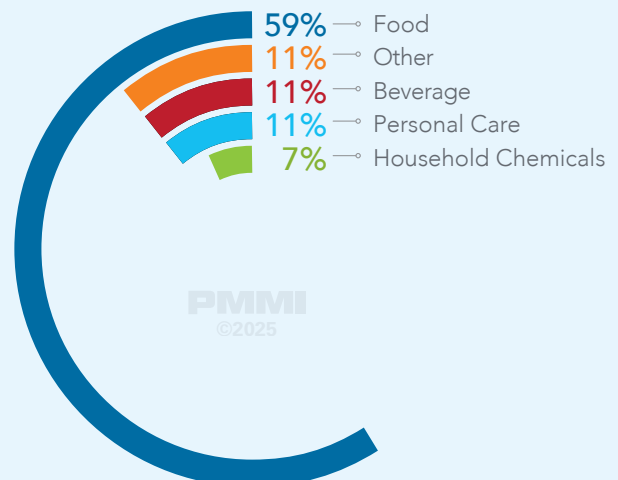
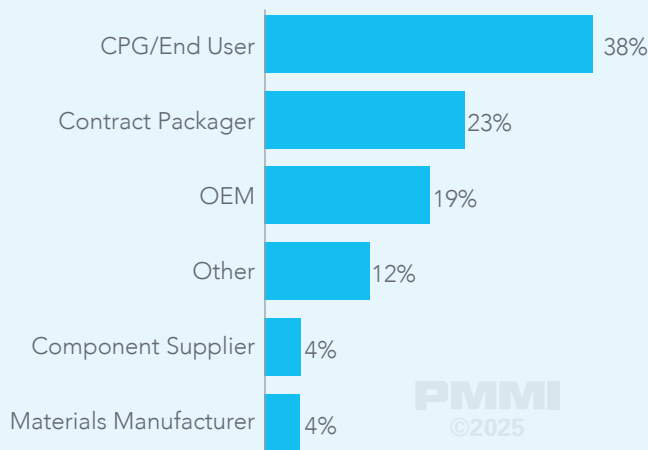
“Operator training is the biggest impact that we have in terms of downtime.”



Participants explored the extent to which operator training is a challenge for companies, the importance of effective training, logistical issues around organizing training, and ways in which training can be improved beyond manuals. Panelists and participants highlighted the need for clear, well-defined training specifications – ideally from the request for proposal (RFP) onward – and how these should meet the needs of each company and the capabilities of its workforce. The importance of effective communication between original equipment manufacturers (OEMs) and end users to get the right training, in the best format, at a suitable time was a key theme of the session.

Of the 53 participants in the session, 38% represented consumer packaged goods (CPG) companies and other end users, 23% were contract packagers, and 19% were OEMs, with the remainder comprising supplier members and others. Over half of participants in the session (59%) were from the food industry.

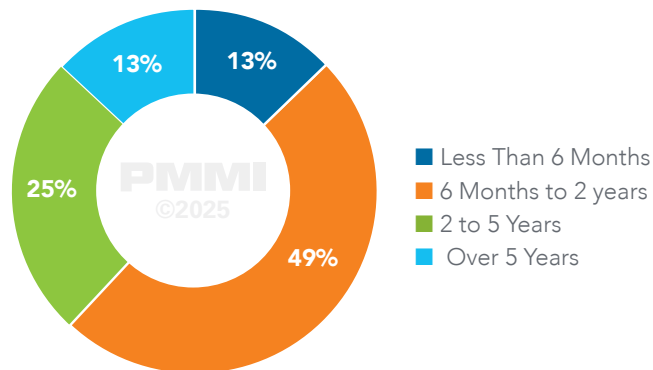
## Here is a snapshot of who was in your session



## Retention challenges hamper packaging line operator training

The level of experience of packaging line operators is a crucial challenge facing companies. In the pre-event questionnaire circulated to participants, 49% of respondents said the average experience level is six months to two years, while a further 13% estimated it at less than six months. With almost two-thirds of packaging line operators having fewer than two years' experience, it is clear that training and skills are critical issues, as is staff retention. It was mentioned in responses that the optimal length of tenure would be over five years, but only 13% of respondents placed their operators in this category.

What is the average experience level of your packaging line operators?



*The average experience level of packaging line operators among the companies surveyed is less than two years*

One of the issues raised during the session was the need for staff willing to take on the responsibility of becoming lead operator on a line or to train other operators. This may be linked to tenure. Responses to the pre-show survey indicated that staff turnover is a major challenge for trainers and is making it difficult to train operators. The problem of loss of tribal knowledge when staff move on or retire was raised with one respondent stating:

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It's difficult currently to get qualified workers to show up to work every day. Sometimes the training feels endless. Finding a way to motivate new employees to work toward independent operation is key for us.

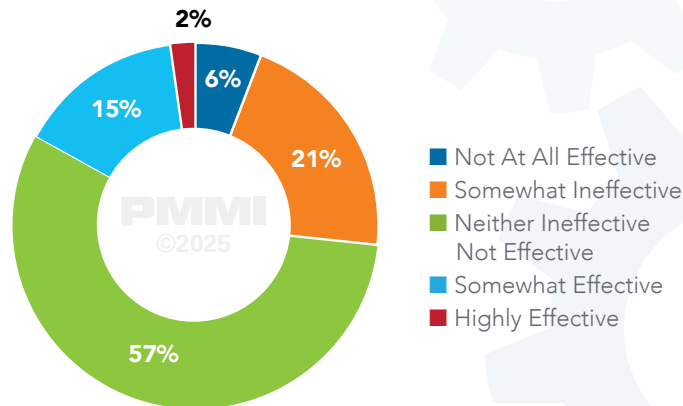
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Staff turnover is a major problem for end users. During the session, one panelist from a CPG company talked about slowing the brain drain by providing a career path, stating, "If they are trying to leave, we want to hold them closer to us." Good training is considered key to achieving this, as it facilitates job variety, allowing trained operators to leave the line and become trainers themselves. One of the CPG panelists said their company had started creating new roles for people as resource technicians to improve staff retention and retain the knowledge needed to keep packaging lines running smoothly.

# How effective is current training?

When asked in the pre-event questionnaire how effective their current training is, 57% of respondents said it was adequate, with only 17% saying it was either effective or highly effective. There are clearly significant issues around the nature and quality of training being offered.

## How effective is your current operator training?

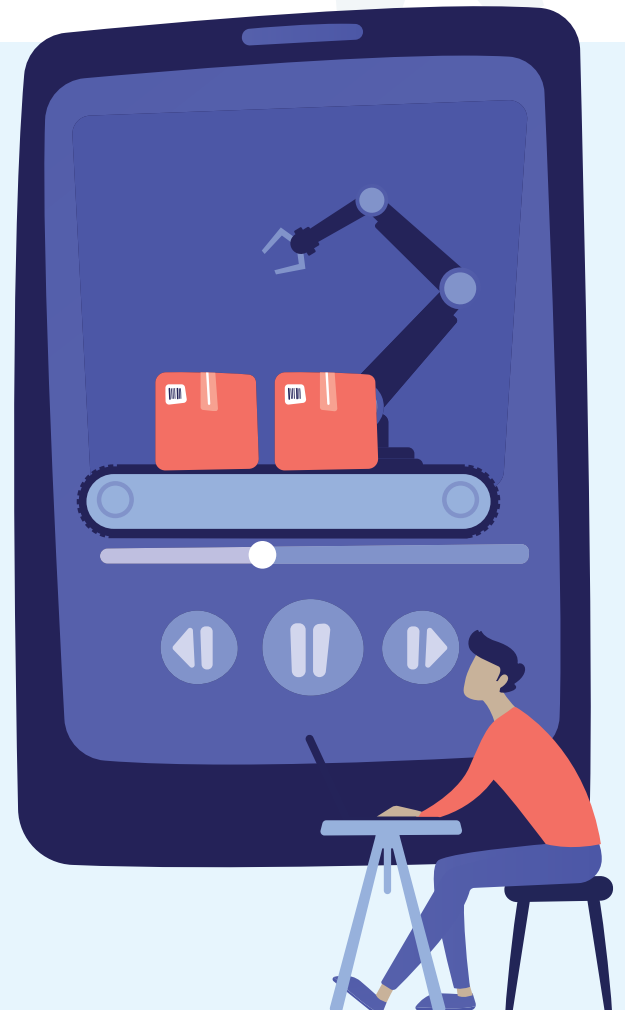


*More than a quarter of respondents said their current packaging line operator training is less than adequate*

In the preliminary survey responses, the comment was made that some operators lack commitment to the training, while others highlighted the risk of operators without enough experience training new operators. Other issues included training being too generalized, not standardized, overly complicated, or not visual enough for operators.

During the session, participants claimed training materials are too manual-based and should be more hands-on or self-guided, including the use of visual materials and short videos. When there is class-based training, a best practice is to use the knowledge gained as soon as possible on the machine. It was also suggested that when training is provided, it should be captured in the form of videos so that it can be made more widely available.

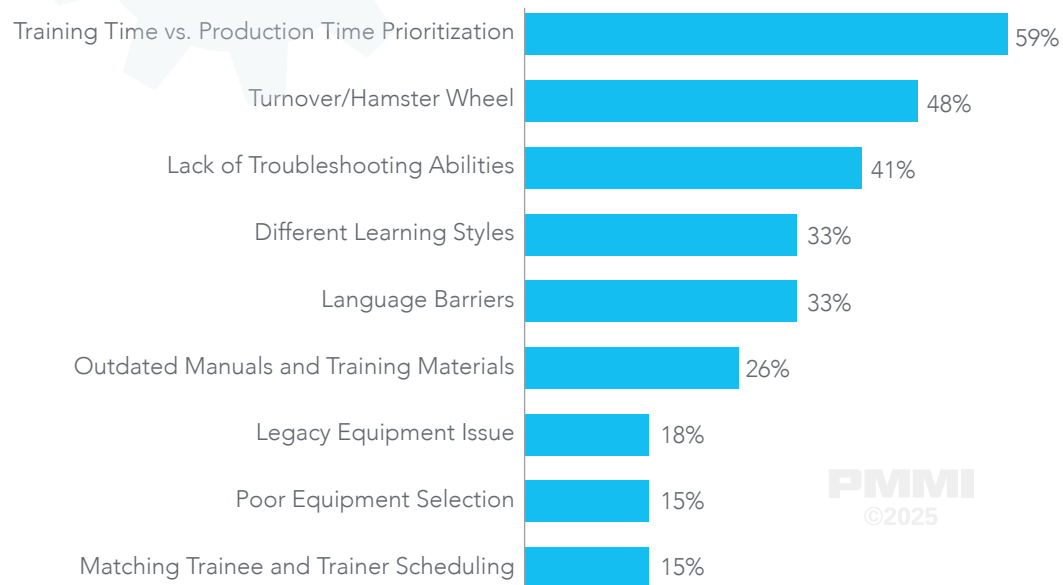
PMMI's white paper on Workforce Gaps reported that, in terms of preferred materials, manuals are at the bottom of the list but, in terms of which training materials are used, manuals come out on top. Participants commented that the instructions provided in manuals are sometimes too complicated and manuals would benefit from the inclusion of simple troubleshooting guides. It was also suggested that information in manuals isn't specific enough to meet the requirements of packaging lines.



# What are the key challenges in training operators?

During the roundtable portion of the session, participants were asked to identify the obstacles to effective training for operators. These were compiled into a list that was voted on to identify the most common problems.

## What are the main factors currently limiting the effectiveness of operator training on modern packaging lines?



More than half of participants (59%) voted managing the dual demands of training and production as one of their key challenges



The most common challenge for participants is effectively prioritizing training time when competing production demands are made. As one person explained, it is necessary to consider “planning for training versus real-world priorities in production and being able to stop a line if necessary to do training and finding a healthy balance.” This was followed by problems with staff turnover and the subsequent need to provide constant training for new operators. Other popular choices were lack of troubleshooting abilities, language barriers and different learning styles among workforces.

On troubleshooting, one participant stated, “What we find is sometimes when an issue occurs, machine goes down, it becomes a little bit challenging, especially for newer operators or operators who are interacting with these types of equipment for the first time....They struggle to ... troubleshoot [and] determine the root cause of the downtime issues.”

# Overcoming the obstacles to effective operator training

Participants and panelists agreed that operator training is crucial to their operations. If a machine isn't set up properly, there are going to be production issues. With high rates of staff turnover in some companies, being able to pass on knowledge is key. Strategies such as having trained staff as backup in case an experienced operator departs can mitigate staff turnover and cross-training operators can alleviate pressure.

OEMs made the point that they can create training programs in collaboration with end users, but people who are expected to attend are often missing because they are required elsewhere. Panelists explained it is crucial to plan training sessions so they balance with production and when operators are available. Modifying the production schedule for training days, shutting down lines or using periods of planned downtime can help, as can condensing training to short sessions of an hour or two.

## Communication between OEMs and end users

An OEM panelist commented that one of the major challenges is the amount of training OEMs have to do because of the high turnover of machine operators, and the need to make sure the right training reaches the right people, including second and third shift teams.

There was general consensus during the session that good communication and collaboration is required between OEMs and end users about what training needs exist, what training is available for operators, and how much it will cost. This is important right from the planning RFP stages, throughout the lifecycle of machines. The OEM panelist stated that collaboration at the planning stage is essential so they know from the customer how training can be tailored to their needs, noting,

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Sometimes we have people who are brand new to any automation at all, so we need to know who we're working with essentially. And we try to put teams together.” He added, “Because there is no training that we can just say ‘it's carbon copy for every single person.

”



## Budgeting for training

Advice from panelists, regarding budgeting for training, is to ensure that the cost of training is included in capital expenditure before budget approval. This can be challenging, as training needs are difficult to predict. One CPG panelist mentioned the difficulties they experienced funding the training required on the first three machines purchased from an OEM. They solved the problem by adding 5% or 10% to the quoted cost of subsequent machines in their RFP.

It was generally agreed that OEMs need to tell end users their ideas for training early so that they can budget effectively, while end users should plan properly so they are not asking OEMs for last minute services outside the scope of the RFP. One end user said their solution is to “typically, even if I don’t know, I put an extra little bit of budget for training.” An OEM addressed this issue by offering four levels of training in all their proposals so end users can choose according to their needs, with refunds given for any training modules that are not used.

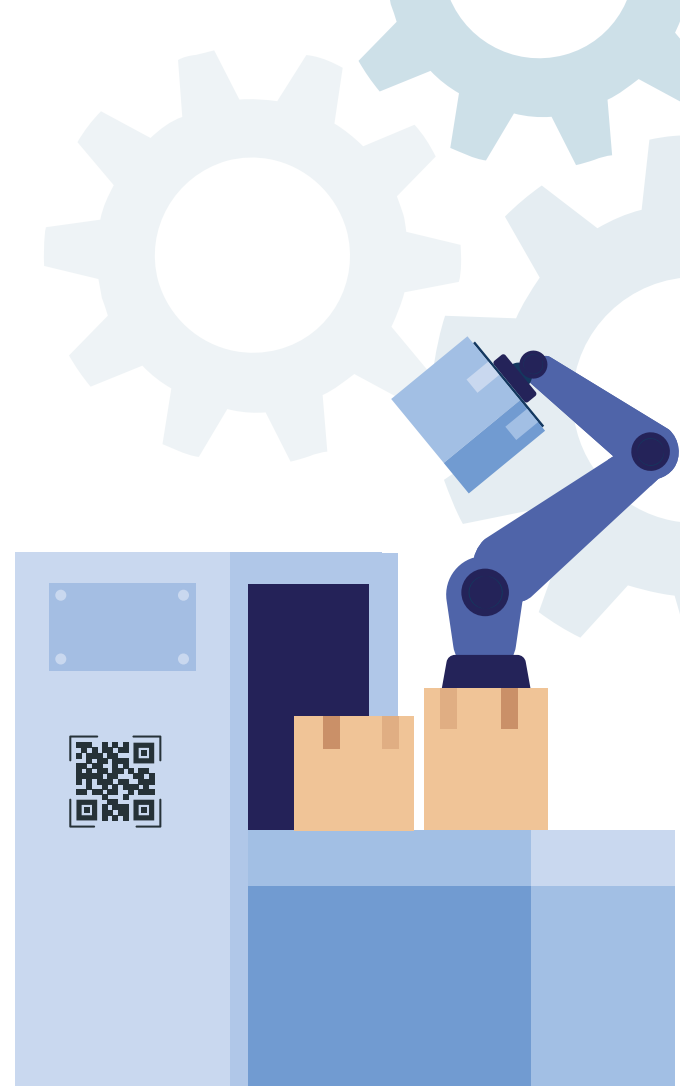


## Success stories

Improving access to information was raised during the session. This included the use of QR codes on machines, which can be scanned to provide advice and training materials. Having an HMI (Human-Machine Interface) that provides translations of training materials and manuals was identified as a means of enhancing access to information. An OEM representative revealed that their company provides a button on HMIs that is always present and translates information into the operator's preferred language stating, "In all of the different screens, now we have a question mark button that can be translated into every language."

One CPG panelist spoke about a breakthrough agreement they made with an OEM. They extended a two-day SAT to five days and included an in-person visit from an OEM service technician. The whole training process with the technician was filmed and photographed in agreement with the OEM and a series of short training videos is being created. Another solution from participants was to break up training into short classroom-based sections of as little as 20 minutes and then spend time with the machine for hands-on experience.

In terms of effective and accessible training materials, short training videos were considered to be far more effective than manuals, especially for the younger generation of machine operators. More user-friendly equipment was also seen as an effective way of improving operators' experience and skills, with more intuitive displays and lights or indicators showing when machinery is at its optimal setting.



## How can key issues be reflected in the RFP?

A second poll was taken during the session to examine how the challenges identified could be resolved in the RFP. Solutions included providing digital access to all training materials, setting up processes through QR codes, aligning with the OEM to be able to record technicians, building maintenance visits from OEMs into the contract and "making sure that they're high-quality engineers coming in, high quality trainers."

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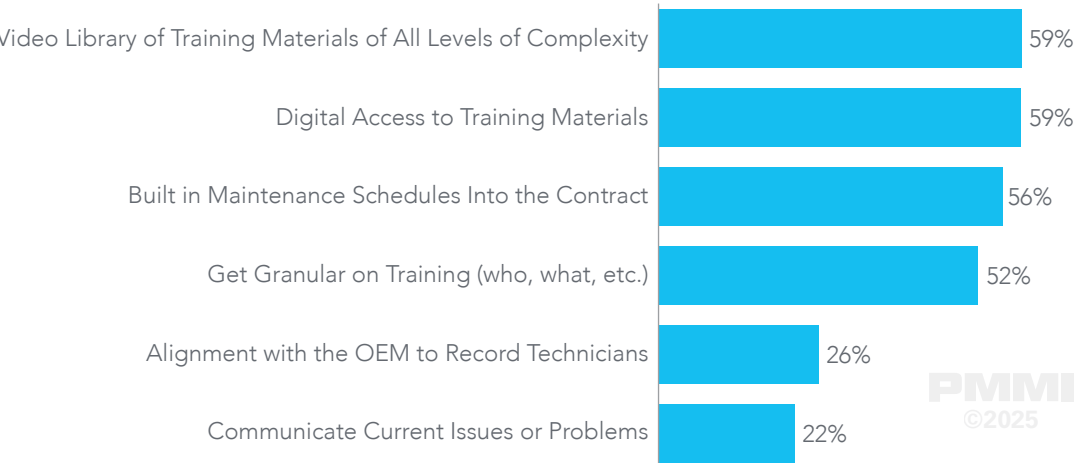
[A] video library of training materials, specifically having from the OEMs different levels of complexity, videos covering safety,... shutdown, sanitation procedures, changeovers, preventive maintenance, troubleshooting. Having those training videos developed and available for the end users to use. Not just for training on the initial startup of the machine, but also to handle turnover, to use those training videos for incoming and new operators. Having that listed in the RFP so that we can have the costing, having that service included in the cost of the machine or as a line item option for the equipment in the quote.

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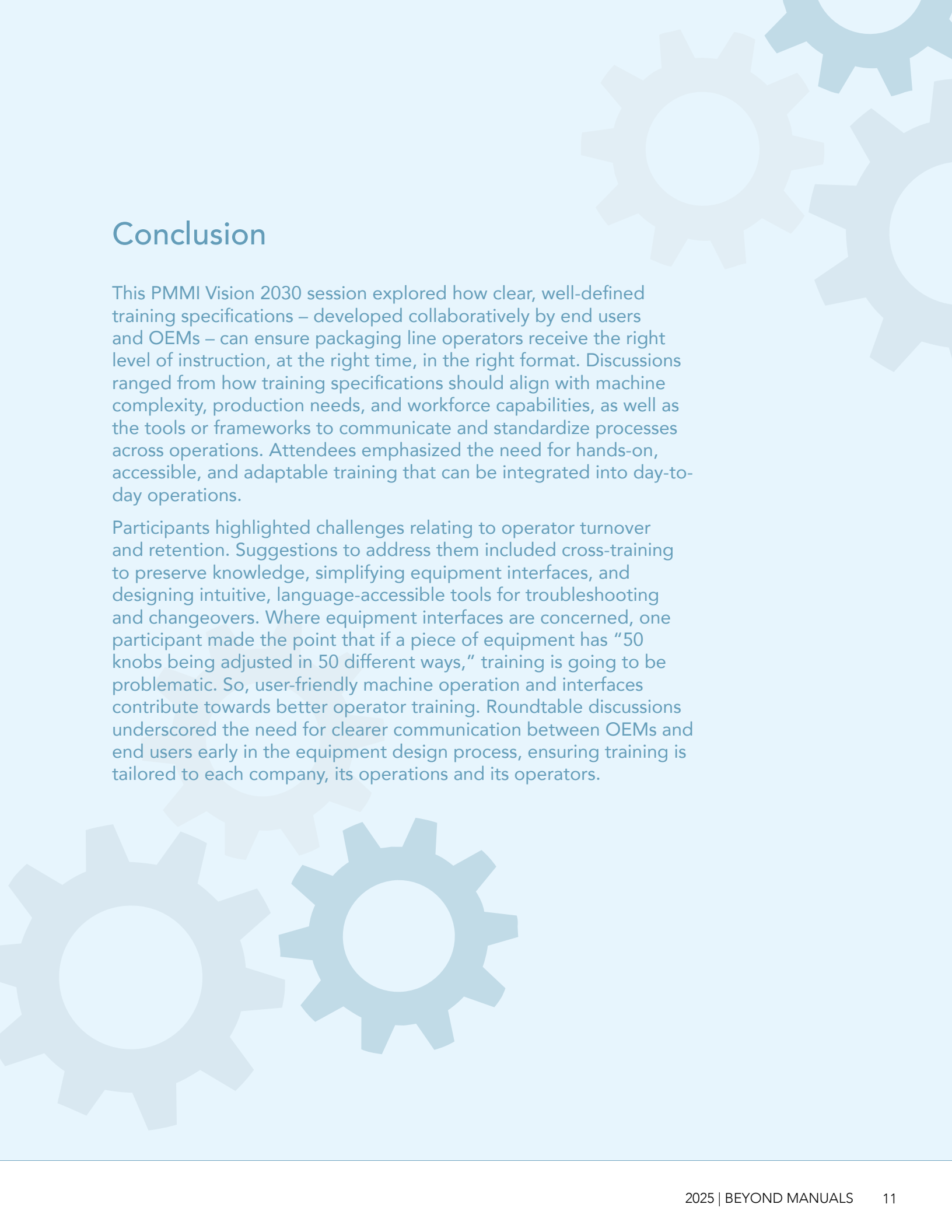
Being more specific about training and who is being trained, as well as ensuring each shift is covered, was recommended by one table. Other participants raised the need for training materials to be of high quality. OEMs agreed that having as much information as possible when planning training ensures it is effective and relevant to the specific plant or operation, because each one is different. There was also a debate held about how end users could create training materials if they are not available, such as updating information about legacy equipment.

” We might lose production taking [a] person off the line to write a manual, but it might save us money and production in the long run. ”

What are the most effective ways to address these training challenges, and how should they be reflected in an RFP (Request for Proposal) (Select up to Three)



Digital and video-based training materials, building maintenance schedules into contracts, and ensuring training plans are as detailed and specific as possible were all seen as effective ways to address operator training challenges



## Conclusion

This PMMI Vision 2030 session explored how clear, well-defined training specifications – developed collaboratively by end users and OEMs – can ensure packaging line operators receive the right level of instruction, at the right time, in the right format. Discussions ranged from how training specifications should align with machine complexity, production needs, and workforce capabilities, as well as the tools or frameworks to communicate and standardize processes across operations. Attendees emphasized the need for hands-on, accessible, and adaptable training that can be integrated into day-to-day operations.

Participants highlighted challenges relating to operator turnover and retention. Suggestions to address them included cross-training to preserve knowledge, simplifying equipment interfaces, and designing intuitive, language-accessible tools for troubleshooting and changeovers. Where equipment interfaces are concerned, one participant made the point that if a piece of equipment has “50 knobs being adjusted in 50 different ways,” training is going to be problematic. So, user-friendly machine operation and interfaces contribute towards better operator training. Roundtable discussions underscored the need for clearer communication between OEMs and end users early in the equipment design process, ensuring training is tailored to each company, its operations and its operators.



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