



Technologies Circumventing India's Supply Chain Roadblocks During Peak Season

UNDERSTANDING THE
CHALLENGES AND AUTOMATION
SOLUTIONS TO MEET PEAK
SEASON DEMAND

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Introduction

Peak season is an exciting time for companies in India that stretches beyond end-of-year festivals to include high shopping periods like back to school, seasonal changes and various holidays throughout the year. Globally, retail and ecommerce companies gear up to incentivize these busy periods to maximize revenue, profits, and customer base. Retail ecommerce sales worldwide amounted to \$4.28 trillion in 2020 and e-retail revenues are projected to rise to \$5.4 trillion in 2022, according to industry reports.

Additionally, according to many research companies, Asia-Pacific ecommerce industry is anticipated to grow at the CAGR (Compound Annual Growth Rate) of 18.5% between 2019-2025. For perspective, the North American ecommerce retail market is anticipated to grow at a substantial CAGR of 11.7% during the forecast period.

These surges in customer demand will only rise with the continued adoption of online platforms and technologies, which offer a convenient and socially distant solution to shopping during the pandemic. India's customers are also increasingly prioritizing online retail over offline shopping and according to reports will likely stay even as pandemic concerns ease. By 2024, the Indian ecommerce industry is projected to appreciate by approximately 84% to \$111 billion, which may result in a rise of 21% annually over the next four years, according to FIS Global. In

2021, online sales and shopping festivals continued its shine and saw 23% year over year GMV (Gross Merchandise Value) growth in online festive sales.

As per a RedSeer report, by 2030, India is set to be the third-largest online retail market after the U.S. and China, with a yearly GMV of approximately \$350 billion and as with the growing e-retail shoppers logistics players are expecting to deliver 2.5 billion direct-to-customer shipments by this time.

As much as these significant growth trends look exciting for retail and ecommerce, the growth introduces a unique set of roadblocks for the supply chain. This makes planning for peak season a year-round job for retailers and brands, in addition to navigating around COVID-19 pandemic reality from an operational and market perspective.

Managing supply chain disruptions, fulfilling customers' expectations, avoiding distribution bottlenecks, and controlling costs during peak periods are needed to survive and thrive in today's market.

Fortunately, new era advances in technology are bringing accessible technologies like order fulfilment automation and mobile warehouse management to the forefront, with many affordable solutions for smaller merchants to manage peak demand during festive seasons.

Challenges

Roadblocks During Peak Season

Since the onset of COVID, the global economy is now set to experience a robust recovery. Consumer demand has exceeded all expectations particularly with the adoption of online, ecommerce shopping platforms which poses a set of distinct challenges and roadblocks for warehouses and distribution centres. This particularly impacts inventory management priorities, meeting customers' changed expectations, and even faster delivery requirements that adapt to demand fluctuations.

The intimidating aspect for warehouses managing this surge, primarily brought on by ecommerce, is a greater quantity of picking and packing the same items to fulfil orders, and more pressure comes with high return volumes. Businesses face continuous delays due to the high quantity of demands, especially during peak season. Additionally, shortages in delivery options are spiking freight prices multi-fold compared to a year ago.



How can companies ensure that they're prepared to meet expectations during this time?



Let's look at some of the most common roadblocks during peak season operations:

WAREHOUSE BOTTLENECKS

Limited space in warehouses, shortage of labourers, squeezed carrier networks, and inefficiencies in managing inventory adds to costs, makes it difficult to stock products, creates delays in fulfilling orders, and generates high waste. Peak season means the sudden demand for various products. That fluctuating product volume during peak season inevitably also creates shipping challenges which is incredibly formidable because of consumers' demand.

SPIKE IN OPERATIONAL COSTS

Peak season means a high volume of orders and that means more order picking which is by far the most time-consuming and expensive component of any fulfilment centre. To manage the peak season, strategies that work during less busy periods often get overwhelmed, cannot prove efficient and create additional operational costs.

PRESSURE ON TRANSPORTATION

The exponential growth of direct-to-consumer ecommerce and evolved consumer shopping behaviours put extra pressure on the supply chain and has forced companies to expand their infrastructure as well as increase rates. During peak season, a considerable number of deliveries are required to fulfil high customer demand, and additionally, companies are also in a hurry to clear out warehouses to make room for further stock. This puts immense pressure on inflow and outflow transportation. Moreover, companies are still recovering from the direct-to-consumer or home delivery demand growth generated during the pandemic.

SPEEDY DELIVERY EXPECTATION

Intending to fulfil customers' expectations for same-day or next day deliveries with increasing market space competition, companies are quickly establishing even faster delivery practices. This adds more strain on warehouses because they need to adapt slower operations to accommodate single, faster picking. This generally means rethinking supply chain networks and considering new warehouse processes like microfulfillment options.

PRODUCT SUPPLY

Product shortage and stockout have been experienced globally due to interdependent supply chains and fluctuating demand. During peak season, having sufficient inventory to meet customer demand is a significant concern for companies. Hence, it is essential to review trend analysis to avoid the risk of running out of in-demand products or overstocking unnecessary items.

All the aspects mentioned above make it challenging for companies to manage peak season, navigate revenue and customer base losses due to unexpected scenarios. All these elements cannot be avoided considering the market situation and supply chain woes; however, to minimize the impact, companies can evolve and boost their supply chain infrastructure in handling peak season.

Solutions & Technologies Circumventing Common Roadblocks

Particularly during festive seasons, in this competitive market, no business is big enough to ensure success, and it is even more contingent upon swiftly transforming business models that adapt to market changes. Moreover, such radical business changes necessitate revolutionary technology, as well as organizational and process transformation. Consumer expectations for transparent and user-friendly fulfilment experiences are increasingly significant to brand loyalty.

The supply chain requires end-to-end integrated processes. This starts with direct supplier procurement of raw material for production to appropriate product stocking in warehouses to customer delivery of finished products, and everything in between. Refining the steps within the four walls of the warehouse are invaluable in ultimately a quality customer experience. That differentiator drives supply chain objectives in consumer industries.



To help warehouse operations rise to market demand, here are some key steps to introduce automation ahead of peak season:

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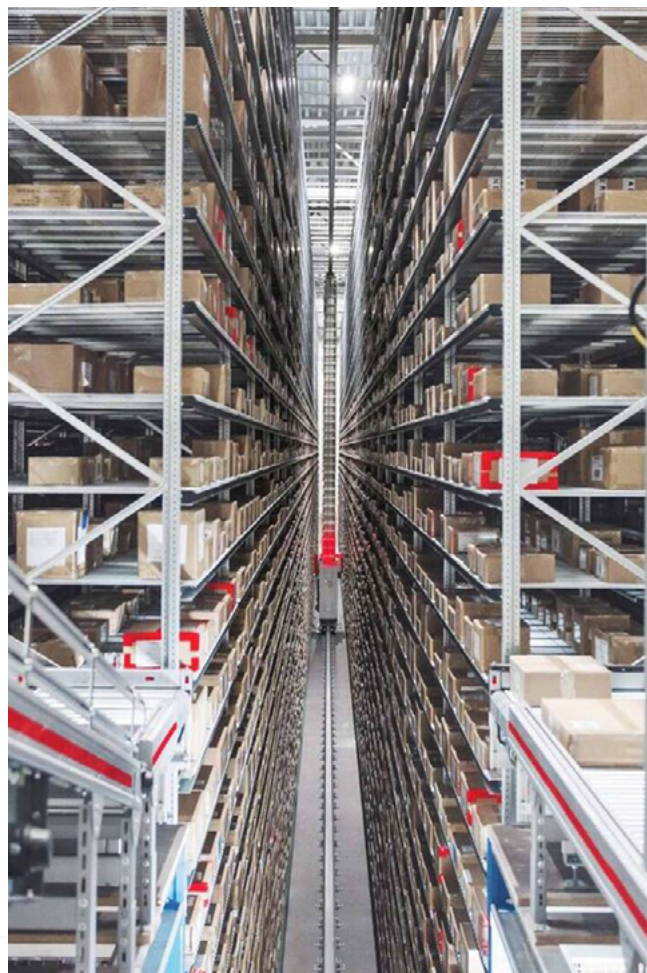
FORECASTING

Demand assessment is vital for retailers to drive product stock planning and measure the capacity of their distribution centres to handle multiple SKUs. Companies can efficiently plan the production and distribution channels based on the data, expected demand, current inventory, raw material requirements, and labour requirements. This process will help improve capacity utilization and allocation of manufacturing resources.

It is also essential to take note of seasonal order cycles. The velocity of items during the holiday season will significantly vary for each item. Understanding how the order cycle changes across the inventory can help set appropriate reorder points ahead of the peak season. Inventory or warehouse management systems can help get visibility of the stockroom, monitor the trends, and avoid the situation of the inventory level running low or empty. Forecasting demand and supply will also help optimize warehouse space. With planned product stocking, it will become easy to know what, when and where the stock is required.

MEASURE PERFORMANCE OF WAREHOUSE OPERATIONS AND INFRASTRUCTURE

To optimize the warehouse, it is required to measure the performance of operations to establish a baseline. Further, an assessment of existing infrastructure is vital to ensure that it suffices to support a smooth operation. A deeper assessment of operations and infrastructure needs to be done to ensure the system is equipped to accommodate order spikes during peak season periods.



Most In-Demand and Necessary Technologies for efficient warehouse performance:

Conveyor Systems: A conveyor system is a fast and time-saving automated method to move any size of items from up and down the floors, eliminating manual staff work, and the inclined belts can automatically offload the materials, removing the need for someone to receive the items.

If perfectly measured and estimated how much the transfer/throughput rate is required during the peak season, the system will reduce product damages to increase productivity and enhance ergonomics.

Tote Shuttle System: A modular and multi-directional shuttle system during peak season assists with sequencing and sorting capabilities. It helps create seamless intake of incoming goods to small parts storage, picking, assembly and eventually to the shipping area.

These systems, while increasing speed, storage capacity and accuracy, also provide rapid access to inventories for higher throughput rates of about 600 - 650 totes per hour, in a single cycle.

Additional Technologies for fulfilment management:

AGVs and AMRs: Industrial automated guided vehicles (AGVs) and autonomous mobile robots (AMRs) are one of the cost-effective vehicle systems to handle high volumes of materials from small items to heavy loads to transport to the desired location in manufacturing and distribution centres.

These automated vehicles are especially helpful during peak season when the inventory flow changes are constant and if conveyors are not installed. These vehicles are also helpful to eliminate walking between the tote picks and solely focus on order fulfilment thereby increasing throughput rate.

Mini Load ASRS: It is a form of automated storage and retrieval system. During the peak season, storing the products can be challenging due to variety of demand. This ASRS is designed to store many SKUs in less space and provide easy access to totes simultaneously permitting location tracking for thousands of items easily.

REVIEW PICKING, PACKING AND REPLENISHMENT OPERATIONS

Product picking and replenishment are interconnected, so the other will reflect the result if one is not done right. In a traditional warehouse when demand is high, more human pickers are needed for pick-up tasks to keep pace with increased order quantities. During peak season, the frequency of line items per order increases to a level where most of the workers would spend half of their time walking the warehouse aisles to retrieve items and this congestion will slow down the entire process.

Assess how many items pickers are retrieving and at what time. How long does it take to sort, pack and replenish totes? How are the products coming from the manufacturing plant prioritized and decided for the shipping? How much time passes between each pick, refilling and getting ready for shipping?

The process cannot be improved until it is measured. An in-depth understanding of the processes can help encounter irregularities that exponentially add up time and money. That is why it is critical to use such technologies that can increase picking, packing and replenishing efficiency.



Automating Picking Operations:

Pick to light: An economical way to increase picking accuracy, speed and reduce labour costs. Pick to light is a light-directed warehouse picking technology to guide the operator to the article's storage compartment to pick, put, and sort products.

Systemizing Replenishment Operations:

For efficient stock replenishment a put to light system is designed to replenish stock to a store. This system is typically mounted on carton flow rack, with the individual open store shipping boxes placed above or below the designated put to light device. With this, automated goods to person shuttle systems can further the impact by automating product travel and handling between storage locations, rack and fulfilment workstations.

Selecting an automation technology like goods to person replenishment can significantly help increase throughput and improve staff ergonomics as required product is efficiently stocked within the system.

Maximizing Efficiency with Automated Packing Processes:

Automation technologies aren't limited to complicated, sophisticated tasks. Simple automation equipment can help make repetitive tasks more accurate, efficient and save costs. Customized packaging equipment like automatic tray formers and ladders tackle box erection, autobaggers support automated polybags often used in ecommerce orders, and automated box cutters for right-sized shipping containers are only some ways to positively impact downstream tasks within the warehouse fulfilment process, ultimately helping to improve customer delivery. Coupled with ancillary conveyor equipment, these reliable, simple automation tools can create a more manageable peak season experience.

PREPARE FOR SMOOTHER, FASTER DELIVERIES

If peak seasons exist for businesses, they also exist for India's freighters and loaders. This is a time when demand grows so much that it can limit capacity, make freight more expensive, and make logistics a headache. Exploring a trustworthy and reliable logistics partner is crucial to ensure the profitability of operations. A 3PL (third-party logistics) partner is an option that understands various industries and is familiar with operational scalability needs.

Whether you utilize a 3PL or not, since this peak season phenomenon happens every year, here are a few tips that can be employed within the warehouse to help aid supply chain logistics downstream:

- Utilize software tools to prioritize order shipments, which is in demand and needs to be shipped at a specific time because freight tends to get delayed due to heavy demand. Dependent on the type of product and supply chain processes, consider FIFO (first in, first out) and LIFO (last in, first out) strategies.
- Consider multi-modal transportation, especially when reaching international clients. Assessing the demand will be helpful to understand how many products can be transferred by plane to meet the timelines and the remaining products can be shipped through a cheaper means of transport.
- Optimize automation equipment like conveyors to move materials directly to the shipping dock using belts, flexible chains, or live rollers. You may also consider in-line ancillary conveyor equipment like automatic weighers, scanners, labelling machines or void fillers to keep your products on the conveyor route, fine-tune shipping weight and costs, and reduce time and productivity loss. These automated options will make the shipping process easier and create ergonomic, efficient solutions that also help maintain shipping costs within bounds.
- Leverage the use of microfulfillment centres to deliver local online orders with speed and proficiency. To increase customer satisfaction, these small warehouses can ship goods locally within a day or two to the required locations – direct to consumers or to replenish local stores.



RETURN ORDER MANAGEMENT

Outgoing orders, while a priority during peak season operations, should not be the only focus. Companies face a substantial increase in product returns during peak seasons. With thousands of outgoing deliveries and incoming returns each week, managing the workforce and maintaining supply chain efficiency can be difficult and quickly become an operational headache. Companies must find a way to be efficient and timely in return processing tasks while maintaining customer service.

There are several manual steps involved: identifying product owner information, checking product condition, and then sending it to the sort area to place back into inventory for resale. The whole process can be automated, which is faster and requires less labour. When these steps are executed manually, it takes time and facility space.

Appropriate automation system integration makes all the difference. If the product is in suitable condition and needs to be restocked, it can be placed in a sorting induction belt, where the item can be automatically scanned, and then loaded into a container for restocking. The automated sorting solution with handheld scanners and warehouse management systems will require less than three operators with one or two additional resources to collect the return merchandise from the bins of the machine and can process more than 2,000 items per hour. Combined with other automation technologies like ASRS or goods to person can create a more complete reverse logistics solution.

The consequence of poor reverse logistics, however, can mean returned items are not restocked appropriately creating process delays, lost revenue, and diminished customer service quality.

Support and Maintenance for Reliable Operation Uptime

Helping Clients with Support, Operations & Maintenance

PREVENTIVE MAINTENANCE

Equipment downtime generally means little to no productivity during that timeframe. To avoid any downtime, start with taking care of your equipment. No matter if you have a small conveyor system or a multimillion dollar, fully automated distribution centre, you will have to perform maintenance activity to keep the equipment running at optimal rates.

ESSENTIAL TRAINING

When seasonal workers are hired and shipments are planned, it is critical to ensure that one last important task is implemented and done for a great peak season – safety, system and software training for your operation team.

SAFETY TRAINING

The safety of employees is the utmost priority and is the first training they should receive. Working in a warehouse without the proper safety measures and procedures can be dangerous. With distribution centre's operating at a peak capacity, the risk of workplace injuries can also increase.

Injuries and fatalities can occur with adequately trained and qualified workers, so it is paramount that the safety procedures are implemented and executed well. The first step to promoting warehouse safety is understanding the causes of common workplace incidents like uneven and greasy floors, chemical leaks, manual lifting of heavy products, items falling from the shelves, uncontrolled machine functions, and when workers get entangled with large equipment.

SYSTEM AND SOFTWARE TRAINING

Success during peak season is dependent on the staff and their understanding of mechanical, electrical and software elements to system operations which will help to ensure maintained efficiency and significantly reduce downtime.

PREVENTATIVE MAINTENANCE FOR PEAK SEASON

Items that should be checked regularly include:

- Tightening and re-aligning the joints, screws, hoses and fittings throughout the system like drive chains, V-belts, CV chains, sprocket grubs, rollers, bearings, etc.
- Checking all machinery fluid levels including oils, fuels, coolants, etc.
- Checking filters and lines for leaks: air, fuel and hydraulic
- Lubricating reducers, bolts, drive chain, zerk fittings
- Adjusting belt tension and temperature on motors and reducers
- **Apart from these, do not forget common, yet important, maintenance such as replacing damaged items.**

ESSENTIAL TRAINING FOR PEAK SEASON

Key safety areas to review with employees:

- Equipment and surrounding space cleanliness
- Identify hazardous zones and safety around them
- Shelving and vehicle dangers, understanding equipment and activity limits
- Fire safety drills and procedures

Apart from these, do not forget to keep a first aid kit, keep distribution centres ventilated and take precautionary actions when needed.

Basic system and software training that is important during peak season can include:

- **System operations:** Operating the equipment focusing on hardware and software performance. Systems launch, shut down and all primary operational material handling system steps.
- **System management:** Data reporting, interpretation and overall management of the system in total. This training includes error messages, failure conditions and recovery steps for smooth peak season management.
- **Material handling functions:** Employees should explore the capabilities and parts of the installed automation equipment to use the machines effectively.
- **Software suite:** Understanding the warehouse and inventory software functionality and interface for daily operations, support needs and making quick decisions.

Conclusion

India's peak season can be a time to thrive. It's a time to stand out through exceptional product and service delivery. Ecommerce digital tools have increased consumer access and with continued pandemic recommendations for social distancing and safety, consumers are embracing the convenience. Peak seasons further drive this demand.

Peak seasons are often defined as a relatively small period of sudden consumer demand. Often classified as only during the traditional end-of-year festive season, peak season can encompass several annual shopping peaks throughout the year. To successfully embrace and thrive during these elevated periods, companies must be able to quickly scale their efforts to handle the extra load of demand. On the other hand, with an outburst in demand for last-mile deliveries for small to bulky products, companies need to go beyond basic service offerings. To stay ahead in the market and be the customer's first choice, business objectives need to be clear with a strategized plan on how to achieve them.

Adding automation technologies to your existing processes will only improve operations to an extent. Start with identifying roadblocks and then align appropriate improvements within the facility to implement and integrate automation that embraces and enhances peak season processes more effectively.

About Bastian Solutions

Bastian Solutions, a Toyota Advanced Logistics company, is a trusted supply chain integration partner committed to providing their clients a competitive advantage by designing and delivering world-class distribution and production solutions. The expertise Bastian Solutions delivers includes exceptional results through a proven process of analytical consulting, engineering and design, simulation, project management, installation services and post-installation support, while sourcing the best material handling equipment and automation technologies available.

With innovation at the forefront, the company also develops Exacta® supply chain software, conveyor and sortation systems, custom automated material-handling equipment, robotics, autonomous vehicles and robotic shuttles, and state-of-the art industrial controls.

Bastian Solutions focuses on having a strong, unified relationship with all clients, serving domestic and global markets covering the United States, Canada, India, Mexico and South America.

For more information or to talk to an engineer, visit www.BastianSolutions.com



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