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Industry Expert eBook

Expert Roundtable: **How Automation Powers Growth in the Food and Beverage Industry**

Food & Beverage Industry Experts

Jim Endres (JE)

Jim Endres is a senior regional account manager focused on helping transportation companies, distributors and manufacturers operate and grow their businesses. He has more than 20 years of experience in the transportation management system (TMS) software industry, with expertise in private fleet route optimization, planned versus actual route visibility and proof of delivery.

Katherine Parr (KP)

Katherine Parr is a food and beverage solutions consultant at Aptean and has been with the company for five years in various food and beverage-oriented roles. She lives in Colorado Springs with her partner, Matt, and enjoys all things food, outdoors and exploring.

Jack Payne (JP)

Jack Payne is director of product management and solutions consulting for food and beverage, working closely with customers, customer solutions, industry analysts and developers on the vision for Aptean food and beverage products. He also organizes and manages all solution consulting activities with existing and prospective customers, and he is a frequent presenter for Aptean webinars and conferences, speaking at industry events and publishing numerous articles in leading publications.

Lee Walker (LW)

Lee Walker is a senior solution consultant manager at Aptean, working with customers and prospects to onboard them with Aptean's range of industry-focused food and beverage solutions. He is passionate about excellence in ERP, business transformation and hands-on change.

Inflation. Rising costs. Supply chain disruption. Material scarcity. Labor shortages.

It seems like everywhere they turn, food and beverage businesses are facing significant impediments to profitability and, in many cases, operational continuity. When being able to run your production lines and staff your factory floor aren't givens, it can be difficult to even imagine pursuing growth as an organization.

That said, there are certainly companies doing that today—though some are more successful than others. What's the secret ingredient for boosting your bottom line and thriving despite challenging conditions? Turns out, the answer is as logical as it is transformational, and that's automation.

Our recent study conducted in conjunction with B2B International revealed that, across both North America and Europe, food and beverage businesses automating their processes experienced higher revenue and profit in the past 12 months, and they expect further increases in those metrics in the coming year.

To dive deep on this subject, the impetuses for automation, what it looks like in practice today and what it might look like in the future with the technology of tomorrow, we turned to some of our internal subject matter experts. We've got their full roundtable here for you to take in, but first we should clarify just what automation is and all it entails in the food and beverage industry.

Speaking with our experts, it became clear that automation is much more than machine arms completing repetitive manual tasks on a production line. Automation also includes digital processes that record, share and/or analyze data on their own, without the need for human intervention, when they would otherwise require a human to process them.

Now, with that established, let's jump into the discussion so you can hear it from those who know it best thanks to their decades of experience in the food and beverage industry, working with organizations of all sizes around the world and the technology that enables greater operational efficiency and better decision-making.

To get our conversation started, we asked our experts why food and beverage businesses would want to take tasks out of human hands and instead automate them with technology. The realities of today's demanding and complicated markets, as well as the limitations of manual methods, emerged as common threads in participants' responses.

JP: The food and beverage industry always faces challenges. Traditionally, they've been about costs, pricing and managing your profit margin. Starting with the pandemic, inflation has made that harder to manage.

One of the new challenges for the industry is supply chain disruptions. Go back five years ago, and the average person didn't even know what the supply chain was—but it's a household phrase now. And if you're in the industry, you understand that there are many factors that affect the supply chain that can result in disruption.

Another emergent challenge is the skills and labor shortage. We started seeing it during the pandemic, and we're still seeing today.

So why should you invest in automation? First of all, to help address these challenges that we're seeing today—but also to be prepared for challenges that come up in the future. It allows you to be more efficient, such that you don't have to rely as much on human capital and tribal knowledge. That way, you're more prepared and agile, both today and in the future.

JE: Very true. Without automation, you have to rely on a lot of manually driven processes, and it takes a lot of people and time to make those happen. That means you can only do so much so fast, and you are forced to make quicker decisions on the fly that may not necessarily be in the best interest of your company—from a cost perspective, as well as a customer service perspective.

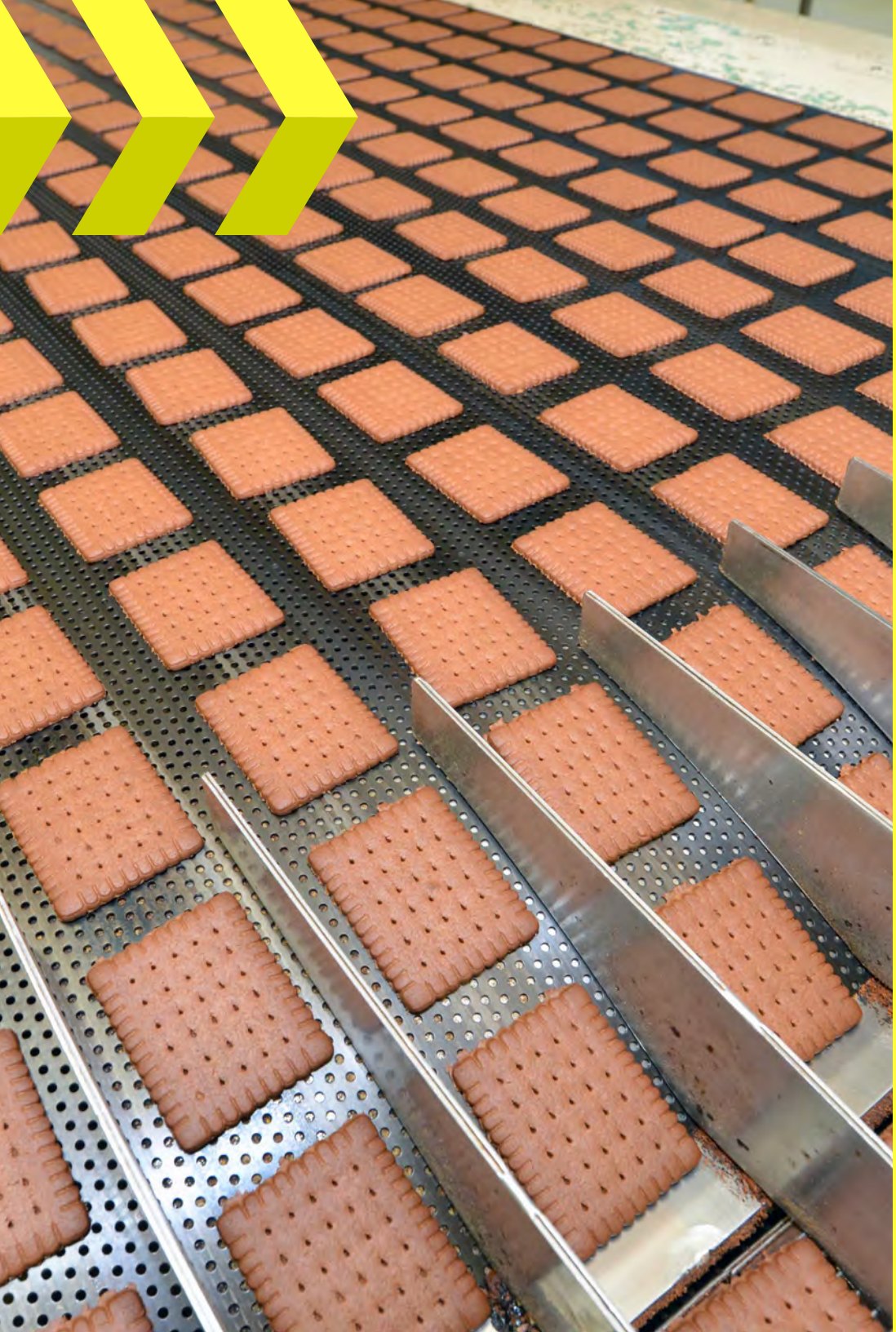
KP: I also find that a lot of food and beverage businesses have inefficient processes that lead to staff not being able to focus on the right priorities. They might be spending 10 hours combing through Excel spreadsheets and data rather than actually analyzing it. So qualified people aren't able to serve strategic roles.

Another driver for automation is the high cost of commodities. There's not as much room for profit margins as there used to be, since just about every cost is increasing, including those for labor.

LW: Right—and if you think about it, every food business is watching their gross margin. They're looking at their raw material costs and their labor costs. Automation increases your efficiency, helping to drive down labor costs.

To stay competitive in the market with your peers, you have to strive to be the lowest-cost producer, especially in this industry, as the margins are tiny. Thus, many businesses rely on volume, making automation a means for economies of scale.

Also keep in mind the value of repeatability of processes through automation and how that can help reduce variation and improve overall quality.



Knowing that automation in manufacturing is not an entirely new idea, we next wanted to establish an understanding of how food and beverage businesses currently view automation. It was here that the distinction between physical automations—sometimes referred to as mechanization, often involving machinery—and digital process automations like those described in the introduction first emerged.

JP: When I'm going on a facility tour, speaking with business owners and executives, and I hear the word "automation," it's clear they're normally thinking about their equipment and how it automates manual processes. They're typically not thinking in terms of digital process automation—what I'd call automation "in the office." But that's a big part of it—making payments, receiving payments, managing month-end closing—those can also be automated.

LW: It's the same in the UK and wider Europe in that the discussion of automation normally centers on mechanization. But it's more than that—data capture and analysis automation are very much part of the equation and can save on costs through reduction of labor just as much as a physical automation.

KP: Along those lines, being able to combine and synchronize the data between the different business systems that you're using is a form of automation. That's what can enable automatic invoicing and lot tracking, for example.

JP: The first level of automation is typically the easiest to implement, and that's integrating your sensors and scales with your enterprise resource planning (ERP) system so that you don't have to have an employee taking the readings. In that way, ERP has been the backbone of business process automation for a number of years.

But keep in mind, because the majority of food and beverage companies are family-owned, they typically have a limited budget for spending. For instance, the owner may have to decide between purchasing a new piece of equipment for the factory that can produce products faster or the kind of technology we're discussing.

In all likelihood, the financial benefits that can be achieved by investing in technology to automate processes will exceed the benefits that one piece of equipment will deliver.

LW: Right. It's true that if you implement a new machine and it enables some physical automation, you can quantify exactly how much time and labor that saves. The benefits of automation through ERP may be less tangible, but in the end they'll save you just as much as a physical automation, even if quantifying that can be tricky.

With that broader perspective gained, we let our experts explain how they look at automation in the food and beverage industry, as well as how purpose-built software solutions enable it. There are many functions of these systems that save time and effort for workers, which empowers them to be more productive and helps their companies be more successful.

JP: If we think about just ERP and all the automations it can enable for food and beverage businesses, there are clearly many possibilities. That's largely because ERP is typically your "system of record," your transactional system—the glue that ties everything together.

For sales and customer service, it can automate the management of pricing, promotions and rebates while offering a real-time view of inventory so that you can compare your commitments to customers with your on-hand stock.

The software also allows you to bring orders in automatically through multiple methods, whether that's electronic data interchange (EDI) or customer-submitted spreadsheets. Likewise, it can automatically create and send invoices, and you don't have to actively collect payments, as your customers can pay through an online payment portal. And of course, it's all electronic—no more printing and mailing.

All these automations are not only reducing the labor required—the fact that these tasks are handled by a computer has the added benefits of reducing error and increasing accuracy, too. When your staff are writing information down on paper, legibility can be an issue, and if someone's only entering it into your system later, your data is not up to date.

KP: I'd add that, with our food and beverage ERP being built on the Microsoft Business Central platform, the solution can automate a lot of the communication that our clients have with their customers. It has a native Outlook integration, so when a customer emails an order, it's automatically entered in the system as a sales order.

That goes back to that overarching idea of combining everything in one place. When your inventory data is integrated with your financial data, you can more accurately cost your products. That in turn helps you make sure you're making the profit margins you want.

JE: Taking that point and moving over to the food and beverage logistics space, we see that many businesses still have siloed systems. That can mean that it takes days, if not weeks, for data to be shared and reports to be generated.

What if you could click a button and it would just be right there? An integrated software ecosystem can bring all that transportation-related data out of silos and makes it open to the wider organization.

We know that, especially in today's environment, shippers need to have a better relationship with all the key stakeholders in their ecosystem, whether they own a private fleet or not. For that reason, they need a technology ecosystem that connects all key stakeholders—the freight providers, the suppliers, the third-party warehouses and the customers themselves—involved in a shipment.

So now, whether I'm a retailer, wholesaler, manufacturer, even a third-party logistics company, I have one platform that connects all key stakeholders. If I ship something and my supplier needs to book inbound freight, they can through the portal.

If my provider needs to send me an invoice, they can through the portal. If I'm a third-party warehouse and I'm shipping product on your behalf, I can log in and book that shipment.

Jack Payne on Automated Data Capture and Analysis

"Many times business leaders prioritize recording all their transactional information, but it's only once they've got all that data that they think about the kind of reports they need to generate with it. They're thinking about it in the wrong order—they should be thinking about which information they need most for decision-making, and then making sure that their processes are capturing that data."

And internally, this ecosystem brings together every department—transportation, warehousing, purchasing, customer service, logistics, management, finance—they can all log into the system and, based on what they do, they'll see the information that's most important to them.

JP: Exactly. These digital process automations help you make proper business decisions by updating your data in real-time as these processes are completed. It's all at your fingertips as you need it.

And the information facilitates not just high-level strategic decisions made by executives, but also small day-to-day decisions in every department, whether it's inventory management, costing, quality control or something else entirely.

KP: Another significant advantage of our software is the batching functionality. A lot of generic ERPs don't allow you to batch your products, but that's part of the food and beverage industry—most companies manufacture their products in batches. They're not making 20 muffins at a time, they're making 20 batches of muffins at a time.

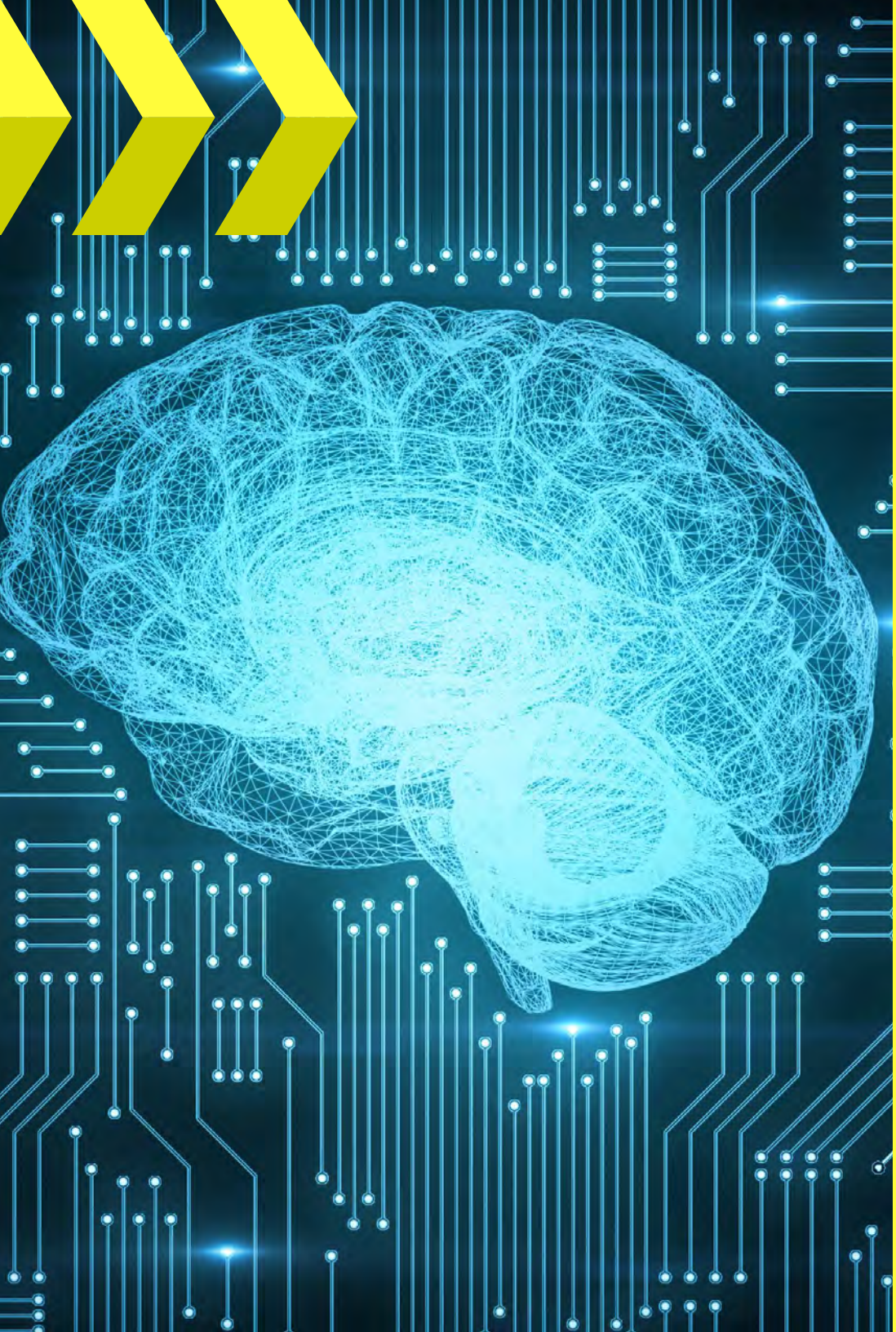
And the fact that our software automatically integrates and synchronizes data across departments is the key, as that's what enables our customers to manage the planning and scheduling for batch production with one integrated system.

JE: Going back down to the level of individual process automations, a big one in the transportation space is electronic bills of lading (eBOLs). When picking up a shipment of five pallets, for instance, a carrier can just sign once on a tablet, and the system will create individual eBOLs for all of those pallets while providing one master BOL in print form for the driver.

That helps in the case of a freight audit, as you can know what pallets are on which trucks and which products are on each pallet. We can know who signed for it, where it is in transit and all of the relevant lot tracking info as well. That's the sort of full tracking capability we're talking about, from the inbound to the manufacturer to the outbound eventually received by the customer.

Another worth calling out is automation of pricing. We know that food and beverage businesses typically sell at cost-plus—that is, if I know my cost is X, and my shipping is Y, I need to sell it to the customer at X + Y.

The right enterprise software can automate that entire process to the point where it's very precise. That means it's at the right level up-front, protecting our customers' profitability and providing predictability, which is huge for food and beverage manufacturers.



We had our experts look to the future with our next question, asking about emergent methods of automation that are gaining traction and what technologies will enable more automation in the food and beverage industry of tomorrow. Their answers indicated that with machine learning and artificial intelligence (AI), we could be looking at the dawn of a new era of efficiency and informed decision-making.

JP: We know that many food and beverage companies are looking to invest in business intelligence (BI) technology, which uses machine learning, in the near future. That's a positive step forward, but you can only make the most of it if your data is accurate and timely.

That's another reason you have to have the kind of digital or data automations we're discussing—because only with sufficient data can BI enable better decision-making. You may invest in a BI tool, but you have to have accurate, timely and complete data to make the most of it.

LW: But when you do feed it enough of the right data, BI can pick up on trends that you don't even know to ask about or monitor for. It gives you that insight into what is affecting what when you might not otherwise be able to draw the correlation yourself.

JP: That's right. Plenty of software can give you a chart or graph, but that still requires an individual to look at it and understand what it's showing—if something's improving or something's getting worse, for instance. The individual is still having to process the information.

BI will actually do the analysis and identify trends for you, eliminating some of that initial effort so you can focus on what's causing the trend to occur.

KP: And that's possible through the Power BI platform and what we've built on top of it. I know we have prospects who are going through all their data and conducting the analysis of it themselves—and to do that, they're poring over spreadsheets. What Power BI allows them to do is automate that process, freeing up time for more strategic tasks like building new reports that look at the data in a different way.

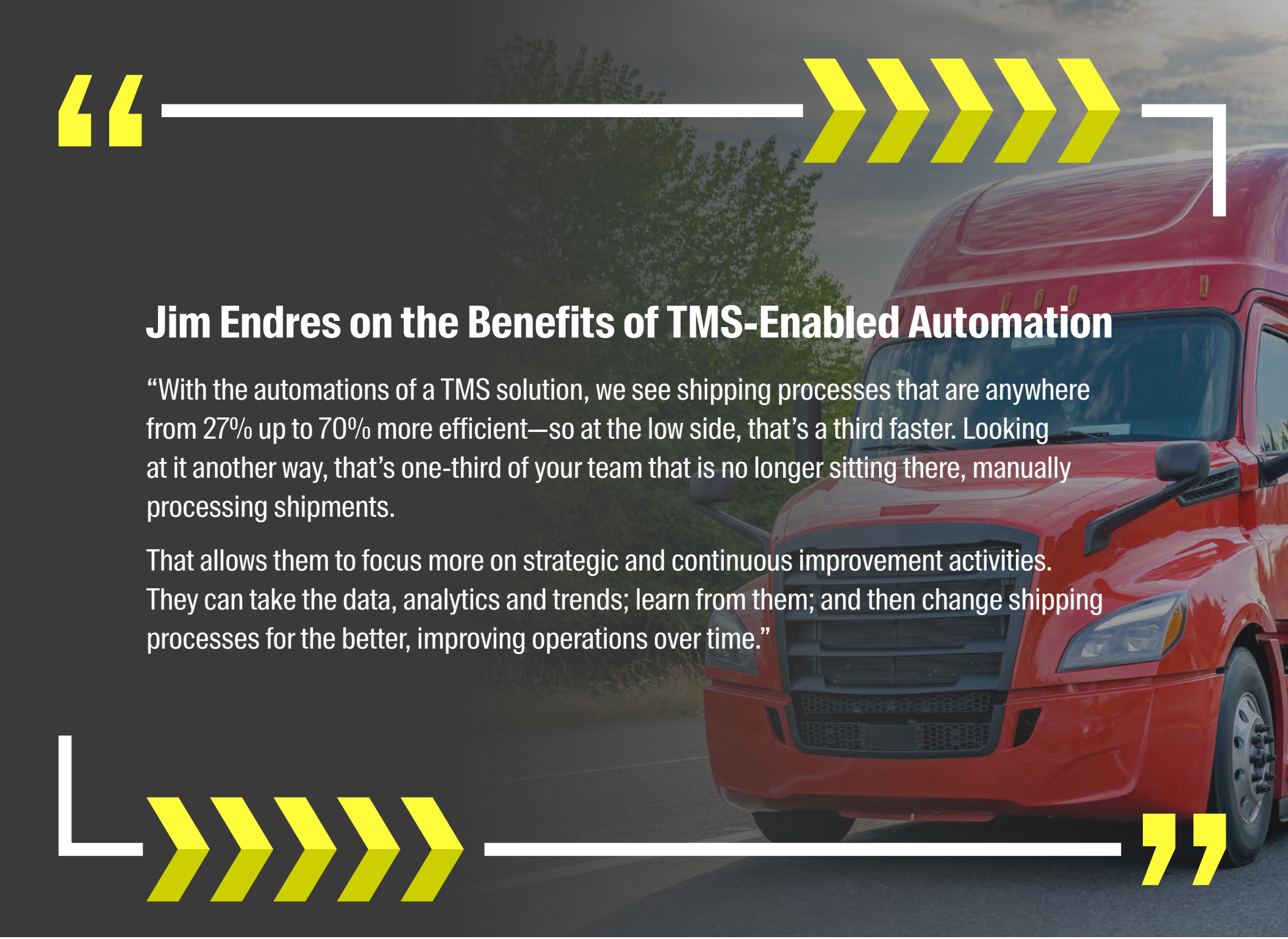
In terms of physical automations, our machines are also going to get smarter. Rather than just having a sensor on a line counting items, it may be able to record other kinds of information and provide suggestions. So rather than just giving you the state of things today, it can be informing you on ways to improve.

JE: Jumping over to AI, a basic application of that technology would be automating carrier selection and rate calculation. It can learn over time that a certain combination of customer and product ordered is almost always shipped on a specific carrier at a specific rate, so it can handle that itself instead of a human.

AI can also help us improve the way trucks are loaded. When we load product onto a vehicle, we have to take into the account the specifications of that vehicle, including the trailer, the axels, where the trailer is relative to the axels, the gross vehicle weight and more.

You have to be careful to not put too much product at the nose or the tail, as that will result in a tippy trailer that's not safe. Likewise, you can't stack heavy products too high, as that can cause a trailer to tip on a harsh corner.

AI helps here through what we call 3D load and palette building. Once it learns how trucks are built, how they're loaded, how products are stacked and how to fit loads into a trailer safely, it can auto-build loads and provide a 3D diagram for staff to follow. And that can inform how you stage products in your warehouse before loading.



Jim Endres on the Benefits of TMS-Enabled Automation

"With the automations of a TMS solution, we see shipping processes that are anywhere from 27% up to 70% more efficient—so at the low side, that's a third faster. Looking at it another way, that's one-third of your team that is no longer sitting there, manually processing shipments.

That allows them to focus more on strategic and continuous improvement activities. They can take the data, analytics and trends; learn from them; and then change shipping processes for the better, improving operations over time."

LW: From my perspective, the main drivers for AI adoption in the food and beverage industry are definitely still cost and labor reduction. Specifically, what I hear the most about is the use of language learning models for users to ask questions.

Those can help you find information without having to remember where it's stored and what format it's stored in. All you have to do is ask, "What were my sales last week?" rather than knowing where that data lives in a hierarchy of file folders.

JP: Right—AI-powered chatbots can make it so that you don't have to have expert knowledge of the application to find the information you need. The AI can automate the process when you prompt it with a query for the information as though you were having a normal, natural conversation.

KP: Beyond that, the AI element can give you graphs and analysis of them in natural language, and it will only get better and smarter with time. For example, with sales forecasting, it can move beyond relying on just historical demand and start to consider other factors in as well. So customers will be able to get more out of the data in their ERP, giving them insight into trends rather than just the numbers.

JE: There are a couple more applications of AI in transportation worth noting. First, for private fleets and that are making routine deliveries to certain store, AI can learn how long it typically takes to get a truck in and out of that store to make a delivery.

It can learn what actually happens when products are delivered, capture that data and provide actionable insights for the carrier's leaders that make decisions. From there, they might choose to adjust the offload rate or make another change to the delivery instructions to improve performance.

Smarter dispatching of vehicles is another potential application of AI. Through real-time monitoring of trucks on the road, the AI can recognize that a driver isn't going to be back in time to take a scheduled second load and instead shift that load to another driver so those delivery time windows aren't missed.

From there, it might also reallocate the first driver to take the second's original load when they return so those windows are met. This can help carriers use their drivers and vehicles more effectively, and it can also help when a carrier is short on drivers on a given day.

To conclude our discussion, we circled back around to our first question but put a different spin on it, this time asking our experts to give us a concise business case for implementing automation in the food and beverage industry. The potential to drive improvement across an entire organization and protect the bottom line made it clear just how impactful the practice—and the technology that enables it—can be.

LW: The business case for automation in the food and beverage industry includes efficiency improvements, labor reduction, variation reduction, inventory optimization—the list goes on. It's got the potential to transform your whole business, not just one production line.

JE: Right—and then if we zoom in to the day-to-day operations level, you can see how automation makes everyone's lives easier.

When you operate using manual processes, you might have your finance department calling transportation to ask why invoices are twice as much as they should be. They're having to go to transportation to find out what happened. What if instead they log in and see it directly themselves? And what if your customers could log in and see information on their orders by themselves?

Automation and this connected ecosystem is bringing it all together. It's allowing people to find out what they need to know for themselves, rather than relying on someone else to provide them with the information that's most important. In that way, they can "self-serve."

KP: Absolutely. I've found many times that when I start talking to a prospect or customer, they don't really know how well their operations are performing, and they don't really understand the metrics they have in place. So the business case is, our solution—and specifically, the digital process automations it enables—will allow you to better understand the true state of operational performance at your business.

For profit margin analysis, you can't look at just material costs and the price you sold it for. You have to factor freight costs, billbacks, other additional charges incurred—the list goes on. With our system, that can all be done automatically, because all the data is integrated.

Another way to look at it is, if you don't understand where your areas for opportunity are, it can be challenging to drive improvement. A lot of our customers' goals include growth, but to accomplish that you've got to determine how to increase production or be more efficient on the factory floor. And that's what our software can help with.

Food and beverage businesses need to be able to put their employees in more strategic positions. If your financial analyst is busy inputting data and building spreadsheets, it's hard for them to become more efficient in producing value for the organization.

JP: I'd definitely agree with those points. One more way to look at it is from a return on investment (ROI) perspective. When you try to calculate ROI for an ERP solution, the best approach I've found is to look at four key areas. The first is efficiency, but that's not just efficiency in the factory—that's efficiency across your organization.

Another is inventory, which is complex and has to be broken down into multiple components. Then you look at revenue leakage, like that from missed shipments. And the last is revenue growth.

Technology and the digital process automations it enables have the potential to influence and drive improvement in all four of those areas, whereas a piece of equipment is probably only going to address one, namely efficiency.

When a company considers all the potential benefits of digital process automations across the organization compared to the benefits of automating a piece of equipment or line in the factory, they will quickly see that the benefits of digital process automation are far greater.

Katherine Parr on the Difference Automation Can Make

"Not long ago, I was speaking to a staff member at one of our customers who is in charge of maintaining traceability for the company. She said she's ready to pull her hair out because she's spending weeks going back through hundreds—if not thousands—of production and consumption reports, trying to make sure that all of the lot numbers line up.

If instead consumption and production were tracked digitally and lot numbers were recorded with a barcode scanning gun, she could have much more confidence that the data she was looking at was accurate. But all too often, employees are flipping back and forth between two or three spreadsheets, trying to verify information.

Similarly, for costing products, staff are often comparing the cost of commodities versus the prices at which products were sold to customers to determine what profit was made. But if your inventory data and financials are integrated, you can see all that in one place, improving efficiency and accuracy."

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