amazon

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> ❝ Food safety is an area where we want to share our progress openly because we want to participate in the process, helping to raise the bar for the industry. As we grow our customer offerings across food businesses, food safety will continue to be our first consideration.

The Why

At Amazon, we strive to be Earth's most customer-centric company, where customers can find and discover anything they might want to buy online. As we grow our selection and evolve our business to delight our customers, we also encounter complexity as we operate as a brand owner, a retailer, or as a marketplace. We solve this complexity by constantly innovating on behalf of our customers to better serve and protect them. We have implemented technological solutions within food safety for relatively straightforward tasks like temperature validation, as well as complex tasks like ingesting customer feedback and executing food recalls. We look at a high-risk process or event and ask how we can eliminate the risk while driving innovation that reduces the chance for human error. The solution results in safer food and better protects our customers.

The How

Listening To Our Customers at Scale. We invest heavily into mechanisms to listen to our customers and detect when something has gone wrong. We make data-driven decisions and always strive to respond rapidly to customer anecdotes. On the rare occasion when data and a customer anecdote disagree, we work on a solution with the tenet that our customer is right. Through automation, we aggregate 30 million pieces of customer feedback a week globally in over 40 languages. These interactions include customer contacts or feedback data such as product reviews, customer return comments, Customer Service chat, Amazon social media accounts, etc. We leverage automation to handle both the scale and the data extraction challenge. We rely on Machine Learning (ML) and complex software-based logic to take a first pass at understanding context across languages and unlocking the meaning of customer comments without the need for employees to review them one by one. This first pass of 'labeling' customer interactions is critical to separate the true concern from the large amount of customer interaction data. For standard processes and when ML judgment has

high confidence, we automate the action, otherwise, we rely on human Subject Matter Expert (SME) review.

Investigations and Traceability. We have invested and continue to invest in technology that allows us to track and investigate the details of products or food safety issues. We built a comprehensive investigation system with decision logic that supports our investigations and enables us to deliver safety solutions at scale. With this capability, we actively tag and track issues from the point of detection all the way to initiating suitable remedial action.

Orchestrating Complex and Rapid Product Recalls. Amazon handles thousands of recalls every year for food and non-food products. Through technological investment, we have built robust mechanisms to exe-

cute recalls across all our businesses. We developed technology to automatically identify a recall once it is available in public domain and include supplemental manual reviews to ensure we don't miss any public recall alerts. We then use syntax matching, image analysis, and query logic to identify, quarantine, and stop sales of all related products across Amazon's complex catalog and various channels that may be subject to these recalls.

Private Brands Manufacturing Partner Qualification. Amazon Private Label food is a growing business with an expanding network of manufacturing partners. We have mechanisms in place, designed by food safety experts, to assess our suppliers and ensure we offer safe, consistent, and wholesome food products.

The Benefits

Listening To Our Customers at Scale. Our SMEs have accurately assessed safety risks hundreds of thousands of times over the last several years, and all outcomes of their judgment are used to further enhance our ML automation efforts and improve our food safety concern detection.

Investigation and Traceability. The technology we've built allows us to investigate and initiate checks across all business channels and global regions for similar issues and act proactively. Our customers continue to teach us how to better serve them, and we will continue to invest heavily in automation and technology to delight them every day while ensuring their safety.

Orchestrating Complex and Rapid Product Recalls. Once we identify the product we orchestrate recalls through our recall automation tool. The tool initiates multiple parallel efforts to prevent customer orders, remove the product from sale, rapidly isolate the product in our supply chain, and alert customers with a personal email in a few hours.

Private Brands Manufacturing Partner Qualification. Suppliers with GFSI-recognised certifications often have the required processes, procedures, and tools in place to demonstrate a high standard of food safety, and meet Amazon's Food Safety qualification criteria.