

# FOOD Manufacturing®

INDUSTRIAL MARKET REPORT

## AI-Loyal Food Companies Tease Future Benefits, But Laggards Fear Change

Food manufacturers' acceptance of AI tools is growing, but current business conditions are hindering adoption. Is a window of opportunity coming?

*By Anna Wells*





**F**ood manufacturers hold a unique position within the current economy. Not only do they face the same challenging conditions as other businesses, but they also must endure a litany of additional pressures. Quality and product tracking is of the utmost importance in an industry that is sensitive to potential food safety concerns and recalls — not to mention the inflationary pressures dogging consumer products have a particularly intense impact on food companies, where margins are often tight. Many food producers, meanwhile, faced worker shortages even before the pandemic, compounding the impact of today's tight labor market.

While challenges abound on the surface, *Food Manufacturing* has attempted to find which key stressors are the most critical for food and beverage manufacturers, and how they are addressing these concerns. In partnership with Augury, a provider of AI-driven machine and process health solutions, we also set out to study the importance of certain technologies — including artificial intelligence — in the operational strategy of these businesses both now and in the future.

## SUPPLY CHAIN AND WORKFORCE ISSUES ARE TOP OF MIND

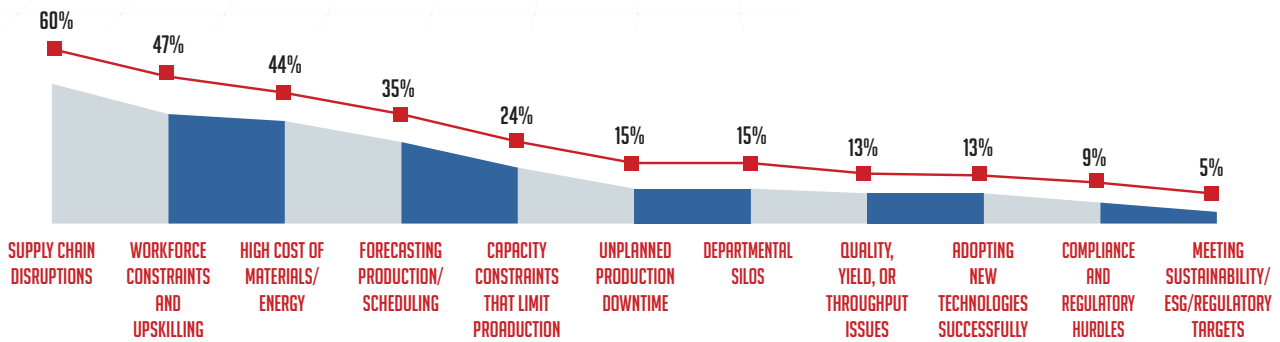
It's clear that the operating environment for food businesses is changing, as are their perspectives on how best to respond. *Food Manufacturing* recently issued a survey to its audience of food and beverage manufacturers to get their take on the health of their current business, as well as the role they feel AI will play in their operation going forward.

The survey results reflect the responses of food companies with \$50 million or more in annual sales and include a split of 20% corporate level management and 80% plant level leaders, including those in process engineering, maintenance, safety and quality control. These companies are predominantly based in North America (95%) and largely feature prepared foods, bakery foods, dairy, and animal products processing.

These companies were asked to define the biggest manufacturing challenges, and the results aligned with the larger trends we see impacting businesses across all sectors.

Interestingly, food manufacturers seem

## WHAT ARE YOUR ORGANIZATION'S BIGGEST MANUFACTURING CHALLENGES?



predominantly occupied with these timely challenges when other threats have traditionally dominated the discussion around food businesses. For example, we'd typically expect to see food companies focus on safety, compliance and quality issues, but today's macroeconomic conditions appear to be pushing all else aside.

A full 60% of respondents told us that supply chain concerns top their list of challenges, followed by workforce concerns/upskilling (47%) and high costs of materials and energy (44%). Interestingly, this takes the traditionally unique vertical of food manufacturing and puts it in line with general manufacturers: NAM (the National Association of Manufacturers) published a report based on Q1 2023 data from members, who cited the same three impediments as their top challenges.

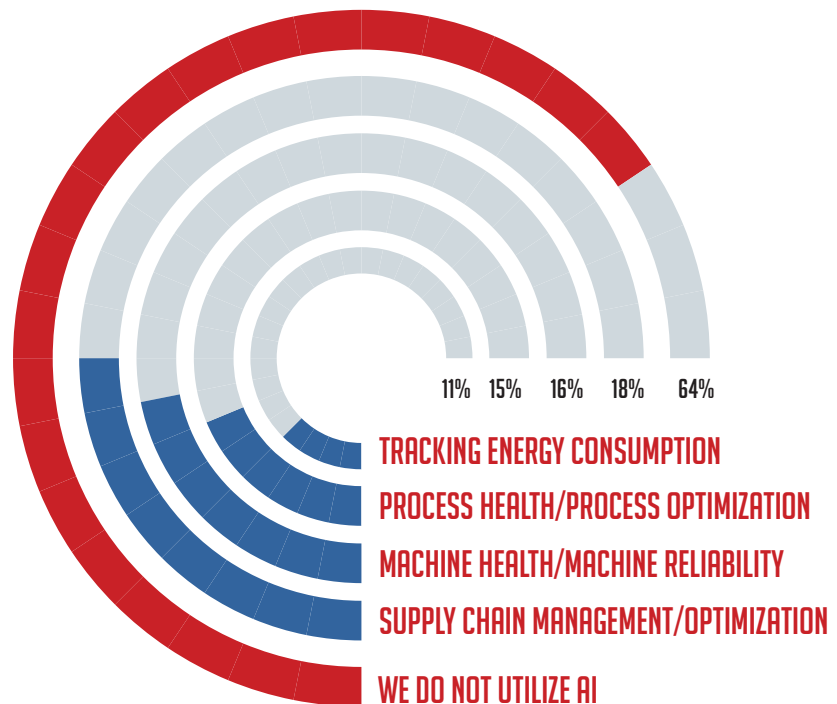
Working within this context, we asked survey respondents to pinpoint which specific area they consider to be the biggest barrier to their growth over the next 18 months, and 44% said it was supply chain issues, followed by staffing constraints (25%). The third most popular answer was a tie between high customer demand and a lack of automation.

It's arguable that many of these identified challenges dovetail or even overlap. For example, pairing high customer demand with supply chain challenges

(including stockouts and delays for materials and ingredients) cause food companies to operate in a constant state of catch-up. Likewise, workforce constraints and a lack of automation may go hand-in-hand as businesses are slow to fully embrace technology to solve operational headaches or automate non-value-added activities.

This last question is one that recurs throughout our research as it becomes clear, based on the survey results, that the benefits of automation, AI and other

## WHICH OF THE FOLLOWING AREAS DOES YOUR COMPANY LEVERAGE ARTIFICIAL INTELLIGENCE?



tech-oriented solutions are becoming more apparent — though their implementation is inhibited by a variety of variables.

### PROBLEM SOLVING WITH TECHNOLOGY IS A MIXED BAG

When it comes to solutions around accuracy, efficiency and effectiveness, many businesses found the pandemic provided an impetus for change. Business investment in technology-oriented solutions got a boost from changing business conditions and the subsequent need to add better visibility, consistency and forecasting tools. In fact, 85% of CEOs who participated in a 2021 Fortune/Deloitte survey claimed their organizations' digital transformation had significantly accelerated during the pandemic.

As businesses began to establish footing in this new normal, many were abruptly forced into a balancing act between pandemic-era business enhancements and post-pandemic demand spikes and inflationary pressures. The result, according to our research, has been a pool of manufacturers who appear stymied by a fear of downtime as acute challenges leave them in a constant state of firefighting.

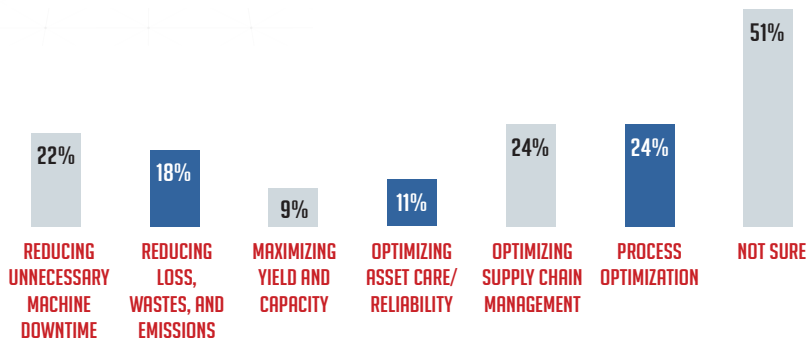
As food manufacturers go forth into a murky economy, we see them eyeing technology as a potential solution, but the trend appears to be targeted toward future endeavors. In the current operating environment, nearly 64% of respondents say they don't use AI for machine health/reliability, process health/optimization, supply chain management/optimization or tracking energy consumption.

Perhaps the demonstrable effects of AI on improving the aforementioned areas are influencing whether the group that doesn't currently use AI will consider doing so in the future. While 64% don't use AI now, only 54% say they won't invest in it in 2023.

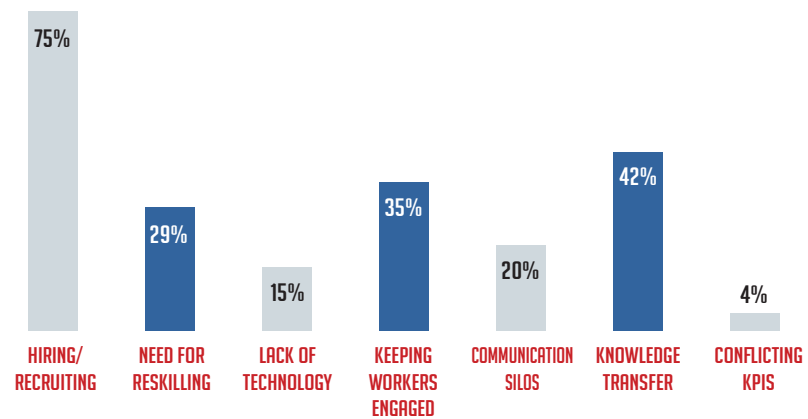
### TECH LEADERS SEE AI BENEFITS AND WANT MORE

For those who are currently using AI, many see a future in it. Nearly 13% of respondents plan to invest significantly more in AI in 2023 compared to what

### FOR WHICH OF THE FOLLOWING AREAS ARE YOU ABLE TO QUANTIFY THE IMPACT OF AI IN MEETING BUSINESS OBJECTIVES?



### WHAT ARE THE LARGEST OBSTACLES FACING YOUR COMPANY'S WORKFORCE?



they have in the past, 18% say slightly more, and nearly 15% say they will keep spending uniform. Altogether, this represents a pool of 46% of surveyed food companies.

The reasons seem to vary, but our respondent pool highlighted a variety of use cases for their investments. Nearly a quarter pointed to AI's ability to optimize supply chain management, and another 24% said that they were able to quantify the technology's impact as it relates to process optimization. Still others added that AI was instrumental in reducing unnecessary downtime (22%), reducing loss, waste and emissions (18%) and optimizing asset care/reliability (11%).

As far as their future plans for AI, 29% plan to use it to tackle forecasting production/scheduling and another 18% to handle supply chain disruptions — two categories that have similar implications in terms of enabling users to gain visibility in order to improve operational accuracy. Further, 31% cite meeting

# Understanding the Role of AI in ESG Directives

In the process of surveying our audience of food manufacturers, we also sought to understand how companies are navigating the demands of ESG (environmental, social and governance) directives. Whether coming from corporate management, shareholders or consumers, the way food companies address resource management, emissions and sustainability has come to the forefront of many a strategic plan. But how is this impacting their day-to-day operations?

We asked our audience which sustainability or ESG efforts they were undertaking within their businesses, and the top responses were:

- Reducing water and energy consumption (64%)
- Reducing byproduct waste (45%)
- Sourcing materials from more sustainable suppliers (31%)
- Lowering carbon footprint (31%)
- Investing in environmentally smarter technologies (29%)

production targets as their “top objective” for AI and 11% say their top objective is upskilling their workforce.

## DESPITE INCREASING CONFIDENCE IN AI, ROADBLOCKS REMAIN

Perhaps most interesting is that, while nearly two-thirds don't currently have AI technology in place, far fewer (51%) say they don't know what the benefits are. This suggests that food manufacturers are slowly coming to the realization that AI has moved beyond buzzword status and can provide some tangible benefits in today's operating environment. This idea is essentially counter-intuitive to the previously pervasive narrative, where AI was approached with indifference or even fear.

So if the benefits of AI are becoming increasingly clear, what is holding food companies back from implementation? Realistically, it could be the fact that they are overwhelmed with other, seemingly more pressing short-term concerns.

When asked to identify the primary roadblocks to adopting AI tools in order to address production challenges, many respondents focused on the here and now: “budget constraints” ranked high on the list of barriers, as did “process/operational hurdles.” We know that budgets have been hit hard in response to wage hikes and inflationary pressures, but process/

While there are clear business benefits to reducing energy and waste, other areas being explored – such as sustainable supply sources and emission reduction – indicate a more significant cultural shift taking place in some of these businesses. But are the new sustainability targets impacting these companies' key performance indicators (KPIs)? Only one in five respondents believe these goals are negatively impacting KPIs, though many (35%) were neutral on the impact and 25% don't have sustainability KPIs.

Ultimately, this challenge is seemingly mitigated in facilities where AI is being utilized, and 29% of our surveyed audience said that they were able to quantify the tangible impact of AI towards their ability to reduce water and energy consumption; 22% said the same for AI's role in reducing byproduct waste and 11% in reducing emissions.

operational hurdles could point to a general fear of an integration process and what that might mean for uptime and production goals.

Survey respondents also blamed a lack of buy-in from company leaders, a standard concern, but one that can be assumptive in nature or reflect cultural challenges that speak to a need for change management. Potentially, managers are risk-averse as they manage day-to-day fire-fighting and fear any further disruption in favor of staying the course — despite the impact of doing nothing.

The irony here is that AI has become well-known for its ability to solve many of the problems the survey respondents identified as their key challenges, including those that are workforce-specific. Our survey pool identified the top obstacles facing their company's workforce as hiring/recruiting (75%), knowledge transfer (42%), keeping workers engaged (32%) and the need for reskilling (29%).

And while AI has found a way to address some tasks that were once performed by people, the benefits are also, by themselves, a recruiting tool: a recent report in Forbes contends that “80% of Gen-Z aspire to work with cutting-edge technology” and that, when it comes to choosing employment, “91% say technology would influence job choice among similar employment offers.”

Additionally, the benefits harken back to the initial slate of concerns outlined earlier in this report, where food companies wrangle operational challenges amidst a

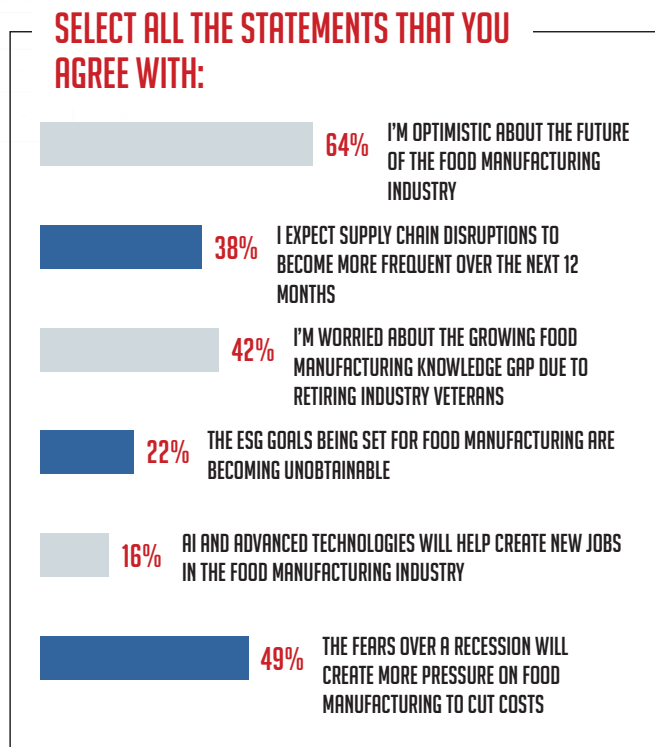
backdrop of supply chain challenges and high demand.

And again, we see 53% with an idea of how they'll use AI going forward, and 55% able to identify its key objectives. This is significantly more than the group of 36% of survey respondents who say they are using AI now, reflecting a shifting understanding of the technology's role within the food industry. In fact, they say as much: when we asked our surveyed audience whether they agreed with the statement that "Adopting advanced technology like purpose-built AI, IoT, and Machine Learning would positively impact our workforce upskilling efforts," 20% didn't know, while 80% either definitely agreed, somewhat agreed or were neutral.

### FULL SPEED AHEAD... OR MORE WAIT-AND-SEE

While it appears, based on our research, that interest in artificial intelligence continues to grow in incremental ways, barriers will exist for some time. Critical to the advancement of these key technologies will be reaching a tipping point where the understanding of the benefits meets an urgency for implementation that's more prevalent than the surrounding challenges that have interfered in the past.

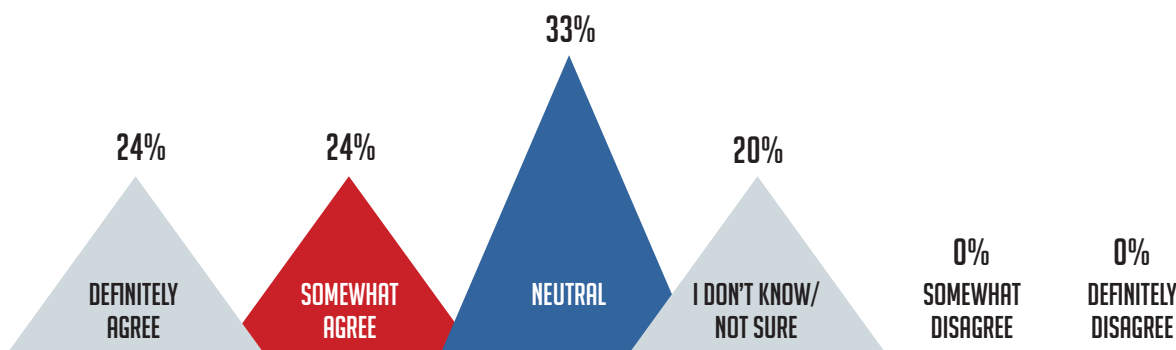
That could come sooner than later. While food businesses feel boxed in by challenges now, nearly 64% told us they feel optimistic about the future of their industry. And while that may be true, they have their work cut out for them: while they put a positive spin on the days ahead, many still acknowledge that fears over a recession will create more pressure on food manufacturing to cut costs (49%), the food manufacturing knowledge gap will grow due to retiring industry veterans (42%) and supply chain disruptions



will more frequent (38%).

Only time will tell whether these food businesses will turn to AI to future-proof their businesses and take advantage of the benefits it can provide, like optimizing production, reducing unplanned downtime, increasing capacity, upskilling existing staff, and attracting a new generation of workers. While some seem to be holding out for the right time, organizations that wait too long could be left at a disadvantage. A better approach is likely to be one that emphasizes identifying relevant use cases and taking strategic action.

### HOW MUCH YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENT: ADOPTING ADVANCED TECHNOLOGY LIKE PURPOSE-BUILT AI, IOT, AND MACHINE LEARNING WOULD POSITIVELY IMPACT OUR WORKFORCE UPSKILLING EFFORTS.



## THE SURVEY

Food Manufacturing surveyed its readership base via email over a 6-week period throughout February and March of 2023. Of the 118 respondents, 95% represent North American companies. The respondents' annual revenue brackets were comprised of \$50-100 million (29%); \$100-199 million (15%); \$200-349 million (15%); \$350-500 million (5%) and \$500M+ (36%). Of these companies, the majority (56%) operate 1-5 facilities, with the second largest group (24%) representing operations with 21 or more facilities. 1 in 5 survey respondents identified as executive level management, while the remaining 80% were plant operations personnel.

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