Food and beverage industry in the age of artificial intelligence

The food and beverage sector, like many other sub industries of hospitality, prefers to maintain its humanised front end, even as technology adoption and artificial intelligence (AI) becomes prevalent.

In the latest insights, it was noted that the market size of AI in the food and beverages sector is expected to reach USD 35.42 billion by 2028, growing at a CAGR of 38.30%. Yet, this poses the question, how can hospitality adopt artificial intelligence without losing its core service element?

Automated kitchens

Moley Robotics has created the first domestic robot kitchen, which reportedly can replicate Michelin-starred recipes and mimic the speed, sensitivity and movement of human hands. A robotic workforce follows instructions consistently, ensuring that every dish is prepared with the same high quality and accuracy. Instead of completely replacing the kitchen staff, this new AI workforce can help them ensure the high standards and safety of food preparation are preserved at all times.

A robotic workforce also empowers front-end staff to focus solely on attending to customer requests, without manually coordinating the dining area and the kitchen. Robot kitchens will also significantly reduce labour costs by automating tasks that would otherwise require multiple kitchen staff.

Reducing wastage

A report by the International Data Corporation IDC industry implies that around 30% of food and beverage decision-makers consider consumer demand for eco-friendly products as their chief driver for organisational change toward enhanced sustainability. However, food and ingredient wastage is one of the main challenges faced by the F&B sector, hindering its efforts from being sustainable.

Demand forecasting by AI algorithms analyses historical data, seasonality, events, and other factors to predict future customer demand, helping restaurants prepare the right amount of food and reducing overproduction and waste caused by excess inventory. Material management solutions integrated with predictive analytics can track inventory levels in real-time and anticipate when ingredients are running low, minimising deadstock, overstock and food spoilage.

Demand forecasting

Along with reducing wastage, predictive analytics helps anticipate consumer preferences and demand, allowing one to adjust inventory levels, plan production schedules and ensure item availability at all times. Predictive analytics can identify which menu items are likely to be popular based on historical data from digital ordering modules or POS solutions and external factors such as seasonal sales.

Chefs and managers can make informed decisions; as a result, optimising the menu offerings based on diner preferences, expected trends and market changes, leading to more satisfying dining experiences. Analytics also help food and beverage businesses determine the most effective pricing strategies for different items, maximising profitability and preparing for seasonal variations in demand.

Predictive maintenance

Another benefit of predictive analytics is that it helps businesses operate without interruptions. These AI-powered systems can analyse all machinery and tools used in production, spotting potential failures and alert the staff about maintenance needs. As a result, it allows the operators and engineers to rectify the issues, boost production capacity and reduce potential bottlenecks.

Food manufacturing workers reportedly have a 60% higher rate of occupational injury and illness than in other industries; predictive maintenance and the ability to prevent machine failures create a much safer environment for employees in the F&B sector.

Transparency and accountability

Increasingly, manufacturers and processors are expected to be transparent with customers and other stakeholders. AI-powered algorithms can analyse supplier data, certifications, and compliance records to verify the authenticity of ethical claims made by suppliers, helping food and beverage businesses to choose only reputable sources to do business with.

AI analytics can also deep dive into large data sets related to suppliers, helping businesses analyse their practices, certifications, and social responsibility efforts helping restaurants and customers make informed decisions about their suppliers and sources.

Balancing the Plateful: How to navigate the pros and cons of AI and analytics?

The idea of robotics and AI analytics may not resonate well in the traditional kitchen, known to be where expert chefs *cook from the heart,* provoking scepticism among the employees in a restaurant. This may also raise concerns among guests regarding the expected human touch of hospitality. Restaurants need to consider whether guests are prepared for that change, or if it would take away the authenticity of the dining experience from the guests. While tech savvy modern generations would rather enjoy a futuristic dining experience, generations that did not grew up with smart technology and AI may feel alienated with the concept.

Further, investment in robotics may raise supply and production costs, consequently raising the cost of products. Businesses may have to adjust their pricing strategies as a result, to ensure exquisite experiences remain accessible to their target audience.

Business owners need to weigh their pros and cons when adopting artificial intelligence. AI and robots lack emotional intelligence but are an excellent alternative for handling repetitive tasks and taking some responsibilities off the shoulders of employees. Gradual adoption of AI that aligns with the budgetary limits of the business, rather than complete transition of operations, may help smoother management of finance strategies.

The right solution, in this light, is to complement the service element in the food and beverage space with standard technology rather than replace one with the other. After all, AI is yet another tool that needs to be managed and adopted in the right place, right time by the humans operating it.

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