Optimizing Shelf Availability

The Key to Driving Sales and Customer Satisfaction in Retail

Executive Summary

Product availability on shelves remains one of the most pressing challenges for retailers worldwide. Despite years of efforts from manufacturers and retailers, average out-of-stock rates continue to linger around 8-10%. This issue directly impacts sales, customer satisfaction, and brand loyalty.

Recent studies reveal that 70% of customers will shop at a different store after encountering three out-of-stock experiences. This trend not only jeopardizes immediate sales but also the customer's long-term value. Additionally, product unavailability drives customers to substitute with lower-value items, leading retailers to lose approximately 4% of their annual sales.

This document analyzes the root causes behind availability issues and their impact on various business areas and presents holistic, innovative solutions. Implementing this strategy can result in a 2-3 percentage point improvement in availability, translating directly into sales growth.

Retail leaders can drive their organizations toward a transformation based on real-time data-driven inventory and operational management. This shift will optimize product availability and lay the groundwork for proper omnichannel integration and operational excellence.

Introduction

The retail sector stands at a turning point. Disruptions in global supply chains and economic volatility have placed additional pressure on margins and operational efficiency. Specific trends, such as the exponential growth of e-commerce and the expectation of a seamless omnichannel experience, accelerated rapidly during the pandemic, urging retailers to adapt quickly to stay competitive.

In this context, ensuring product On-Shelf Availability (OSA) has gained even greater strategic importance. Despite decades of efforts by retailers and manufacturers, out-of-stock rates remain at concerning levels. As illustrated in Graph 1, the global average stands at 8.3%.

These figures represent a substantial lost opportunity regarding sales, customer satisfaction, and operational efficiency. The challenges in improving availability are numerous and interconnected. First, retailers face an increasingly complex assortment and SKU proliferation, complicating efficient inventory management. This challenge is further intensified by volatile demand, often exacerbated by promotions and events creating unexpected sales spikes.

Out-of-Stock Rates by Region
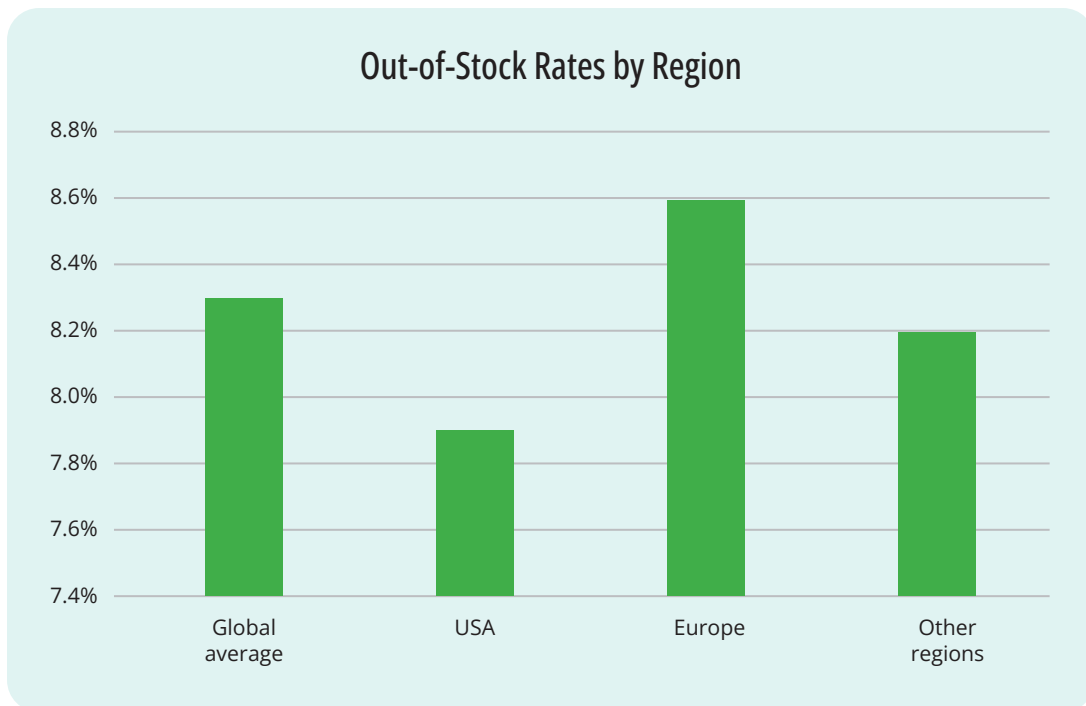
Graph 1: Out-of-stock rates by region.

Additionally, there is a notable disconnect among forecasting, supply, and replenishment systems. This lack of synchronization frequently results in suboptimal decisions throughout the supply chain. The issue is compounded by the absence of real-time inventory visibility at the store and shelf levels, hindering the ability to respond swiftly to demand fluctuations.

Moreover, many retailers still rely on manual and reactive processes for in-store inventory management. These outdated practices are inefficient and prone to errors, making it challenging to maintain optimal product availability on shelves.

However, new technologies such as the Internet of Things (IoT), advanced analytics, and mobile task management platforms offer unprecedented opportunities. These innovations can tackle the challenges comprehensively. Retailers who successfully implement these tools will enhance their availability metrics and lay the foundation for a true digital transformation of their operations.

This document provides an in-depth analysis of on-shelf availability issues and their impact on various business aspects. It also presents innovative solutions that can bring about a substantial leap in inventory management and customer experience.

The Product Availability Challenge

To understand the magnitude of the challenge posed by product availability, it is essential to analyze the multiple factors contributing to out-of-stock (OOS) situations and their effects throughout the retail value chain.

Factors Affecting Shelf Availability

The factors affecting shelf availability are diverse and interconnected, covering multiple aspects of the supply chain and retail operation, as shown in Image 1.

Demand Forecasting

- Volatility amplified by promotions and events
- Lack of SKU-level granularity
- Misalignment between retail and supplier forecasts

Supply Management

- Extended, inflexible lead times
- Limited end-to-end supply chain visibility
- Non-optimized inventory policies

Logistics Operations

- Order preparation errors in distribution centers
- Shipping delays and transportation errors to stores
- Limited real-time traceability

Store Operations

- Manual receiving and replenishment processes
- Poor inventory visibility (store floor vs. backroom)
- Human errors in product counting and location managemen

Systems & Data

- Lack of integration between forecasting, supply chain, and POS systems
- Unreliable or non-real-time inventory data
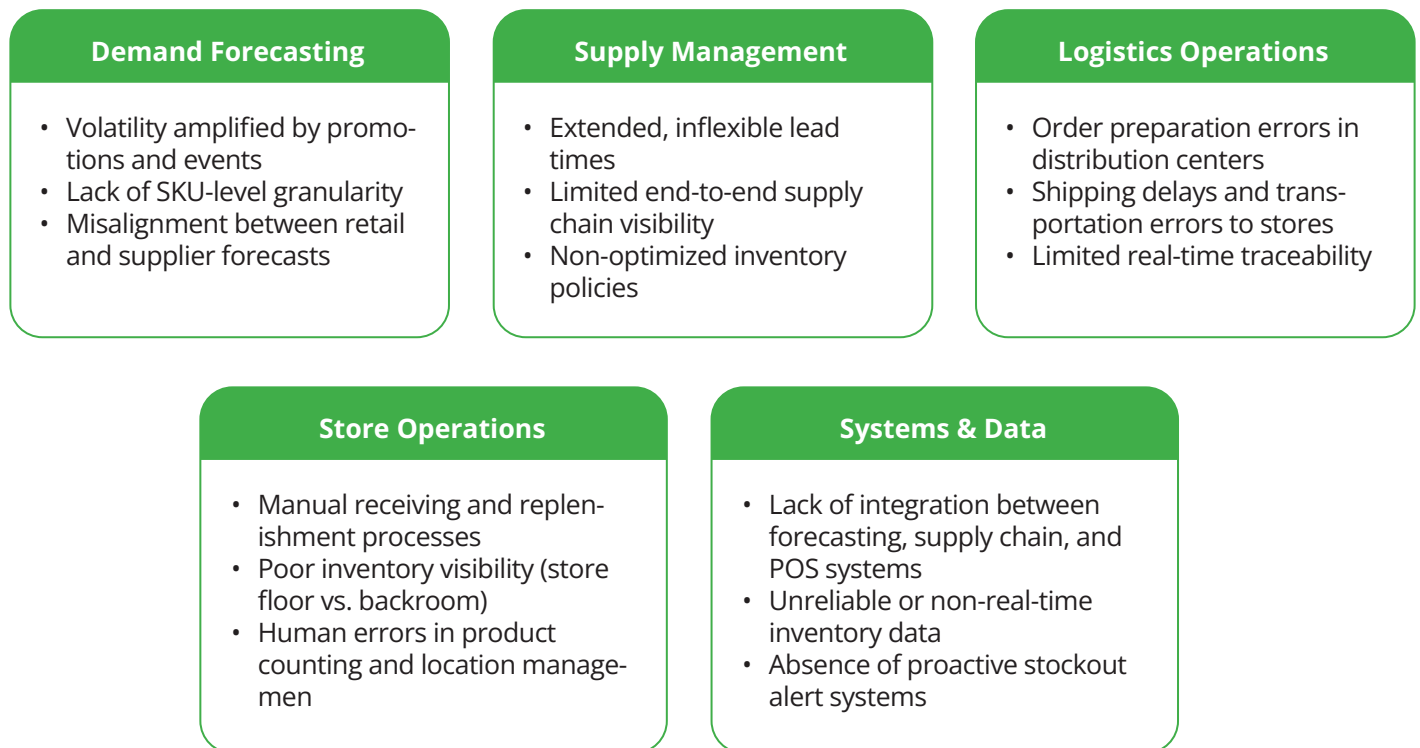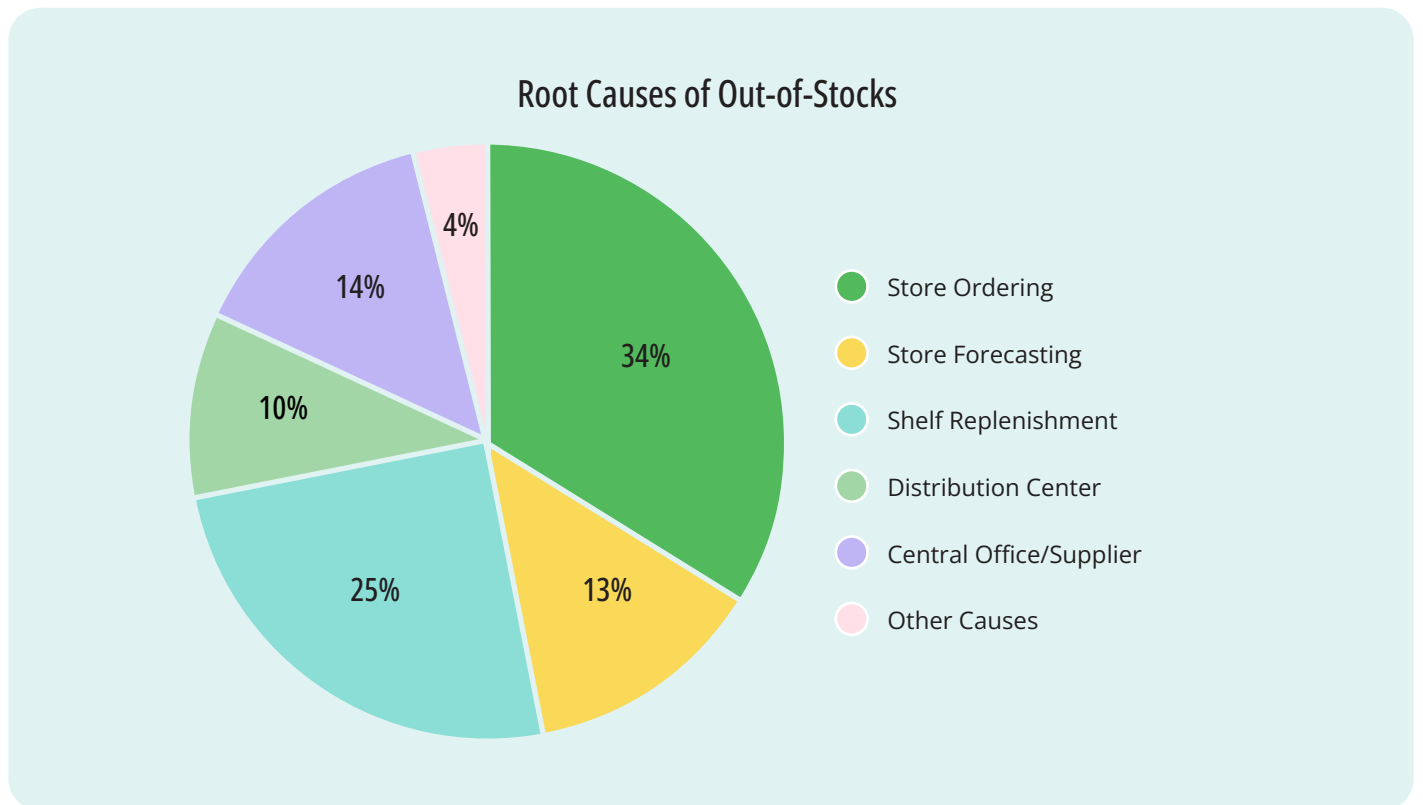- Absence of proactive stockout alert systems

Image 1: Factors Affecting Shelf Availability

Firstly, *demand forecasting* presents significant challenges inherent to the industry, especially with fresh or seasonal products. This uncertainty is exacerbated by promotions and events, and the lack of granularity in the information available at the store/SKU level. Additionally, discrepancies between retail forecasts and those of suppliers are common. Combined, these factors hinder accurate inventory planning.

In terms of *supply,* extended and inflexible lead times and a lack of end-to-end visibility across the supply chain complicate the ability to respond quickly to demand changes. At the same time, unoptimized inventory policies can result in chronic excesses or shortages.

Logistics plays a crucial role, particularly since discrepancies can arise between theoretical and actual inventory levels. Errors in order preparation at distribution centers and transportation delays to stores directly impact product availability. The lack of real-time traceability further complicates the detection and correction of these variances.

At the *store operations* level, manual receiving and replenishment processes, the lack of visibility between backroom and shelf inventory, and human errors in counting and product placement contribute to availability issues.

Root Causes of Out-of-Stocks

- Store Ordering — 34%
- Store Forecasting — 13%
- Shelf Replenishment — 25%
- Distribution Center — 10%
- Central Office/Supplier — 14%
- Other Causes — 4%

Graph 2: Root Causes of Out-of-Stocks

Lastly, *systems and data* present an additional challenge. There is a lack of integration between forecasting, sourcing, and POS systems. Inventory data may be unreliable or not updated in real-time. Furthermore, the absence of proactive alerts for potential out-of-stock complicates timely and accurate decision-making.

Despite the high level of complexity of these factors and their interaction, a detailed analysis of the root causes of out-of-stock reveals key information. Approximately 70-75% of cases originate from store-level management issues, such as shelf replenishment, sales projection, and order management (Graph 2). This distribution of root causes has important implications for designing effective solutions. While optimizing the entire supply chain is essential, the focus should be on improving store-level processes and systems.

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Consequences of Out-of-Stocks (OOS)

Out-of-stocks impact businesses far beyond the immediate loss of a sale. They also affect multiple business aspects, such as customer experience and operating costs, as seen in Image 2.
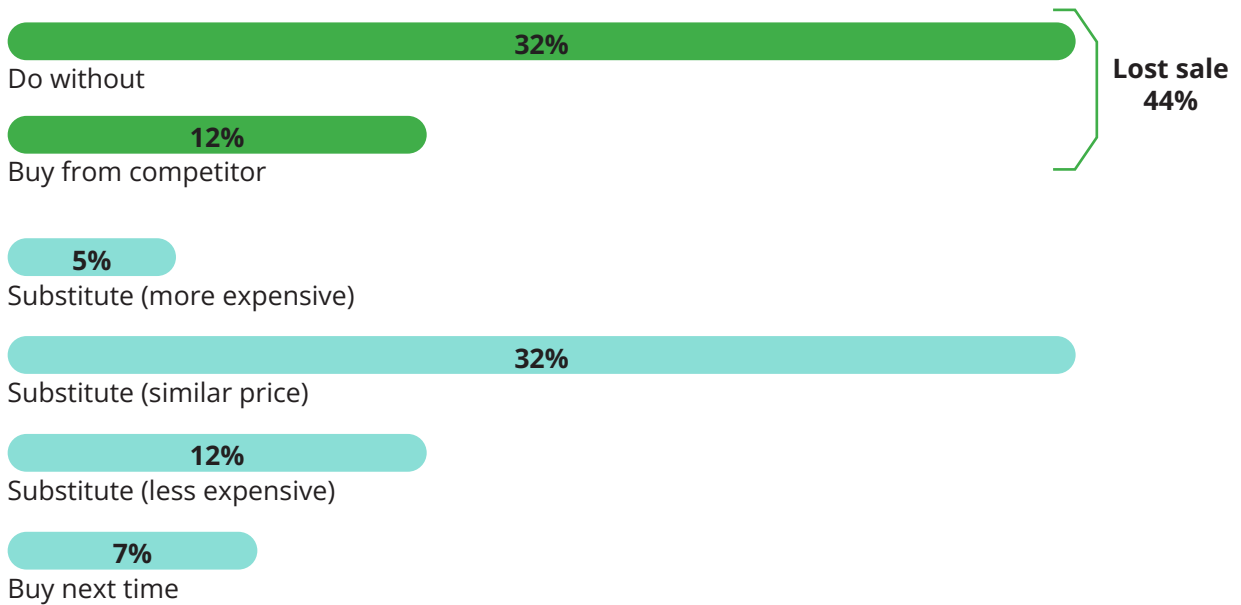
Impact on Sales

Firstly, the direct financial impact is significant. Estimates indicate that retailers lose over 5% of their annual sales due to out-of-stock. Additionally, when customers are forced to substitute with alternatives, they tend to choose lower-priced or lower-margin options, negatively affecting profitability. Consumers respond in various ways to OOS; however, 44% of the time, there will be a direct impact on sales (Graph 3). This occurs when customers choose not to buy or go to competitors when they can't find the desired product.

> Retailers lose over 5% of their annual sales due to out-of-stock.

How customers respond to out-of-stocks
Share of total

Category	Share
Do without	32%
Buy from competitor	12%
Substitute (more expensive)	5%
Substitute (similar price)	32%
Substitute (less expensive)	12%
Buy next time	7%

Lost sale 44%

Graph 3: How Customers Respond to Out-of-Stocks

Furthermore, retailers face financial losses due to brand substitution, where consumers choose lower-margin alternatives. Similarly, there is a loss due to size substitution, where customers settle for smaller packages. This situation affects both the retailer and the brands. Lastly, postponed purchases have an impact, which, while not a definitive loss, affects cash flow.

Impact on Customer Experience

Out-of-stocks profoundly affect brand perception and consumer loyalty. When customers face an out-of-stock problem, 12% will choose to purchase the product elsewhere, and 32% will decide not to buy. Moreover, 70% of customers will transfer their purchases to competitors after three out-of-stock experiences. This represents tangible losses and a significant risk of customer base erosion.

While the direct loss is overwhelming, the more concerning long-term effect is the indirect loss resulting from decreased customer loyalty, which reduces future sales. These data highlight the critical importance of efficient inventory management and product availability to maintain competitiveness and profitability in the retail sector.

A staggering 70% of customers will transfer their purchases to competitors after three out-of-stock experiences.

Impact on Other Areas: Operational Efficiency, Promotional Effectiveness, and Supplier Relationships

Operational inefficiencies are another notable consequence of out-of-stocks. Store personnel waste time searching for missing products; costs increase due to emergency restocking; and demand distortion creates a bullwhip effect in the supply chain. All these factors increase operating costs and reduce productivity.

Additionally, out-of-stocks have a negative impact on promotional effectiveness. Being 75% more frequent in promoted items, not only does the expected sales boost diminish, but it also affects campaign analysis, as the opportunity to track whether sales reached their full potential is lost due to stockouts. Furthermore, the lack of stock during promotional events undermines the credibility of campaigns,

affecting consumer perception of the retailer's reliability in delivering on its offers.

Lastly, but equally important, out-of-stocks can strain relationships with suppliers. Non-compliance with commercial agreements and efficiency losses in the integrated value chain can lead to conflicts and hinder future collaboration, affecting the retailer's ability to optimize its supply chain.

The magnitude of these interconnected impacts makes it clear that improving product availability must be a strategic priority. This is crucial for any retailer seeking to optimize financial performance and maintain a competitive position in the long term.

Areas Affected by Out-of-Stocks

Direct Financial Impact

Supplier Relationship Impact

Consequences of Out-of-Stock Events

Customer Experience & Loyalty Impact

Promotional Effectiveness Loss
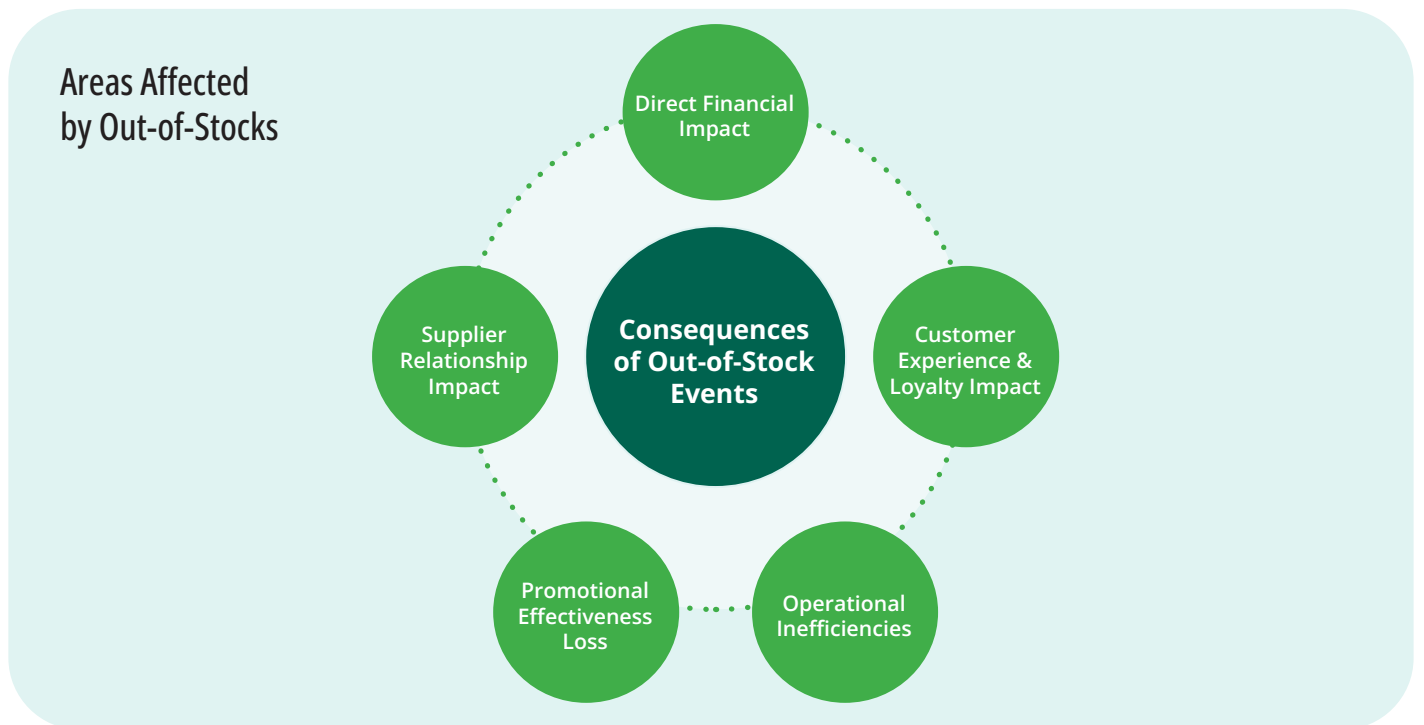
Operational Inefficiencies

Image 2: Areas Affected by Out-of-Stocks

Innovation in Inventory Management and Product Availability

To tackle the challenge of product availability, retailers are adopting emerging technologies, advanced analytics, and new operational processes. The current landscape of inventory management is undergoing a significant transformation, thanks to various trends and innovations being integrated into everyday retail operations. (See Table 1.)

These innovations, working together, are allowing retailers to address the product availability challenge more comprehensively and effectively than ever before. The key to success lies in integrating these technologies and processes at every level of the organization.

Technology	Description	Key Benefit
IoT and RFID	Sensors and tags that track products in real-time throughout the supply chain and in-store.	Precise stock visibility, reduced inventory errors, and improved loss prevention.
AI and Machine Learning	Advanced algorithms that analyze historical and real-time data to predict demand patterns.	Significant improvement in forecast accuracy, inventory optimization, and reduction of stockouts.
Mobile Task Management Platforms	Solutions ranging from digital activity lists to advanced systems for real-time task optimization.	Increased operational efficiency, improved task execution, and greater agility in-store management.
Omnichannel Inventory Integration	Systems that unify inventory visibility and management across all sales channels.	Seamless shopping experience, improved product availability, and total inventory optimization.
Automation in Distribution Centers	Implementation of robots and automated systems for picking, packing, and inventory management.	Error reduction, faster processing speed, and improved shipping accuracy.
Advanced Supplier Collaboration	Platforms that allow real-time data sharing and collaborative planning with suppliers.	Supply chain optimization, reduced safety stock, and improved responsiveness to demand changes.

Table 1: Product Availability Innovations

Frogmi: Revolutionizing Shelf Availability with Smart Microtasks

In the context of inventory management innovations, Frogmi stands out as a cutting-edge solution that innovatively and efficiently addresses the shelf availability challenge. Frogmi combines a mobile task management platform with advanced analytics, offering a unique approach through smart microtasks.

Smart Microtasks: The Heart of the Solution

Frogmi's approach is based on the concept of SKU-level smart microtasks, breaking down complex processes into manageable, highly specific actions. This methodology enables precise management at the individual product level, tailoring tasks to each store's unique needs and at each moment.

Frogmi integrates with the retailer's existing systems to generate relevant tasks based on real-time data. The platform is compatible with advanced technologies such as visual analysis and ERP systems, enabling proactive detection of issues like phantom inventory.

Additionally, Frogmi provides real-time updates and monitoring, giving managers instant visibility into each store's operations. This granular, data-driven approach improves accuracy, optimizes staff time, and enhances store performance and customer satisfaction.

Frogmi Methodology: 360° Shelf Management

Despite years of efforts by retailers, and the design and implementation of various technological solutions, stockouts continue to be a persistent issue. Achieving and maintaining optimal product availability remains a challenging task that has not been significantly resolved across the board until now.

Frogmi addresses product availability on the sales floor, from stockout detection to resolution and analysis, providing a 360° view of in-store operations. However, it's important to consider that each retailer has its level of maturity, resources, and operational complexity. The platform and its implementation are adapted to each unique situation to make the most of the tool. The following illustrates how Frogmi's methodology comprehensively transforms shelf product availability management at different levels.

1. Early Out-of-Stock Detection

Early identification of stockouts through mobile scanning and integrated technology.

Replenishment request
4789567
Super Chocolate
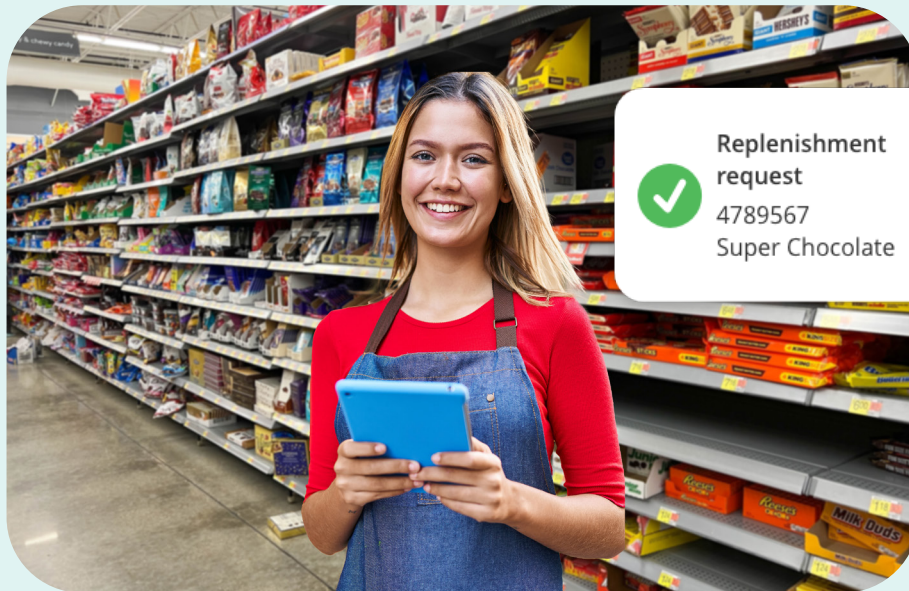
Tip: Use the "Lock Task" feature for an even more efficient inventory check.

The process begins with a daily routine of early stockout detection. At the start of each day, store personnel conduct a systematic walkthrough of all aisles using Frogmi's mobile app. During this walkthrough, employees scan the barcode of each empty space on the shelves, and with a single click, they record the stockout for that specific SKU. This automatically generates a replenishment task in the system. This SKU-store-level, micro-focused approach allows quick and accurate detection, surpassing traditional general review methods.

Once a stockout is detected, Frogmi optimizes replenishment by automating the task assignment to warehouse staff. Each task specifies the exact SKU, its location in the store, and the optimal quantity to replenish. Information from the planogram can be cross-referenced with inventory levels to calculate this quantity. For example, if the planogram indicates 15 units of tomato sauce (3 front faces by 5 units deep) and only 10 units are detected on the shelf, the replenishment task will request exactly 5 units. This level of precision avoids overstocking or understocking, optimizing inventory usage, shelf space, and replenishment team time.

Frogmi integrates with other advanced technological solutions to complement manual review, maximizing its impact. The platform connects with shelf analysis cameras that automatically detect empty spaces, scanning robots that roam aisles identifying stockouts, and demand forecasting systems that alert staff to potential future stockouts. These integrations generate automatic tasks in Frogmi, enabling even faster response times and reducing manual workload.
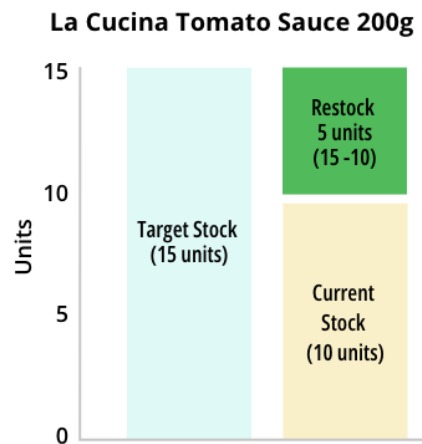
2. Smart Replenishment

Efficient replenishment through automated, SKU-level micro-tasks.

Frogmi: Restock
La Cucina Tomato Sauce 200g
Aisle 12

La Cucina Tomato Sauce 200g

Restock
5 units
(15 -10)

Target Stock
(15 units)

Current
Stock
(10 units)

Units

📣 **Call Out:** Accelerate your operations by breaking down silos between the sales floor and backroom, enabling a smoother, faster execution.

3. Integrated Technology Ecosystem

The platform integrates with other systems for comprehensive and hyper-connected management with each store's operational reality.
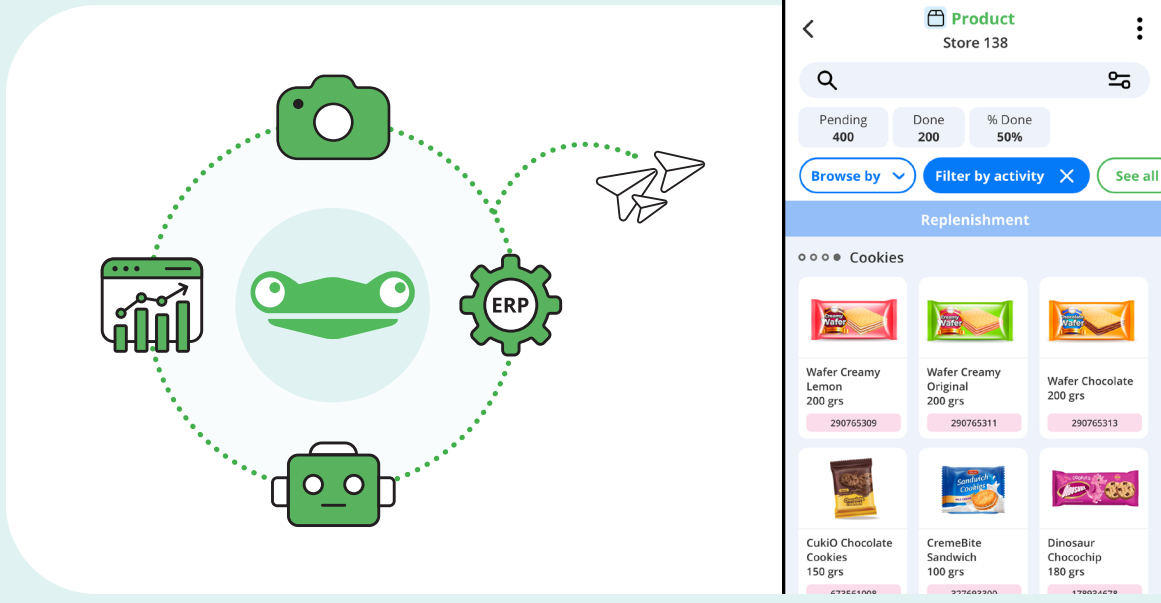
Call Out: 70-75% of out-of-stocks are attributable to in-store replenishment practices.

A critical issue addressed by Frogmi is phantom inventory detection. Systems can analyze sales patterns and theoretical inventory levels to identify SKUs that, according to records, have stock but are not registering sales when they should. This generates physical verification tasks for these products, allowing staff to correct inventory discrepancies, identify damaged or expired products, and reposition misplaced items. These actions integrate directly with the ERP system, updating inventory levels in real-time. This functionality has enabled retail chains to identify and remedy Inventory Accuracy Index gaps of up to 39%, significantly improving the precision of their automatic reorder systems.

Beyond stockout detection and subsequent replenishment, Frogmi provides a robust tracking and analytics. The platform monitors which tasks were completed and which were not, requiring staff to indicate why a task could not be resolved. For example, out-of-stock items in the warehouse, products out of planogram, or space occupied by another product. This information feeds advanced reporting that generates detailed insights on stockout resolution rates, average replenishment time, and the most common causes of unresolved stockouts. This functionality has allowed operations managers to identify systemic issues and develop continuous improvement strategies, considering that around 50-60% of tasks involve some form of management, such as ensuring correct shelf display, price changes, or inventory adjustment.

Frogmi's implementation transforms retail through measurable and consistent results across retailers of various sizes and scales. The data demonstrates significant improvements: a 17% reduction in shrinkage losses from expired or damaged products, a 10% increase in on-shelf availability, and a 5-9% increase in sales for the participating categories.

These results demonstrate how Frogmi provides a truly comprehensive solution for shelf availability management, addressing not only detection and replenishment but also the root causes of inventory issues.

Our experience indicates that senior management's commitment and leadership are critical factors for success in implementing technological solutions that improve shelf availability. Executives must become active promoters, leading by example and fostering a culture of continuous improvement. Effective communication of the strategic importance of shelf availability management to field teams and regular tracking of progress are essential for solution adoption and overall project success.

4. Actionable Results and Insights

Detailed real-time reporting to validate key metrics and identify improvement opportunities.
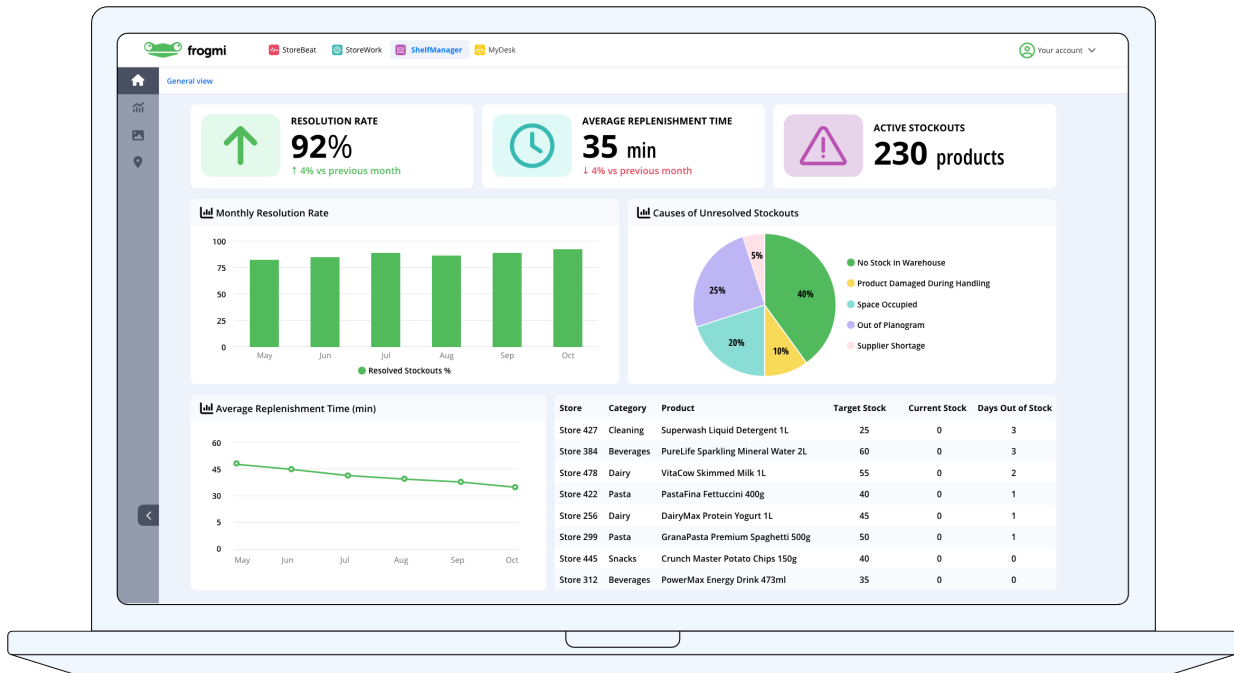
Tip: Review the top 10 most frequent out-of-stock products weekly to identify patterns.

Frogmi represents a remarkable leap in shelf product availability management. By combining smart microtasks, advanced technology integration, and an interface designed for operational efficiency in retail, Frogmi offers a complete and effective solution to one of the industry's most persistent challenges.

↑**10**%
On-Shelf Availability

↓**17**%
Shrinkage Losses

↑**5-9**%
Sales Increase

50-60%
Tasks With Active Execution

Optimizing Product Availability: A Strategic Opportunity for Success in Modern Retail

Optimizing product availability has become one of the most significant opportunities for creating value, positioning itself as an operational necessity and a strategic focus due to its impact on both short- and long-term results. This strategy promises substantial benefits and serves as a key differentiator in an increasingly demanding market.

Retailers that address this challenge comprehensively are reaping multiple benefits. These range from increased sales and margin—directly impacting their financial outcomes—to substantial improvements in customer experience, fostering greater loyalty. Additionally, they achieve enhanced efficiency and productivity among staff, resulting in operational gains. In the long term, these improvements strengthen the company's competitive position in the market.

However, capitalizing on this opportunity requires a strong commitment from organizational leadership. Retail executives must take concrete steps to drive this change, elevating product availability to a key business driver. This strategic pillar must receive the necessary attention and resources, which involves investing in specialized technologies and analytical capabilities to tackle the unique challenges of inventory management in retail. The time to act is now.

> **It is crucial to elevate product availability to a strategic priority within the business, ensuring it receives the necessary attention and resources.**

Optimizing product availability is not simply another operational initiative; it is a fundamental strategy for ensuring relevance and sustainable growth in the future of retail. Executives who recognize this opportunity and act decisively to capitalize on it will lay the groundwork for long-term success in an increasingly competitive, consumer-oriented market.

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