SOLUTION BRIEF
Inventory Management
Retail Solutions

Using Retail Marketing Data to Help Curb Inventory Distortion

Using Intel® architecture-based solutions, global retailers are reducing costly out-of-stocks and overstocks while improving customer satisfaction and profitability.

These powerful new retail solutions not only offer better inventory control, they can also link inventory data to marketing efforts to substantially enhance promotional effectiveness, reduce shopper dissatisfaction, increase sales, and improve marketing's return on investment.

Introduction

Digital technology is providing retailers with unprecedented amounts of real-time data about shoppers and what they're buying, or not buying. The challenge facing retailers is to effectively analyze this data in ways that can help overcome some familiar operational hurdles.

High on that list is inventory distortion, a problem costing retailers worldwide nearly USD 1 trillion a year. To help retailers reduce problems related to out-of-stock and overstock situations, Intel is working with a number of partners around the world to develop intelligent solutions that put inventory control back into the hands of retailers.

Costly Complexities

Across the retail industry, managing inventory in recent years has become increasingly difficult and expensive due to the transformation in shoppers purchasing patterns. They enjoy unprecedented access to product selections and can make purchases anywhere and anytime. As a result, retailers find it harder to forecast and maintain optimum inventory levels.

- Out-of-stock conditions are a direct cause of lost sales and consumers' top-ranked complaint. Retail Information Systems News found in 2011 that 73 percent of shoppers surveyed said it was their biggest complaint.[1] And the bad news doesn't end there.
- In a similar survey from Sterling Commerce, 43 percent of respondents said they would immediately go to a competitor's store to find an out-of-stock product. Forty percent admitted they would make fewer future trips to the original retailer because they have little tolerance for out-of-stock situations.[2]
- Overstocking products is similarly costly. To move excess inventory, retailers traditionally rely on deep discounting to increase sales, cutting into already slim margins.

Inventory distortion from out-of-stock and overstock conditions takes a huge toll on retailers globally. Losses are now at USD 818 billion a year worldwide from this problem and are increasing at the alarming rate of USD 50 billion a year.[3]

Balancing inventory requirements for both brick-and-mortar and online channels is made even more challenging by new consumer practices such as showrooming, where shoppers examine merchandise in a store and then make the purchase online, often from a competitor's site for a lower price. The downside is doubled for the brick-and-mortar retailer—not only has the sale been lost, but the retailer still sustains the high cost of maintaining inventory.

Meanwhile, increased product competition and shorter product life cycles further confuse inventory management. Predicting the products consumers are likely to buy is complicated when new models are launched throughout the year, and customer-preference data is insufficient to help determine optimum stocking levels for this parade of new products.

USD 818 BILLION

– annual worldwide loss caused by Inventory distortion from out-of-stock or overstock conditions

Traditional point-of-sale data alone has proven insufficient in overcoming these supply-chain problems. But now, with the spread of powerful devices employing digital and mobile technologies, retailers can collect and analyze a wealth of customer data to help avoid the rising costs of inventory distortion.

Compelling Displays, Collecting Data

To help retailers better manage their inventory, Intel and its partners are developing a new generation of technology solutions that can provide important inventory-related data. These solutions are on the leading edge of digital display technology, with proven benefits for shoppers and retailers alike.

For consumers, digital technology is helping create the seamless shopping experience they demand. In stores, it can greet them with captivating, high-definition video displays depicting every nuance of a product. Using interactive touch screens, they can examine various product models and features, view specifications and product reviews, and determine models and pricing, as examples. Through widespread deployments and repurposing of rich content, the in-store and online experiences become more consistent, bolstering the retailer's brand.

Aside from captivating and informing shoppers, these vibrant displays can supply retailers with never-before-possible amounts of data regarding shoppers and their behaviors—data that can help retailers strengthen their brands and bottom lines:

- Equipped with cameras, sensors, and touch screens, these content-rich displays can track gender, age bracket, dwell time, preferred models and styles, favorite features and colors—a wealth of customer-anonymous data that can help retailers refine their marketing efforts while overcoming inventory challenges.
- Digital data-collection devices can be deployed throughout the retail environment, from intelligent detectors that ensure optimum product placement on shelves, to sophisticated point-of-sale terminals that analyze post-sale stock levels, all valuable to managing inventory.
- Innovative inventory-monitoring systems can instantly adjust product pricing, from shelves to websites, to reflect overstock conditions as well as to determine product promotions for display on kiosks, aisle end-cap displays, and interactive video walls to promote sales of overstocked items and further help minimize inventory distortion.

In an era of Big Data, the information digital devices collects can be combined with other business intelligence to gain a deeper understanding of customers and their purchasing preferences. The benefits of collecting and analyzing this wealth of data can help optimize store layouts, product placement, promotion, and pricing in addition to improving inventory management.[4]

Linking Marketing and Inventory

A key to reducing inventory distortion is tightening the data relationship between product marketing activities and product stock levels. The marketing side of the equation can track customer behaviors related to specific products and relay the information to the warehouse. There, inventory systems can detect pending threats of under-stocking or over-stocking and can relay the information back to the marketing side, where promotion and pricing can be—often automatically—adjusted to head off costly distortion.

Intel and its partners worldwide are focused on developing technologies and intelligent solutions for the retail industry that can collect, analyze, and manage new sources of data to strengthen marketing activities and, in the process, improve inventory controls.

Here are several examples of in-store solutions that use Intel-powered intelligent systems in highly effective ways:

Luring with Labels

Intelligent shelf solutions attract and inform shoppers, which can lead to increased sales. As an example, digital shelf labels can display product prices, promotional messages, and even video clips, all in eye-catching formats.

Shoppers at METRO GROUP, the world's fourth-largest retailer, can learn about new offers and products at end-cap displays. Shelf labels with LCD modules for displaying price, product information, and high-definition video are located adjacent to featured products to more effectively attract the attention of shoppers. At METRO GROUP, data from intelligent shelf solutions can be managed with content management systems running Intel® Core™ i7 processors.

Intelligent shelf solutions are especially effective with items such as new dairy products, where failure rates are high because shoppers are reluctant to try them. With these vibrant shelf displays, shoppers are alerted to the new products through multimedia and targeted promotional messages.

Intelligent shelf solutions give retailers the ability to simultaneously send content and revision to thousands of LCD-based labels, thus lowering the costs associated with updating price tags throughout the store. Plus, retailers can remotely monitor and make repairs, usually eliminating the need for onsite service visits.

Ensuring Shelf Compliance

Another intelligent shelf solution Intel has helped develop addresses the age-old relationship between effective shelf display and sales. Merchandising tools, such as planograms, show where products should be displayed for maximum results, but actually verifying product placement is time consuming and expensive.

Intel and Carnegie Mellon University have developed an intelligent shelf-compliance solution that automates the process. Called AndyVision, the solution uses digital image-recognition technology to ensure products are displayed as they should be. This helps retailers reduce inventory distortion through improved product monitoring.

Using a combination of image-processing algorithms on a low-power Intel® processor ensures that placement fits the planogram model, plus can help create and monitor store-specific planograms, provide compliance reports, and identify new products or shelf-configuration changes.

Optimizing New-Product Inventory

Aligning inventory levels with customer demand is especially challenging for retailers when dealing with new products, where historical sales and stocking data are lacking. A solution targeting this problem is being utilized in China to track customer preferences related to new models of Ultrabook™ devices, an especially rapid-growing class of mobile computer.

Suning Appliance, China's largest electronics chain, gathers customer-preference data with large, high-definition touchscreen kiosks. Here, shoppers view compelling images of Ultrabook devices, learn about features, and specify their model and feature preferences. The kiosk is equipped with the Intel® Audience Impression Metrics Suite (Intel® AIM Suite) to collect and analyze customer data, such as gender, age range, and dwell time.

Analyzing this data helps forecasters optimize inventory and more closely predict the appeal of products yet to be introduced—two key methods of helping avoid costly understocking or overstocking.

Another significant benefit of this solution—which Shanghai Six Sense Technology Company Ltd. developed in conjunction with Intel—is brand optimization. The kiosks provide a compelling viewer experience, which helps maintain Suning's position as a leading-edge electronics supplier.

Reducing Overstocks with Mobile Offers

Overstocked items are a particularly difficult aspect of inventory management, but is one that today's data-driven enhanced merchandising can help remedy. For example, a major retail chain is using mobile technology to promote products in high traffic areas and, at the same time, measure customer responses.

This solution from CopiaMobile and Intel helps curb inventory distortion through a creative shopping experience involving digital signage, social media, and mobile phones. At the center of the solution is an intelligent self-service offer center where customers can download special offers to their mobile devices. If persuaded to buy, customers then redeem the offer wirelessly at a point-of-sale terminal.

With this solution, retailers can target overstocked inventory for special offers, whether price reductions or simply increased promotion of the products. Customer responses are quickly captured and analyzed to assess an offer's effectiveness and to enhance related promotional offers, all while motivating customers to make purchases.

Making Inventory Virtual

New digital-display solutions are addressing showroom and inventory challenges for retailers who sell large appliances, such as refrigerators and televisions. These items often remain on the store floor or in local inventory for 100 days or more, greatly increasing the capital cost of inventory. They also consume valuable floor space and carry a high risk of damage, as well as higher logistical and transportation costs.

Intel has partnered with augmented-reality specialist YDreams and social-media application developer Betapond to create an intelligent digital solution that harnesses the flexibility of e-commerce while offering the immediacy of in-store product comparisons, all delivered through an immersive digital experience.

This interactive in-store kiosk features vibrant full-size images—eliminating the need for an actual physical appliance—using interactive, high-definition displays powered by Intel® Core™ processors. Customers can experience products first-hand while obtaining model and specification information. Using the vibrant virtual images, they can look inside refrigerators, experiment with television controls, and compare color combinations, as examples.

The interactive display is integrated with the retailer's back-end systems for order fulfillment, inventory management, and customer information. Without the need for floor inventory, products can ship from central storage or the point of manufacture, removing the overhead associated with floor space, product damage, staff training costs, and transportation.

Aside from reducing inventory-related costs, the solution provides a revolutionary in-store experience that can strengthen brand awareness.

A Framework for Productive Solutions

Effectively collecting and analyzing customer data is key to reducing retail inventory distortion. Much of this data is generated through the use of intelligent systems located throughout the retail environment—from the checkout counter to the warehouse.

As the fastest growth area for microprocessors, intelligent systems provide greater connectivity, security, and manageability than previous systems. They can process data from many sources, perform complex analytics, quickly recognize changes in their environments, and adapt instantly to optimize results.

Just as today's consumers encounter multiple touchpoints as part of their shopping experience, retailers are dealing with multiple channels with individual internal processes, numerous product and customer databases, and complex IT infrastructures. Across the retail industry, enterprises often have separate networks that offer fragmented views of customers and are unable to provide the seamless and personalized shopping experience consumers want.

To help, the Intel® Intelligent Systems Framework offers standards and a consistent framework for connectivity, security, and manageability of intelligent systems throughout the retail environment. It brings together hardware, operating systems, and software for increased connectivity, manageability, and security.

Intel has a long history of creating scalable technologies and ecosystems that drive transformations in computing across the retail industry. Intel is assembling an ecosystem of system vendors, ISVs, system integrators, and cloud-to-device services that build on the framework and work closely with the Open Data Center Alliance to ensure seamless integration of intelligent systems with the data center and cloud.

The Intel Intelligent Systems Framework supports Intel® Xeon® processors, 2nd and 3rd generation Intel Core processors with Intel® vPro™ technology, and Intel® Atom™ processors. These processors are important components in digital devices used throughout the retail environment.

Conclusion

Intel and its partners around the world are developing innovative digital solutions to reduce inventory distortion, one of the costliest problems across the retail industry. With the enormous amount of data being collected about shoppers, these solutions can consolidate and analyze this data in ways that can help retailers avoid out-of-stock and overstock situations, as well as improve forecasting for optimum inventory levels across multiple channels.

Through the use of digital display devices on signage, kiosks, shelf labels, and elsewhere, consumers are offered a shopping experience that is immersive, more efficient, and convenient. Meanwhile, retailers are benefiting from the data these devices collect to strengthen their brands, reduce overhead costs, and improve inventory controls.

Intel is helping define the standards and is producing the technologies that, in conjunction with key solution developers around the world, are transforming the retail industry.

For More Information

- www.youtube.com/watch?v=xo-kpZtgzAM
- www.intel.com/content/www/us/en/intel-innovation/retail
- www.intel.com/intelligentsystems

For more information about retail solutions from Intel visit:
intel.com/retailsolutions

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