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Improving Supply-Chain Reliability with Prescriptive Analytics



Zebra
Prescriptive Analytics™
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In this eBook we will examine:

- Why reliability is so critical to achieving supply-chain excellence
- The most common roadblocks to achieving that goal
- How prescriptive analytics makes a truly reliable supply chain a reality

Introduction

Reliability is one of the most critical precursors to supply-chain excellence. In an era when customers' expectations have never been higher, retailers need to trust that their supply chains can fulfill, ship and deliver orders with near-perfect accuracy, quality and efficiency.

Does that goal sound out of reach? It's not – if you have the right technology. In particular, many of the world's largest retailers leverage prescriptive analytics within their supply chains to optimize supply-chain reliability. Prescriptive analytics is a software methodology that analyzes data to determine:

- What is happening
- Why it happened
- How much it is costing you
- What to do about it
- Who should do it



With prescriptive analytics in-house, supply chains can quickly and easily identify and resolve some of their toughest challenges. Here are four common hurdles to supply-chain reliability that can be resolved with prescriptive analytics:

1. Warehouse training gaps
2. Unexpected delays
3. Labor shortages
4. Upstream errors

Challenge #1

Warehouse training gaps

When customer complaints about order quality and accuracy start to climb, the warehouse is an ideal place to look first. Warehouses are complex operations and it's not uncommon for workers to make mistakes due to insufficient training. From not adequately padding cartons to misplacing merchandise during the slotting process, many potential root causes exist at the warehouse level, especially in terms of training gaps, and must be investigated.

Prescriptive analytics is the ideal solution to help DC managers identify and address the root causes of inaccuracies, damages and other common customer complaints in real time. It keeps track of customer satisfaction by analyzing reported mistakes (including those mentioned in online reviews and ratings) and translating them into a score reflecting overall satisfaction. When complaints occur, the solution identifies which picker(s) fulfilled the affected orders and alerts the warehouse management to provide retraining on certain procedures (for example, if Picker A has a high rate of complaints about broken items in the orders he fulfills, the solution will recommend him for retraining on fragile-item handling compliance).



Challenge #2

Unexpected delays

Supply chains have become incredibly complex, driven by customer expectations for fast and reliable deliveries. Unfortunately, even a vast network of main and alternate routes cannot prevent unforeseen delays from happening. Whether due to severe weather, a traffic accident, long processing times at international borders or just a truck driver sleeping too late, on time shipment complete rates are vulnerable to a long list of potential delays. Few problems will alienate your customers faster than a weeklong lead time on an order they paid extra to be delivered in two days, or out-of-stocks at the store. You need to get a handle on supply-chain delays immediately, before your customers switch loyalty.

Prescriptive analytics serves as a reliable predictor of potential delays in the shipping process. It makes these predictions by analyzing orders that were not delivered on time and identifying any bottlenecks or other roadblocks that caused the delay. From there it can alert supply-chain professionals when future delays are expected from the same roadblocks and issue corrective actions as appropriate.

For example, a prescriptive analytics solution alerted a hardlines retailer that a special shipment of “doorbuster” TVs was unlikely to reach its New York City stores in time for Black Friday. This projection was based on the average lead-times of similar shipments around the same time of year. The solution recommended the retailer expedite the shipment, as the cost was negligible compared to the missed revenue opportunities if the NYC stores were not stocked with TVs. Thanks to the advance alert, the stores received their TVs on time and completely sold out, resulting in revenue of more than $500,000.





Challenge #3

Labor shortage

It's no longer a secret – supply chains are facing a severe shortage of manpower that will only intensify in the coming years. When labor resources are stretched too thinly, the slightest setback, even as simple as a driver calling out sick, can have a ripple effect and create massive delays across the network.

The trick to overcoming this challenge is making the best use of what labor you do have available. Prescriptive analytics can identify ways to efficiently and effectively allocate labor across your network based on the latest real-time trends. The best solutions analyze demand patterns, order fulfillment execution, average lead-times, typical traffic patterns and more to inform you how to allocate labor for optimal coverage and productivity. The right solution will send these alerts in real time as needed, giving you time to act.

Challenge #4

Upstream errors

The biggest single factor impacting supply-chain reliability may not be a supply-chain issue at all. Supply chains operate based on decisions from above – meaning that an upstream issue may not become obvious until it trickles down to the supply chain. For example, imagine the corporate planning team starts allocating winter jackets to stores in a unit size that doesn't align with supply chain's truck capacity. This error has nothing to do with your team, but if the stores don't receive their shipments of jackets on time, all eyes may turn to your team anyway. The complexity of retail supply chains means that the inevitable finger-pointing associated with issues like the aforementioned are all too common.

Prescriptive analytics leverages advanced machine learning- and AI-powered root-cause analysis to identify problems at their source.

Rather than being led astray by political biases (which happens quite often with report-based solutions), prescriptive analytics triangulates the exact root cause, whether upstream or downstream, and prescribes fact-based corrective actions to the appropriate stakeholder. This means there is only one version of the truth – with no biases or finger-pointing.





It is possible to overcome the toughest supply-chain challenges and offer the level of service customers expect. All you need is a smart investment in prescriptive analytics, and the resulting improvements in supply-chain reliability will speak for themselves.

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