



Managing Unexpected Demand Surges with Zebra Prescriptive Analytics



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The most successful retailers understand the value of preparing for the unexpected, especially times of “panic buying.” They know the day before a blizzard or at the peak of a health crisis is not the time to run out of bottled water, snow shovels, or cleaning supplies in the impacted area(s). Customers need assurance that retailers can provide the products they need, when they most need them. That’s why retailers need to invest in the type of technology that empowers them to serve their customers, even during unanticipated surges in demand.

Many retailers are turning to Zebra Prescriptive Analytics, an advanced analytics methodology that analyzes data to determine:

- **What** is happening
- **Why** it happened
- **How much** it’s impacting the business (\$)
- **What** to do to optimize the outcome
- **Who** should solve it

Zebra Prescriptive Analytics analyzes retail data using “patterns of behavior,” or algorithms that look for specific data behaviors that indicate opportunities for improvement. These patterns can identify the smallest factors impacting inventory availability, and direct a relevant stakeholder exactly how to respond to the discovery. This workflow allows issues to be corrected, before they can severely impact a retailer’s ability to serve its customers.

Below is a sample list of Zebra Prescriptive Analytics patterns that retailers have deployed to help maintain on-shelf availability during times of panic buying, be it a natural disaster, public-health crisis, or other events:

Pattern families for availability, fulfillment, and labor

Most-popular items at risk of out-of-stock

When items are out-of-stock, expediting new orders is an option -- if the item is popular enough to justify the added cost. This family of patterns identifies out-of-stock items with enough sales or importance to justify the expense of expediting replenishment, drop ship from manufacturer, or another option to fulfill the demand. It also calculates the ideal amount to expedite, taking availability of each item at nearby stores into account.

These patterns prevent out-of-stocks based on demand sensing capabilities, which compares the ratio of on-shelf and backroom stock to the ratio of demand to ship item. Sometimes it is necessary to change the model-stock and safety-stock values of critical items. For produce-type or other perishable items with a limited shelf-life, these patterns look at different behavior types to determine which items are at highest potential of an out-of-stock. Its precision and accuracy helps to prevent any surges in waste as a result of over-ordering or -shipping.

Popular curbside pick-up / BOPIS items to set aside

Retailers tend to see more curbside pickups or BOPIS orders during times of panic buying due to crowd aversion and/or public-health mandates. Each store needs to balance its inventory between pickup orders and regular in-store shopping trips. This family of patterns identifies items that are especially popular for pickup orders and informs stakeholders how much inventory each store should “tag” (i.e. reserve) for these types of orders, if any. Assessing pickers’ performance is another critical feature of these patterns, based on each individual’s item substitutions (which also helps determine inventory accuracy), customer returns, social review rankings, claims, complaints, and more.

Stores with slower-than average rate of sales

Customers don’t care where their ship-from-home orders are fulfilled as long as they are accurate and delivered on time, as committed at the time of transaction. When customers start relying more heavily on delivery services, retailers may need to “outsource” some of these orders to ease the burden on their busiest stores. This pattern identifies stores with the resources to fulfill orders for busier stores’ zones based on staffing levels, traffic, and on-hand availability.

Phantom inventory for key/most-popular products

Every product counts in times of high demand. Few things make inventory management harder than “phantom inventory syndrome,” whereby an inventory management system falsely claims that certain items are available. This is especially problematic for BOPIS / curbside pickup customers. If a customer orders an item after seeing it listed “in stock” online, but the picker can’t find it on the shelf or in the stockroom and either substitutes an unwanted item or cancels it altogether, the customer may never shop at your store (or online, for that matter) again. This is especially true when customers are paying a personal shopper or delivery fee for the service. If their order is only partly completed, they may have to pay for follow-up orders to get their items.

This family of patterns combats phantom inventory by flagging popular items whose sales dropped despite (1) the store showing inventory on hand, (2) historically higher sales for the item, and (3) other stores showing normal sales for the item. It then alerts an associate to investigate and correct any potential issue, whether a back room, shelf availability, planogram, and/or placement issue.

How to most efficiently schedule staff per store

This family of patterns analyzes a retailer’s labor resources and contrasts them with average customer traffic and/or transaction rates per store. It then checks its findings against various times within each store and others with similar behaviors, before finally calculating the most efficient allocation of staff per day, including pickup-order staff. This calculation can also identify stores that appear to be over- or under-staffed, and direct retailers to redistribute labor as appropriate. The pattern can integrate with a retailer’s workforce-management system, drawing data from the planning side and analyzing it on the sensing side to identify misalignment and guide corrective actions.



Pattern families for fraud

Employees whose purchase activities inexplicably changed

During times of panic buying, retail employees may steal high-demand items and resell them elsewhere at huge markups. To save this product for customers in need, this pattern flags employees whose typical spending inexplicably changed. For example, an employee whose grocery spending suddenly drops \$100 per week suggests she started stealing -- especially if the products she stopped buying are in high demand (e.g. hand sanitizer). The pattern sends all of this information to an asset protection associate, with directives to launch an investigation.

Associates who perform excessive “high-risk” activities

Maintaining on-shelf availability when demand is high requires full compliance by employees, especially at the register. Retailers have deployed a variety of patterns to flag cashiers with a high rate of risky activities, including:

- Non-receipted returns
- Employee-discount transactions
- Payouts
- Manual discounts
- Price overrides
- Gift card cashouts

This pattern family alerts Asset Protection teams to any suspicious behaviors, also sending them CCTV footage from the time said behaviors occurred for easier investigations. The patterns continuously calculate benchmark averages and automatically adapt to changes. Knowing “the new norm” helps avoid false-positive alerts.

Cashiers with statistically significant below-average scans per minute/hour

Employee fraud hits twice as hard when inventory is scarce. This family of patterns identifies cashiers whose per-minute (or -hour) scan rates are below the benchmark compared to similar associates within their stores and at others. The behavior suggests the cashier is sweethearting (providing product for free to family/friends) and/or sliding (passing product over the scanner while obscuring the barcode), either of which impact scan rates.

Pattern families for compliance

Cashiers / stores with quantity-limit violations

When inventory is tight, retailers may impose quantity restrictions to maximize availability. Reconfiguring every POS to recognize limits can take weeks, and sometimes it is not even possible. Thus some retailers have deployed this pattern to flag cashiers or stores that violate quantity restrictions and alert the relevant manager to the non-compliance. This enables faster corrective action.

Stores that disarm alarms during government-mandated shutdowns

During emergency situations, retailers need to ensure their stores comply with government restrictions on operating hours. This family of patterns integrates and correlates data with alarm solutions to identify stores that make unauthorized

openings during mandatory shutdowns. In addition to non-compliance, retailers have used these patterns to uncover cases of payroll fraud, employee theft, and labor-law violations.

Stores not enforcing social distancing

Severe public-health crises may prompt “social distancing” mandates, for which citizens (including retail customers) must stand a certain distance apart. By comparing hourly transaction rates to current rates, this pattern can identify cashiers who are not enforcing this or other sanitary protocols. A cashier with a high transaction rate and little time between transaction headers, compared to similar past transactions for herself and other cashiers in her store, suggests she is not asking her customers to stand the required distance apart. Alternatively, she may not be sanitizing her register, hands, etc. between orders as required.

Cashiers making improper returns

As a precaution during unique health situations, especially COVID-19, retailers may suspend returns to avoid spreading disease. Because reconfiguring POSes to ban returns takes time (if it’s even possible), this pattern flags any associates who process returns while the POS fix is pending. By identifying violators in near-real time, managers can intervene, before the practice can continue, thereby increasing risk.

Cashiers selling controlled substances to minors

To speed up the checkout process when busy, some cashiers may stop checking IDs on controlled substance sales. Retailers face severe consequences if this negligence results in minors purchasing alcohol, tobacco, and other restricted products. This family of patterns identifies such behavior by flagging cashiers who, during ID checks, enter the same birthday for multiple customers per shift, per week, etc. The repetition suggests the cashier is not even looking at the ID, just entering the same date over and over. Zebra Prescriptive Analytics customers have identified thousands of offending cashiers and avoided millions in potential fines by leveraging this family of patterns.

Source: Zebra Prescriptive Analytics

Zebra Prescriptive Analytics™ leverages pattern detection and machine learning to identify opportunities that impact sales and margin. This robust analytics solution analyzes retail and CPG data and identifies opportunities for improvement in key areas like: inventory accuracy and availability, pricing accuracy, labor efficiency, compliance, and store profitability. Zebra Prescriptive Analytics customers typically realize 2-5% increase in sales, better consumer experience, 10-15% basis point margin improvement, and labor productivity improvement within 6 months.

Act on your retail data. Visit zebra.com/prescriptiveanalytics



NA and Corporate Headquarters
+1 800 423 0442
inquiry4@zebra.com

Asia-Pacific Headquarters
+65 6858 0722
contact.apac@zebra.com

EMEA Headquarters
zebra.com/locations
contact.emea@zebra.com

Latin America Headquarters
+1 866 230 9494
la.contactme@zebra.com