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WHITE PAPER

From Stop to Strategy: Turning Downtime Data into Operational Improvement



PMMI Business Intelligence

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ABOUT PMMI

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

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About This Report

Production downtime affects more than equipment availability. Interruptions can reduce output, disrupt schedules, increase maintenance demands and create costs that are not always visible in conventional downtime reporting. While manufacturers have more ways than ever to capture production data, understanding what causes interruptions—and using that information to prevent them—remains a challenge.

During a Vision 2030 Discovery Session at PACK EXPO International 2026, CPGs, contract packagers, OEMs and other industry stakeholders explored how downtime is measured, interpreted and addressed. The discussion focused on identifying reliable sources of downtime information, establishing responsibility for validating that information, and examining equipment, maintenance and support practices that can improve repair and recovery.

The findings reflect synthesized insights from a facilitated panel discussion, breakout roundtables, group report-outs and live audience polling. Pre-registration survey responses provide additional context on downtime causes and recovery priorities. The findings reflect participant perspectives, not a statistically representative survey of the broader packaging and processing industry.

Part One | Understanding the Full Picture of Downtime

Measuring a Stoppage Is Not the Same as Identifying Its Cause

Modern production systems can generate substantial amounts of downtime information, from machine alarms and fault codes to production rates and historical performance records. Yet participants repeatedly distinguished between knowing that equipment stopped and understanding why it stopped.

An alarm may identify where an interruption occurred without revealing the underlying cause. A case packer, for example, may repeatedly stop because of inconsistent incoming materials or an upstream process issue rather than a mechanical failure within the machine itself. Without additional context, maintenance teams can spend time addressing symptoms while the underlying problem remains unresolved.

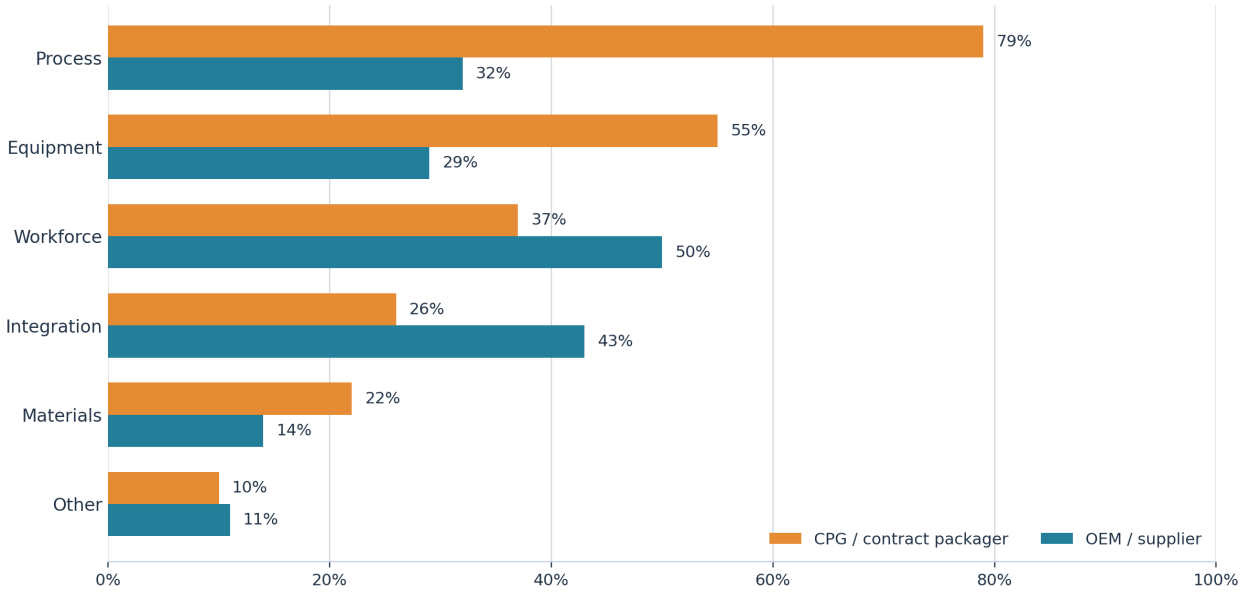
One panelist described a conveyor that repeatedly failed despite replacement of its bearings and belt. With production needing to continue, the team had made repairs to restart the line, but the failures kept returning. The panelist suspected a deeper alignment problem that had not yet been confirmed, illustrating how repeated repairs can address the immediate interruption without resolving its underlying cause.

> *"An alarm just says it happened, but you need the root cause."*
>
> —Session participant

The panel emphasized the importance of examining downtime patterns over time. Historical records can reveal recurring failures or changes in performance that may not be apparent from individual incidents. Equally important is combining machine-generated information with observations from operators, maintenance personnel and others familiar with the production process.

Several roundtables described limitations of both automated and manual reporting. Machine data can identify when a stoppage occurs, but fault descriptions may be too broad or reflect a downstream consequence. Operator-entered records provide useful context but can also be misclassified or entered without sufficient detail.

Pre-registration survey responses revealed different perspectives on downtime causes. Process-related issues were selected by 79% of CPG and contract packager respondents, compared with 32% of OEM and supplier respondents. Workforce-related issues were selected by 50% of OEMs and suppliers versus 37% of CPGs and contract packagers. These differences may reflect the different situations in which each group encounters downtime.



Pre-registration question: What are the top three causes of down time in your operations? Respondents selected up to three.

Taken together, the discussion reinforces the value of combining operational and equipment-specific knowledge to understand why interruptions occur.

Small, Repeated Interruptions Can Have a Significant Operational Impact

Major equipment breakdowns can be costly and disruptive, but they do not always account for the full impact of downtime. Participants described how short, recurring stops, reduced operating speeds and other interruptions can accumulate into substantial production losses.

Several roundtables discussed minor stops that are quickly cleared but occur repeatedly during a shift. Because each interruption is brief, these events may receive less attention than a prolonged breakdown, particularly when production targets are still being met.

Participants also described changeovers, delayed start-ups, inconsistent material flow and equipment operating below its expected rate. Some emphasized that measuring downtime only in minutes can overlook the amount of production lost or the operational consequences of an interruption.

In one closing success story, a participant reported finding that stops of less than two minutes accounted for approximately 35% of the downtime on a filling line. After operational adjustments, the participant reported that these stops accounted for approximately 5%–10%. This is an individual operational example, not an industry benchmark.

The discussion highlighted the importance of examining frequency, duration and production impact together. A single short stop may appear insignificant, but its cumulative impact can be substantial when it recurs across shifts and production runs.

Part Two | Turning Information Into Operational Improvement

Reliable Downtime Data Requires Shared Input and Clear Accountability

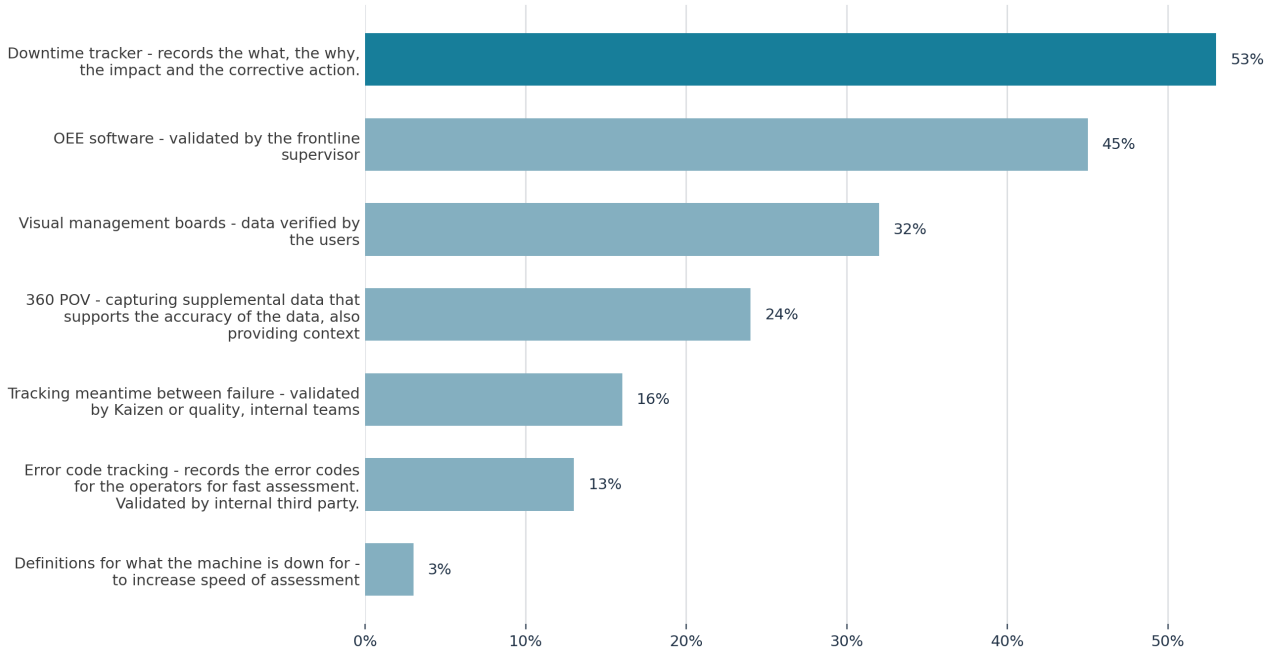
Collecting downtime information is only the first step. Participants repeatedly emphasized validating that information before using it to identify problems or guide operational decisions.

Operators can describe what they observed before an interruption. Maintenance personnel can explain what was repaired or adjusted. Engineering and controls specialists can interpret equipment signals, while supervisors and continuous-improvement teams can evaluate recurring patterns. No single source necessarily provides the complete picture.

Roundtables described different approaches to assigning responsibility. Some favored frontline supervisors because they work closely with equipment and personnel. Others supported continuous-improvement or operational-excellence teams that review information across departments. Several emphasized clearly assigned ownership alongside input from relevant specialists.

> *"A lot of places that have a ton of data but no information."*
>
> —Session participant

After collecting responses from each of the tables about the most reliable sources of downtime information, the audience voted on each of the ideas provided. In the first live vote, 53% selected a downtime tracker recording what happened, why, impact and corrective action. OEE software validated by the frontline supervisor followed at 45%, and visual management boards verified by users received 32%. These were preferences among table-generated proposals, not an industry-wide ranking.



Poll question: What data sources provide the most reliable picture of downtime, and who should be responsible for validating that data? n=38; participants selected up to two.

The common consideration was not that one job function should always own the data, but that information should be reviewed by people with the expertise and accountability needed to assess it.

Downtime Data Creates Value When It Leads to Action

Even accurate downtime data has limited value if it does not lead to follow-through. Participants described organizations collecting information without always having a consistent process for reviewing it, prioritizing problems or confirming that corrective actions were effective.

The panel emphasized using historical data to recognize patterns rather than treating each interruption as an isolated event. Roundtables discussed visual management boards, daily performance reviews, shift handovers and structured root-cause discussions.

> *"There's got to be an action plan to deal with it and monitor the effectiveness."*
>
> —Session participant

One participant described an operation that used simple manual Pareto charts to identify its five leading downtime problems on each production line. The team reviewed those records, developed corrective-action plans and addressed recurring problems. The participant reported that uptime subsequently improved by approximately 40% across the lines involved. This is a participant-reported outcome from one operation, not a benchmark for the industry.

The underlying point is not that manual tools are preferable to automated systems. The discussion suggests that the effectiveness of downtime management depends on how organizations use the information they collect.

Part Three | Improving Equipment Readiness and Recovery

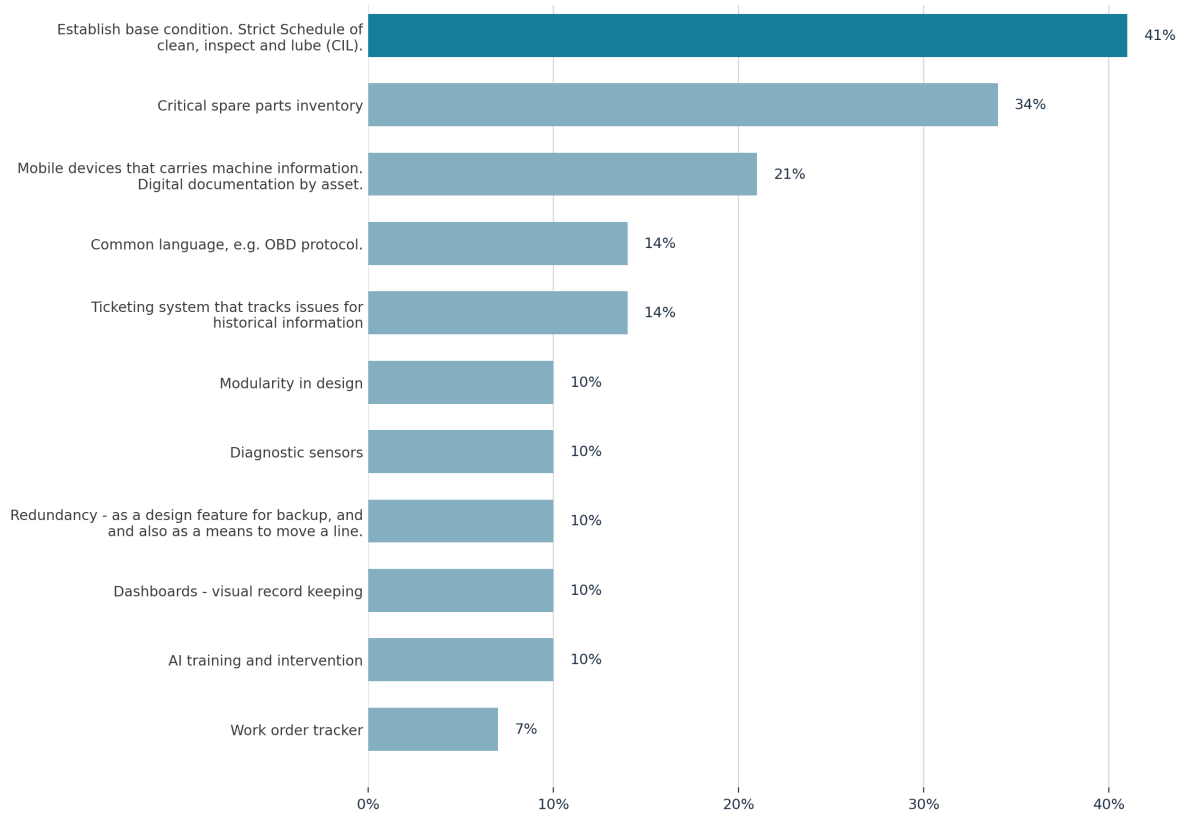
Equipment Readiness Starts Before a Breakdown Occurs

When discussion turned to reducing repair and recovery time, participants emphasized the connection between equipment condition before failures and the disruption that follows. Preventive maintenance, inspection, lubrication and critical spare parts availability were prominent considerations.

Participants discussed the pressure to maintain production schedules even when equipment needs attention. Deferred maintenance can allow small problems to develop into recurring failures. One roundtable described establishing a baseline equipment condition through regular cleaning, inspection and lubrication so operators can identify defects before they escalate.

Other discussions focused on tracking repair histories and making critical spare parts available. Recovery may be delayed not only by diagnosing a failure but also by locating a suitable replacement component.

When tables were asked, what specific equipment design features, diagnostic tools, documentation practices, etc. have the greatest opportunity to positively impact mean time to repair and recovery, the most frequently selected proposal was maintaining a baseline equipment condition through scheduled cleaning, inspection and lubrication (41%). Critical spare parts inventory followed (34%), and mobile devices with machine information and digital documentation by asset received 21%.



Poll question: What specific equipment design features, diagnostic tools, documentation practices, etc. have the greatest opportunity to positively impact mean time to repair and recovery? n=29; multiple selections allowed.

These directional results reflect preferences among session-generated proposals. They place practical maintenance and readiness measures alongside more advanced diagnostic and equipment-design capabilities.

Accessible Knowledge and Better Diagnostics Can Support Faster Recovery

When equipment stops, time spent diagnosing the problem can be as important as the repair itself. Participants described unclear fault messages, limited documentation and dependence on experienced personnel as obstacles to troubleshooting.

The panel highlighted the gap between receiving an alarm and knowing what action to take. Roundtables discussed clearer fault descriptions, asset-specific manuals, maintenance-ticket histories and digital documentation accessible to personnel at the machine.

Participants also discussed documenting repairs and sharing troubleshooting knowledge across shifts. Without reliable records, a technician may spend time investigating a problem someone else has already encountered and resolved.

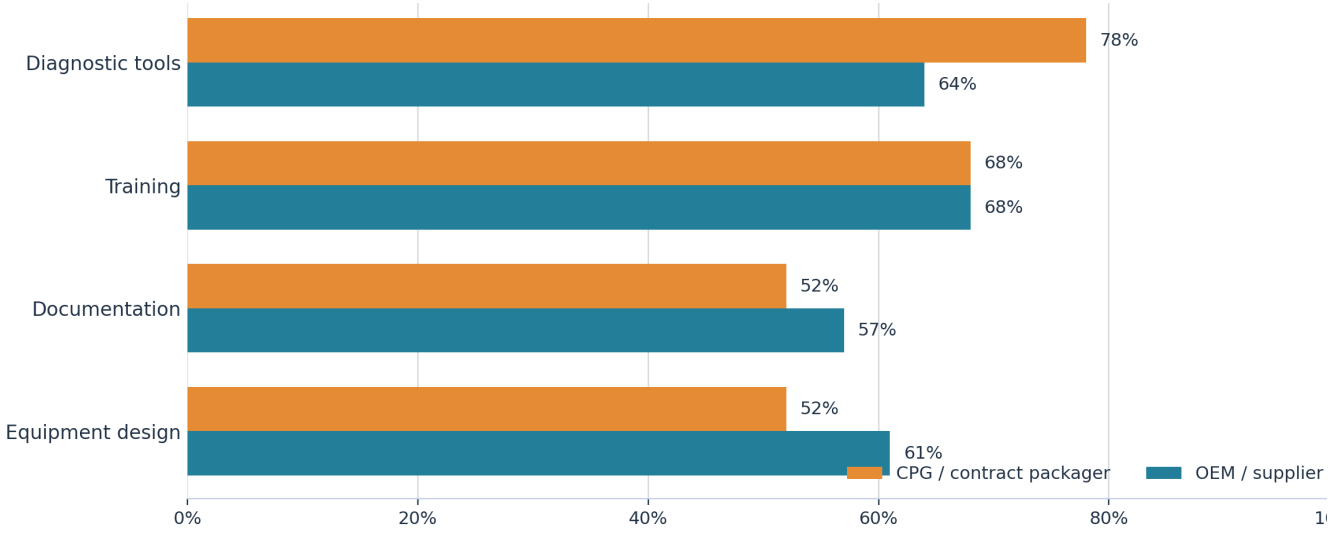
> *"But does the person on the floor know what was done to the machine?"*
>
> —Session participant

A participant asked whether someone starting the next shift would know that a bolt had been loose or a bearing had been changed, noting that this prior context could reduce repair time if the machine failed again.

One room-wide report-out proposed mobile devices containing machine manuals, fault codes, past repairs and photographs of completed work. The participant emphasized that these tools could also benefit existing equipment without advanced connectivity.

Modular components, diagnostic sensors, common communication conventions and redundancy were other proposals. Participants acknowledged that their practicality depends on equipment age, application, cost and production requirements.

Pre-registration responses showed shared interest in diagnostics and training: diagnostic tools were chosen by 78% of CPG and contract packager respondents and 64% of OEM and supplier respondents; training was selected by 68% of both groups.



Pre-registration question: What are the top three strategies with the greatest impact on mean time to repair and recovery? Respondents selected up to three.

For OEMs, these discussions may point to opportunities to make equipment information more accessible throughout the asset lifecycle. For End Users, reliable technical context could help maintenance teams resolve recurring problems and retain operational knowledge.

Conclusion | From Downtime Measurement to Operational Improvement

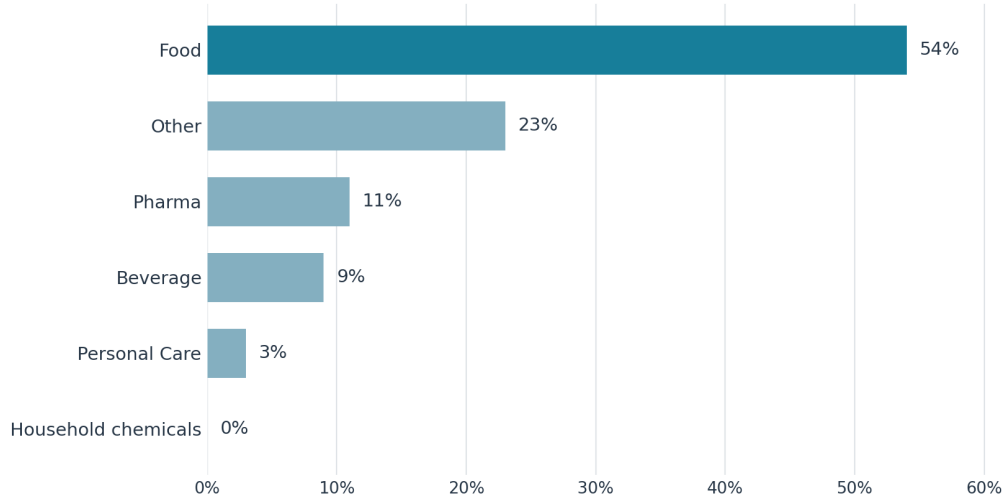
The Vision 2030 discussion highlighted that downtime management involves more than responding when equipment stops. Understanding production losses requires reliable information, operational context and collaboration among the people responsible for running, maintaining and supporting equipment.

Participants described automated monitoring, simple tracking tools, visual management and cross-functional review as useful approaches when they help teams identify recurring problems and act on them. Maintenance readiness, spare parts, clear documentation and effective diagnostics can also shape recovery.

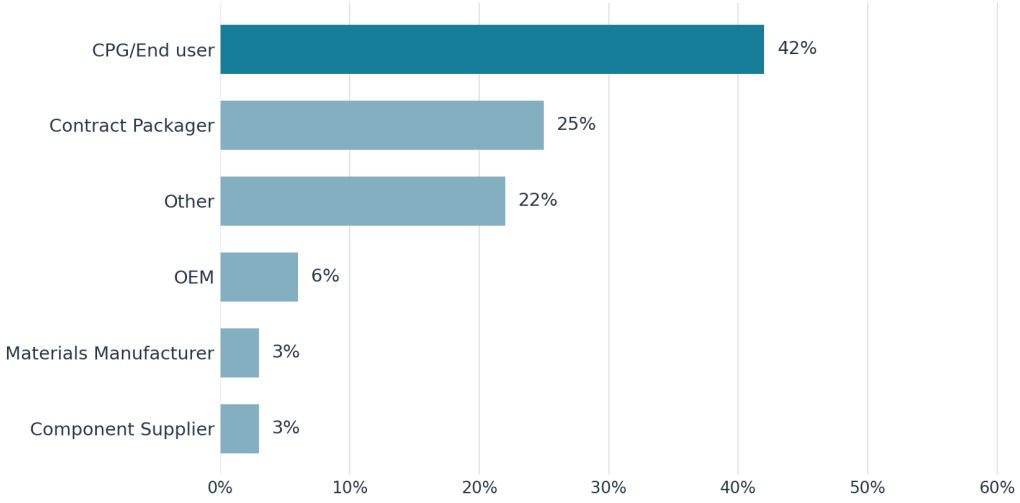
For CPGs, OEMs and other industry stakeholders, the larger opportunity is to connect downtime measurement with a better understanding of causes, more informed operational decisions and improved equipment readiness.

Who attended this Vision 2030 session?

The following charts provide a snapshot of the industries and company types represented in the Downtime Vision 2030 session, based on live polling responses. Respondent counts varied by question, so the results do not represent a complete attendee roster.



Live polling: What is your primary industry or industry you serve? n=35; Percentages are rounded and may total more than 100%.



Live polling: Which of these best describe your company? n=36

One of a kind, not to miss event!

Continuing the conversation

Vision 2030 is a critical component of PMMI's suite of continuous improvement forums for its members and the consumer packaged goods (CPG) companies they serve. The suite focuses on the discovery, discussion and solutions to the industry's most significant challenges. Think of these three components as an annual ongoing conversation between CPGs and OEMs.



DISCOVERY

VISION2030

Vision 2030
Where CPGs share their most significant challenges and opportunities through "voice of the customer" workshops.

DISCUSSION

TOP TO TOP
LEADERS COMMUNICATING SOLUTIONS

Top to Top Summit
Where CPGs and OEMs meet to discuss these challenges and opportunities for addressing them.

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