Grocery Retail Playbook: How to Win in the Omni-Grocery World

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Dear reader,

The grocery retail industry has changed dramatically over the past few years. The omni-channel environment is constantly evolving, and customer expectations are increasing while retail supply chain operations are becoming more complex. In an industry already known for thin margins, these shifts can increase cost pressures for grocers -all while opening the door to significant opportunities.

Traditional inventory and supply chain approaches will no longer work in the face of omni-channel transformation. Now is the time to reimagine ways to serve the omni-customer, make fundamental operational changes to supply chain planning, and reinvent grocery retail. Those that make moves now can successfully upgrade their planning capabilities and efficiently manage their supply chains for decades to come.

In this ebook, we examine some of the most pressing challenges grocery retailers face today. From rethinking to reimagining and reinventing the grocery retail, we gathered relevant insights and strategies and interviewed the industry visionaries. Here you will find a range of fresh perspectives on various topics from dark stores to fresh item waste management, reducing omni-lost sales to winning in the future.

We've created this guide to assist leaders in the retail industry in realizing a new vision for omni-grocery retail and helping them shoot for the stars while staying grounded.

Enjoy,

Prof. Gurhan Kok
Founder & CEO of Invent Analytics

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Reducing Lost-Sales and Fulfilling Omni-Demand at a Low Cost: A Game Plan for Omni-Retail Success

Today's omni-customers expect seamless and frictionless shopping experiences across all physical and digital touchpoints. They want speed and convenience and they won't settle for anything less.

When a customer walks into a store intending to purchase an item, they expect to be able to walk away with it right away. There's nothing more frustrating than walking into a store only to find out that the size, color or model they wanted is out of stock. They will be disappointed – and chances are, they will head to another chain or brand and spend their money with them instead. *So how can a retailer avoid the risk of sending their customers away empty-handed and losing the sale?*

Don't lose your customers (and equivalently reduce lost margin dollars)

In the new world of retail, omni-customers feel the experience of the supply chain more than ever. Every retailer knows that any breakage in the supply chain not only undermines customer experience but can also result in a lost sale. **Rethinking the role of the stores and improving omnichannel fulfillment performance help retailers to use their inventory more efficiently, provide a superior customer experience, and reduce lost sales.**

A global footwear retailer from Europe is a great example of that. As a part of its omni-channel strategy, the retailer started a project involving fulfillment from stores. Using the iPads at the stores, the retailer offered its omni-customers to explore the company's full assortment. Even if an item wasn't available at the store, customers could still place orders online using the iPads.

According to the **Harvard Business Review Study** when these customers are presented with the iPads at a size stock-out situation at the stores, 30% of them would place orders using the iPads and get the product delivered to a convenient physical location of their choice. Even though 70% of them didn't accept the omni-fulfillment offer, the retailer still managed to reduce lost sales by setting out an integrated approach for delivering customer experience excellence.

The new world of retail is complex, but through it all, the omni-customer is your guide

For many retailers, the omni-world creates new complexities that makes it even more challenging to optimally manage inventory and know how to calculate and reduce lost sales. **Traditional systems based on the service-level frameworks to manage store inventories fail to handle the omni-channel complexity successfully.**

These systems fail to generate forecasts for customers' online vs store preferences and inventory decisions from a holistic omni-channel perspective. As such, inventory managers struggle to understand and predict demand for different fulfillment options and make informed decisions on inventory levels that could reduce lost sales at customer level.

Currently, retailers make one of the two mistakes oversimplifications:
- **They focus on service levels at store level which lacks the holistic network perspective**
- **They ignore the store inventory metrics assuming that omni-channel capabilities solve customer lost-sales problem completely (as we see in the example in the Harvard Business Review case study article, it only solves 30% of the lost-sales problem).**

This new world of retail is challenging, but the omni-customer is the ultimate guide through it all. Knowing what omni-customers want, where they want it, and how fast they want is essential for any retailers' future success.

Getting rid of the "Conflicting KPIs Problem"

At Invent Analytics, we put omni-customers at the heart of what we do. We use a financial optimization model to help retailers reconfigure their supply chain and inventory to reduce lost sales at a low cost.

The financial optimization model goes way beyond the traditional inventory approach, which revolves around conflicting KPIs for millions of product-location combinations. The model shows retailers the precise impact on margin and profit, so that they don't waste time with endless turn vs. in-stock debates.

Leveraging AI and advanced analytics to maximize sales and retain customers

By leveraging AI-driven advanced analytics, we estimate the impact of restricting some sales options to the customer - the most critical customer satisfaction and central financial metric for a retailer. We characterize the impact of stockouts and slow-delivery as omni-lost sales.

By applying our optimization models based on this financial framework to a retailer's entire inventory, we minimize the sum of Lost Revenue, Inventory Carry Costs, and fulfillment costs. This way, they can maximize sales and retain customers while boosting profitability.impact on margin and profit, so that they don't waste time with endless turn vs. in-stock debates.

An integrated inventory management system to win in an omni-future

To succeed in the future, retailers need to have a plan. They also need a revolutionized system that calculates expected lost sales for any decision-making process and minimizes the probability of losing a sale.

By orchestrating and modernizing the entire supply chain with innovative solutions such as Omni-AI, retailers can reduce lost sales and cultivate stronger relationships with the new omni-customers, through 2021 and beyond.

Dark Stores for Grocery Retailers: What Are They and How Do They Work?

Online grocery shopping is booming, and it is here to stay. In the U.S. alone, online grocery shopping reached nearly **$90 billion in sales in 2020, an increase of more than $30 billion** from the last year. The same research tells us that online grocery shopping will push past $100 billion in 2021. By 2023, it will make up 11.2% of total grocery sales in the United States.

Many grocery retailers are now trying to meet increased demand for online delivery. They are expanding their omni-channel capabilities for online ordering and refining their storage and distribution processes. Today the challenge is: How can grocers provide great experiences all the way to each customer' doorstep?

It all comes down to delivery and the answer lies in 'Dark Stores'.

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What is a Dark Store?

A Dark Store -also known as micro-fulfillment center- is a location dedicated to rapid online order fulfillment. It is a small, local store but without the customers. Just like any other conventional grocery store, a Dark Store has aisles with shelving and racks for groceries.

When a customer order comes in, Dark Store employees pick and pack the items immediately. Then they either ship the order direct to the customer's address or to a convenient collection point specified by the customer.

What are the challenges of running Dark Stores from an inventory planning perspective?

Delivery is now the cornerstone of the customer experience. Grocers are offering super speedy deliveries that can get groceries to their customers' doors the same day or even within hours or minutes. To keep their pledge of instant shipments, retailers need to build up a new network of fulfillment and delivery centers.

Even though Dark Stores make fulfilling online orders as simple as possible, they come with a few challenges.

1 Delivering customer service excellence at a low cost

Inventory management is central to delivering cost-effective service excellence. For grocery retailers, being a cost-leader and service-leader at the same time might seem counter-intuitive. However, it's possible to achieve this with sufficient supply chain visibility and execution.

By positioning inventory efficiently, grocers can maximize their ability to most profitably fulfill their customer demand. They can start winning on 'customer experience' by being more predictive when meeting customer demand, providing greater product availability in a more cost-effective manner and offering the best service, pricing and overall experience.

2 Achieving highest forecast accuracy

Accurate demand forecasting is vital for grocery retailers who want to keep up with the customers' delivery requests. Existing replenishment and forecasting systems with old data structures don't provide accurate, granular forecasting that separate online orders from in-store demand. They fail at making the most profitable replenishment decisions for stores and dark stores that fulfill the demand streams.

Unlike traditional forecasting data structures, Dark Store forecasting needs to generate highly accurate forecasts by making use of the online channel data as well as taking promotional events, local demand and competition into account.

By creating accurate short-term baseline forecasts at the SKU / zipcode / day / fulfillment preference level and forecasting demand at each location, grocers can position their inventory at the right amount at each location so that they can successfully increase your order fulfilment performance.

3 Overcoming the perishables challenge

A typical grocery order can consist of both perishable and non-perishable items. And majority of grocery items such as dairy, meat, fruits and vegetables have a short expiry window. If the product is not fresh, it'll result in an unpleasant customer experience.

The challenge is to make sure that every perishable item is delivered to the customer's doorstep in its prime form. Yet, this can easily become a burdensome process for a grocery retailer.

Using Dark Stores to store and manage perishable item is a great way to overcome this challenge. Once grocers have enough space, visibility for pickers and flawless inventory management capabilities in their Dark Stores, they can maintain the ideal freshness level for perishable items and minimize the time between off-the-store-fridge to delivery.

What are the benefits of using Dark Stores?

Aside from being ideally located for fast delivery operations in high order-density zones, Dark Stores offer several benefits. They enable grocery retailers to:

- Improve the efficiency of online picking operations and drive faster profitability in their online business
- Become more efficient by picking online orders in a space that doesn't have customer traffic
- Manage inventory more effectively
- Do multiple replenishments in a day and get the planning cycles can be down to hours
- Service new customers who are far away from an existing store and where they don't have the opportunity to open a physical store.

A bright future starts with Dark Stores

Online grocery shopping will continue to grow as customers increasingly value and demand convenience. As a result, omni-channel will be the only channel for retail. Grocery-champions of the omni-future will be those who orchestrate and profit-optimize their supply chain with AI-powered, advanced analytics solutions today and tomorrow.

Game-changers in Retail:

An Interview with Michelle Gloeckler,

Board Member: BJ's Wholesale Club, Duckhorn Portfolio, Holley Performance

Michelle Gloeckler
Board Member: BJ's Wholesale Club, Duckhorn Portfolio, Holley Performance

Times are changing. Today, serving the omni-customer in the best way possible requires grocery retailers to look at everything through an omni-channel lens, increase their data and analytics capabilities, and re-engineer their supply chain. In this interview, Michelle Gloeckler, Board Member & Advisor tells us how grocers can be Omni-Retail Champions and shares her perspective on the future of grocery retail.

- What do you think consumers expect from omni-channel grocers? What should grocery retailers do so well to meet the expectations and win in an increasingly competitive space?

I think consumers' needs and habits are constantly changing. They expect frictionless shopping experiences that integrate into their daily routines. They demand the flexibility to buy and fulfill where, when, and how they choose, and this creates complexity for retailers.

When it comes to meeting the changing consumer expectations, it is all about being agile and responsive. Retailers who can create enough flexibility in their systems and inventories to offer effortless, frictionless shopping experiences gain a competitive advantage.

– What do you consider the biggest challenges for grocery retailers today from an inventory planning perspective?

Aside from today's supply chain challenges, I think the biggest challenge for retailers is rapidly changing consumers. There are generational shopping differences both in assortment and how they shop. Today, consumers have so many options like buying online, picking up in-store. They are often less loyal, and we know that it only takes one unsatisfactory shopping experience to make a consumer stop shopping at a retailer.

So, I think this new reality is forcing grocers to navigate things. It's about having a new omni-channel approach, using technology, having the tools and systems that make sense for their business and operations. And inventory is at the center of it all. Today many inventory tools available to grocery retailers and sorting through what works best can be challenging. But, nevertheless, every starting point must begin with the consumer in mind.

– How important do you think it is today to focus on omni-customers' fulfillment expectations and respond to fast-evolving buying patterns?

I believe retailers need to please their most valuable, loyal customers first. Yes, all customers are important but, there is certainly a lifetime value of a customer who is a grocer's most loyal customers.

And today's fulfilment expectations are very interesting. Consumers are getting smarter. They have realistic expectations, and they know when, where and how they get the best service. Retailers need to fulfill their consumers' expectations by leveraging technology, taking advantage of inventory planning tools to provide in-stock. Accurate demand forecasting can also be really helpful.

I also think that substitution logic is very important for retailers. Whether it is the shopper who wants to make a change in the order or the grocer who wants to offer substitutions in case of an out-of-stock.

Think of a busy mother who needs to get some food for her 2-year-old, for example. She does her grocery shopping online and having it delivered because she wants to save time. If the grocery store doesn't have the specific item she wanted and if that means she needs to stop by at another store, that means losing a lot of time. Emotionally this experience leaves a very negative view of that grocer that disappointed her. So, I think it's important for retailers to understand the customer's emotions.

– Today online platforms and apps can deliver orders in an hour or even less. What do you think this means for physical stores in the near future?

It depends on each situation. Every consumer will enjoy the opportunity to do shopping however they want at that time. Covid-19 accelerated e-commerce adoption and more people are doing their grocery shopping online today. But some people who still want to have an in-store experience. Some things are unique to an in-person experience, such as touching or physically examining an item.

I also think the innovation in delivery apps is fascinating, and it's changing the workforce as well. You can already see it in the physical stores where there are more self-checkout areas, areas for the drivers for pick up and there is also curbside. This shows us that the grocery world has definitely changed.

–How do you see the role of dark stores or micro-fulfillment centers in grocers' fulfillment strategies?

I think it depends on the grocery store's footprint as well as supply chain efficiency. It depends on how many stores a grocer has, what their supply chain and fulfillment are like. So, for example, if a grocer has a huge saturation of stores, it is easier to pick the items from those stores than setting up a dark store.

On the other hand, I am sure we all had the experience with the carts in the stores where store employees are picking multiple orders, and it looks like a fulfillment center. Many times, customers in the store get frustrated with that. So, from that customer perspective, I like the idea of the dark store. It may not just be as financially possible for everybody, especially if they already have a large footprint of stores. In that case, it makes more sense for them to fulfill from the stores instead of duplicating the inventory in a dark store.

If the store density isn't very strong, I think a dark store can be a good mechanism to fulfill specific geography. Today, grocery retailers doing delivery know where their deliveries are. If 60% of their deliveries are within 3 zip codes and if their closest store is 20 miles away, setting up a dark store can make a lot of sense in there.
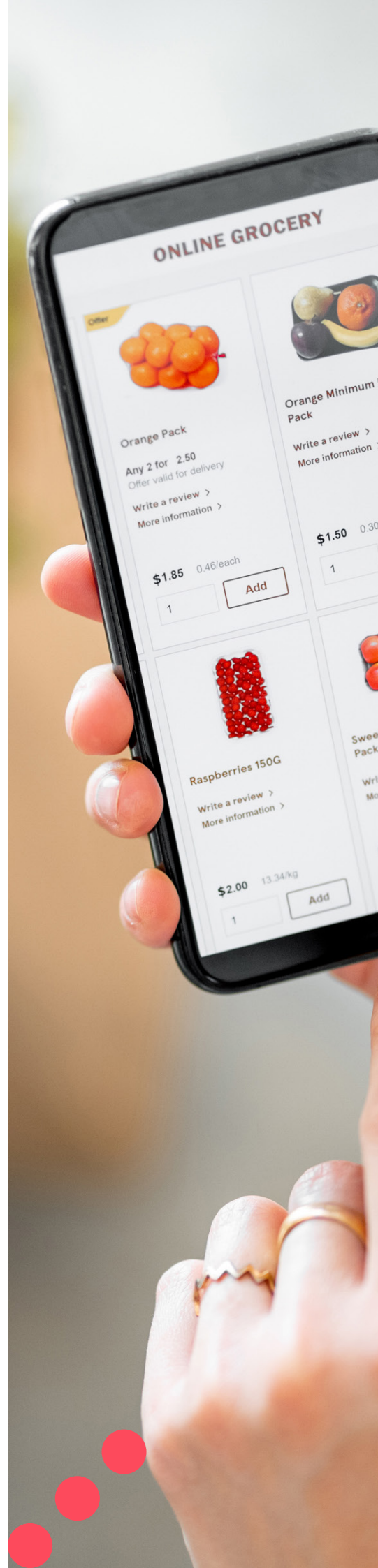
- What do you think are the 3 key things grocers need to do to optimize their supply chain capabilities to differentiate themselves from their competitors and meet their financial goals?

1. Know your customer. Grocers need to know their most valuable, loyal customers.

2. Win with the assortment to meet the needs of most loyal customers. When we're talking about optimizing the supply chain in today's environment, assortment plays a big role. Grocers need to have the assortment that pleases their customers.

3. Leverage technology to differentiate your service levels. Grocers need to take advantage of omni-channel inventory planning solutions to differentiate their service levels from the competitors.

- How important do you think it is to make granular, data-driven forecasts in the omni-grocery era?

Data-driven forecasts give retailers a competitive advantage. However, grocers need to expand the time of their forecasts to make more accurate forecasts and meet customer expectations. Today grocers need to take into account the competitive activity, promotions, local events, all of those different things. And I think local events are an amazing thing if the forecasting tools can account for differences regionally. The more inputs grocers have, the better and robust the forecasts will be.

- What do you think is the most effective way for grocery retailers to improve availability?

I think grocers need to manage assortment differently for in-store vs. online. High turn, perishable items maybe things that are important for people to touch and feel, and these should be in store, for example. There can be a broader assortment on online channels. Also a good demand planning and forecasting, powerful inventory management systems can be very helpful in improving the availability. This should be the starting point.

But as a stopgap, we talked about substitution logic. As a consumer, if a grocery store is out of the item I wanted, I'd prefer them not just telling me they're out of it. I'd rather expect them to make some effort, take a step toward me and say, "I'm sorry, we are out of it, but we'll give you this one at the same price.". I'm good with that, because it shows that they care, and they don't make me go to some other store. Substitution logic is hard, and it builds over time, but it can be very powerful.

-What do you see as the best way for grocers to reduce lost sales and increase customer lifetime value in such a competitive environment?

I'd say excellent substitution logic and excellent customer communication skills. Building a good customer relationship is critical in this new omni-channel retail era. I also think the method of communication is very important, and it does help with reducing lost sales and increasing lifetime value.

-What do you think will be key trends shaping the grocery industry in the coming years?

How we grocery shop and what we grocery shop for has changed, and I think the pace of change will continue. We'll see modern, healthier food. We'll witness growth in fresh food and in pick up. Consumers are getting more thoughtful about healthier eating, especially younger consumers. There was a phase where consumers went through: 'All I want is convenience in my food' which led to a lot of highly processed food. Now I think they want convenience in how they shop, not in what they are eating.

*- **What do you think should be the top 3 inventory planning strategies for grocery retailers who want to become the Omni-Grocery Champions of tomorrow?***

1 Align metrics with company strategy and goals.

Grocery retailers need to align their metrics with their strategy and goals. For so many retailers, inventory goals are based on historical processes. They measure in stock, inventory turn, inventory dollars -just very traditional retail inventory measurements. I think they should start over and ask the question of 'What are our company's financial goals?'. And then, they need to align their, inventory, in-stock, profits, sales and customer satisfaction to their business strategy.

In the past, there was a warehouse and a store. Now there is a warehouse and a store that is a warehouse, if you're doing fulfillment from there. There are also online orders carrying incredible consumer data. In the past, no such data was available. A grocer might have thought they lost a sale, but it was more of a guessing game.

Today when a customer places an online order, they get a recap of the items they'll get or the substitution items. And retailers have access to this very valuable information too. They can see what their consumers are looking for, what they are purchasing, the out-of-stocks etc. This is a whole stream of data and analytics, and retailers can use it for better inventory planning and more valuable experiences for their shoppers.

2 Leverage technology.

Traditional metrics like in-stock, inventory turn, inventory dollars can no longer produce the desired financial or customer retention results. Today, grocers need to leverage the technology and tools to do robust demand forecasting, better inventory positioning, and better fulfillment.

3 Simplify and remove tension in the supply chain.

Lastly, to meet these goals, I would say retailers need to simplify and remove tension. And I think it is a very different way of thinking about inventory, replenishment and forecasting.

- Finally, how do you think Invent Analytics can help grocery-retailers to win in the new omni-channel world?

Consumers have power; they have choice...in both the WHAT they shop for and the HOW they shop for it. Add to that they WHERE they buy and it gets complex quickly. While consumers have habits, they don't conform to a predictable behavior all the time. Given that, the use of AI to build as much pattern-based learning to assist in driving the business is necessary. Invent Analytics has been modernizing allocation, inventory and forecasting through AI for years and now has tools to help in the omni-world...because we're not going back! Consumers are in charge and have the power.

Article

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3 Strategies Grocers Can Use to Enhance Online Availability and Avoid Losing Their Omni-Customers

Customers worldwide have changed the way they shop for groceries. Millions have now chosen online shopping for ease, convenience, and safety. Take Florida-based Business Executive, Jeannette for example. She's a full-time mother who prefers to do her grocery shopping online. She purchases 10 items using her favorite grocery store's mobile app choosing the same-day-delivery option.

Later the store calls her to say that 3 of the 10 items she wanted are not available. The Store Manager offers to substitute these with similar items. However, Michelle has a very busy schedule and doesn't want to deal with this on the phone while she is having a business meeting on Zoom.

Let's take a closer look at what can really happen. So what does Jeannette do? She can:

• Substitute with similar items
• Buy the rest of the basket and use another grocery store app for the missing 3 items
• Cancel the order this time
• Switch to an alternative retailer.

The importance of getting availability right

What does a grocery retailer lose when an item is not available online?

Clearly, grocery retailers risk more than the loss of a single sale by not having the right item online when a customer wants it. In today's omni-grocery world, customers are quick to find an alternative product or a new grocer if their initial choice isn't available. This means not just lost sales but frustrated and lost customers and maybe worst of all, a tarnished brand image.

sales losses of

~4%

for a typical retailer

for a billion-dollar retailer

$40 Million

a year in lost sales

According to a Harvard Business Review study, retailers can lose nearly half of intended purchases when customers encounter stock-outs. Those abandoned purchases translate into sales losses of about 4% for a typical retailer. For a billion-dollar retailer, that could also mean $40 million a year in lost sales.
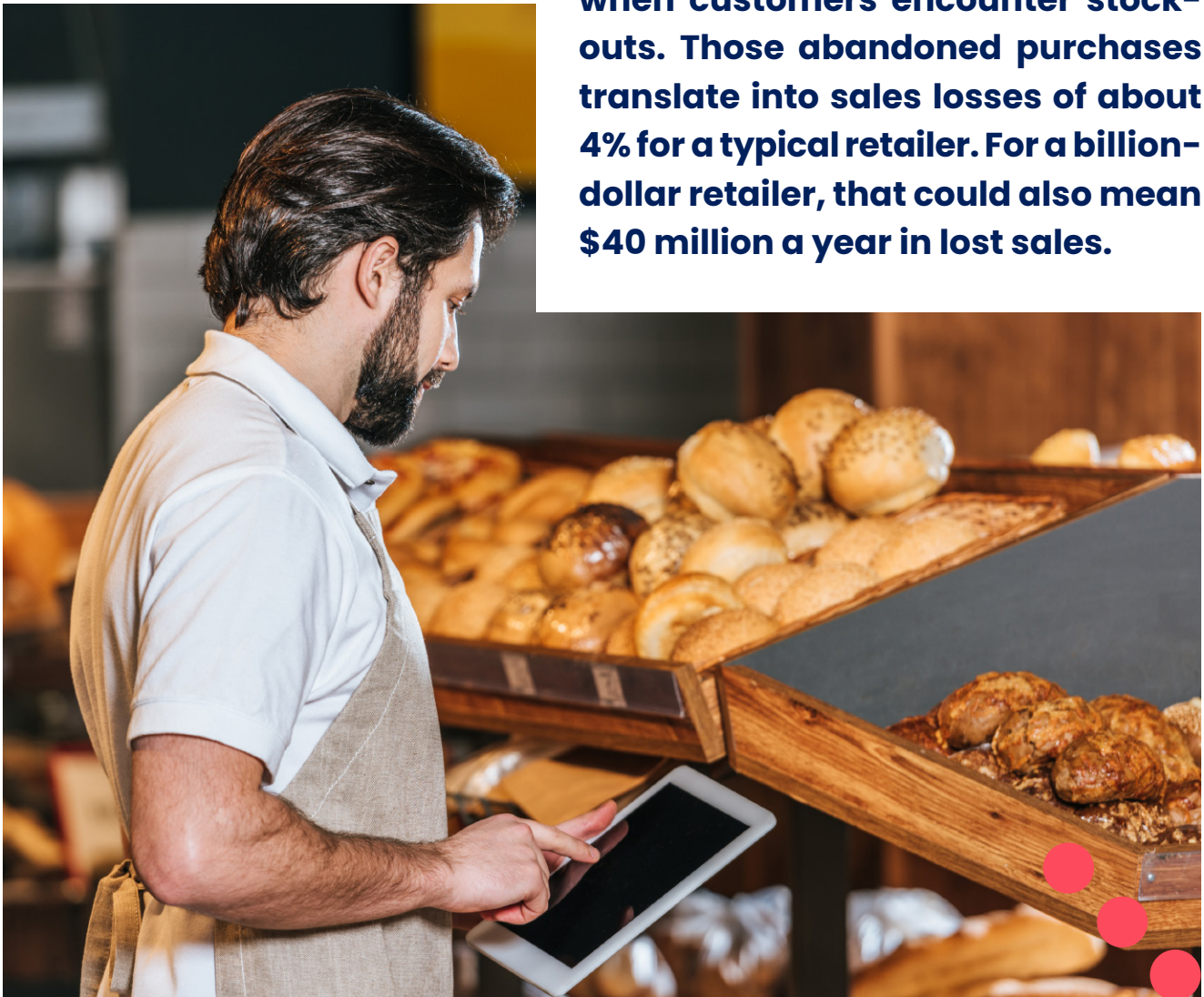
How can grocery retailers avoid losing their omni-customers?

Today, many retailers recognize the challenge of getting online availability right and keeping their omni-customers happy. Forward-thinking grocery retailers are now focusing on their omni-customers and radically accelerating their omni-channel inventory planning capabilities to serve them better.

Here are 3 strategies that grocers can use to enhance online availability and avoid losing their omni-customers in a case where a product is not available:

1 Measure the true impact of product unavailability

Poor availability means dissatisfied or lost customers and poor financial performance in the long run. Correcting availability problems begins by better understanding their root causes and measuring the impact of product unavailability – including the possibility of losing the full customer basket and reduced future visits by those customers.

Using AI solutions that are built for the omni-world, retailers can characterize the impact of stock-outs and and the effect of slow-delivery as omni-lost sales. This is the first step in measuring the current state and impact of changes in how a retailer is managing its supply chain.

2 Enhance omni-channel demand forecasting capabilities

Predicting how, when, and where your omni-channel customers want their orders to be fulfilled has never been more important.

As more customers migrate towards online channels, they yield increasingly rich data about their preferences and purchasing behavior. Using these new data streams and analyzing them effectively can help grocers to respond to changing patterns of omni-customer demands quickly.

This requires forecasting demand at location-product-day-fulfilment preference level. In some cases, hours would be more relevant than days. Fulfilment preference usually can be classified into two levels: online vs offline delivery.

Grocery retailers that forecast demand using sophisticated **demand forecasting solutions** can determine the right amount of inventory required in stores, dark stores and distribution centers. As a result, they can reduce lost sales by maximizing availability. This way, they can successfully increase their order fulfilment performance and keep their customers happy.

3 Take advantage of dark stores

Rising omni-customer expectations for faster grocery delivery have triggered the development of more innovative fulfillment options. Today, dark stores stand out as the next big thing in grocery retail, as they offer a highly effective way of picking stock for online orders and supporting last mile delivery.

Dark stores enable retailers to provide more convenient shopping experiences for omni-customers. In addition, they help grocers to deal with the sharply increasing volume of online orders more efficiently and shorten the delivery times.

As grocers look to optimize and expand their fulfillment capabilities, they can take advantage of dark stores and have greater availability, a clearer view of stock levels and, improved fulfillment efficiency.

Looking ahead

Omni-channel grocery world has placed supply chain firmly on the front line. Today, serving the omni-customer in the best way possible requires grocers to look at everything through an omni-channel lens.

With Invent Analytics' integrated supply chain suite, **Omni-AI**, grocery retailers can embed omni-channel retail into their strategy, predict omni-demand at all levels, profit-optimize their inventory and, re-engineer their supply chain to fulfill their omni-channel promise.

Game-changers in Retail: An Interview with Justin Honaman, Head of Worldwide Consumer Products- Food & Beverage, AWS

Justin Honaman
Head of Worldwide Consumer Products – Food & Beverage, **Amazon Web Services**

Today's grocery retail world is changing like never before. Customer shifts around online, convenience, and healthy lifestyle agendas are creating an extraordinary challenge and a golden opportunity for grocers.

In this Game-changers in Retail series, we've met with Justin Honaman, Head of Worldwide Consumer Products – Food & Beverage, Amazon Web Services, to discuss how he sees the future of grocery retail.

- Before we look ahead, let's talk about modern consumers. What do you think today's consumers expect from omni-channel grocers?

First, let's talk a little bit about what happened in the last two years. When we think about the Covid-19's impact in grocery even more broadly in consumer goods companies, I don't know if anybody could plan for supply chain pressures and tension that has been placed on these companies. Today, retail and consumer goods companies are in the midst of a transformation unlike any before in their history. And that plays out on consumers too. During this time, consumers have reacted in different ways. Their behaviors changed, and their expectations from grocers have increased.

A couple of things we can expect now:

First, Digital Engagement. As consumers, we want the experience to be the same online as in stores. Although this is easier with the center store items, the bigger challenge is around the fresh produce, dairy, meat, and deli.

We all want our shopping experience to be delightful, frictionless, and omni-channel, right? Therefore, retailers need to act today, and the digital experience needs to evolve quickly. When we look at the numbers from consumer brands and retailers, the last two and a half years have accelerated many of their plans around digital customer engagement. This is exciting, and it represents significant opportunities for grocery retailers.

Secondly, Know Your Customer. Grocery retailers need to know their customers better. They need to market to them, provide promotions, discounts, or rewards that are relevant to them. As a consumer, when I walk into a store, I really like an offer presented to me based on the things that I've bought before. And on the grocer's side, doing this requires data and analytics. Once a grocer is armed with great customer insights, they can maintain a positive relationship with their customers.

Lastly, Variety. Consumer preferences continue to evolve around health and wellness. Today's consumers are looking for nutritious, plant-based, fresh food for meals and snacks. We also see a rise in energy drinks, healthy beverages, teas, and coffee. And, these consumers look at their grocers to offer a variety of healthy food options. If their grocers don't provide this, they lose a significant competitive advantage.

- Today online platforms and apps can deliver orders in an hour or even less. What do you think this means for physical stores in the near future?

I think the idea of getting the products at home in a short amount of time is fantastic and it is very efficient. Instacart is a great example of that. They go to a store, do the shopping for you and bring the product to you.

The numbers show us that online grocery shopping will increase in the near future. That's great, but there is a reason why the stores exist. People still like the in-store grocery shopping experience. Why? Because they like the atmosphere and experience in brick-and-mortar stores and they also want to inspect and pick out their own products. And fresh is the driver in that sense.

Today, both online shopping and in-store shopping have their advantages. Will consumers prefer shopping online or in-store? I think the answer is both. It'll always be the balance of these too.

-How important do you think it is to make granular, data-driven forecasts in the omni-grocery era?

I believe it's very important. For retailers, forecasting, planning, and delivery is a top priority right now. To succeed, grocers need to start with good data.

Today, they can access rich customer data. They also know what is in stock, what is out of stock, what the price is and what the margin is on that product in that store. And then there is IoT data, sales data, supply chain, logistics, and distribution data available, and the list goes on.

What grocers need is to have the right tools and right platform to bring all these data together and do the analytics on top. And it's challenging for some retailers because, most of the time, data is not in one place. Instead, they are all disbursed across the organization and that makes accurate forecasting even more challenging for a grocer.

Luckily, advanced solutions are available today that use artificial intelligence and advanced analytics to help grocers make data-driven forecasts. Grocers just need to take advantage of that.

-What do you think will be key trends shaping the grocery industry in the coming years?

I believe the online grocery shopping trend will continue. We'll definitely see more buy online pick up at store, buy online and have it delivered to my house. And I think there will be an absolute focus on in-store fresh food, deli, bakery, plant-based, immunity boosting, high protein healthy food. We are in the era of at-home meals and snacks. On the beverage side, we'll see more healthy drinks and energy drinks. It's an interesting time to be in grocery retail. It's time to accelerate the adaptation of new technology and keep up with evolving consumer trends.

How to Reduce Fresh Waste by Using AI-Powered Demand Forecasting and Replenishment

When the global pandemic first began, and some rushed to the grocery stores to stockpile, others hit the keyboards. Worldwide Google searches for "online grocery shopping" and "fresh food delivery" reached all-time highs in April 2020.

It's no surprise that consumers also changed their consumption habits during that time and shifted their priorities when it came to fresh food. As many people continue to work from home and because fresh food is seen as a driver of health and wellbeing, fresh fruits, vegetables, and dairy products consumption increased.

The challenge of fresh food waste

Online grocery shopping, more fresh food consumption might be the new norm in the wake of the Covid-19, but reducing the fresh food waste will continue to be a challenge for grocery retailers.

In recent research conducted by U.S. Food & Drug Administration (FDA), it was found that, In the United States, **between 30-40 percent of the food produced is wasted.** The U.S. Department of Agriculture (USDA) estimates the value of food loss and waste for retailers and consumers each year to be over $161 billion. These alarming numbers have increased in recent years as retailers have been slow to adopt new digital solutions that allow better matching of supply and demand for robust waste management.

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+$161 Billion
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Fresh food waste is a significant problem, and it is forcing a restart

The world's fresh food waste problem is bigger than we thought. FDA research only magnifies the importance and urgency of this problem. And financially, wasted fresh food equals money in the trash. According to ReFED, a non-profit organization dedicated to fighting food waste in the U.S., **food waste costs retailers about $18.2 billion a year.** That's a lot of money left on the shelves and a lot of food left in the trash. So, it's no longer feasible for grocery retailers to write off fresh food losses simply a 'reoccurring cost'.

food waste costs retailers
~$18.2 Billion
a year

How to tackle the problem of food waste

When placing orders with fresh-food suppliers, retailers must constantly make difficult trade-offs. If they order too much, it will go to waste, and waste will quickly eat into already thin margins. On the other hand, if they order too little, there will be a risk of lost sales, lost customer loyalty.

And the problem is, traditional inventory planning systems taking a fixed, rule-based approach to demand forecasting and replenishment no longer work well with fresh food. That's because fresh is complicated. It's like a complex supply chain puzzle to solve. The item conditions change from day to day. Berries go bad, bananas and avocados age...

There are also local events, local demand, promotions, regional customer preferences, weather – so many things to take into account. The good news is, there is a new way, a better way to deal with these issues:
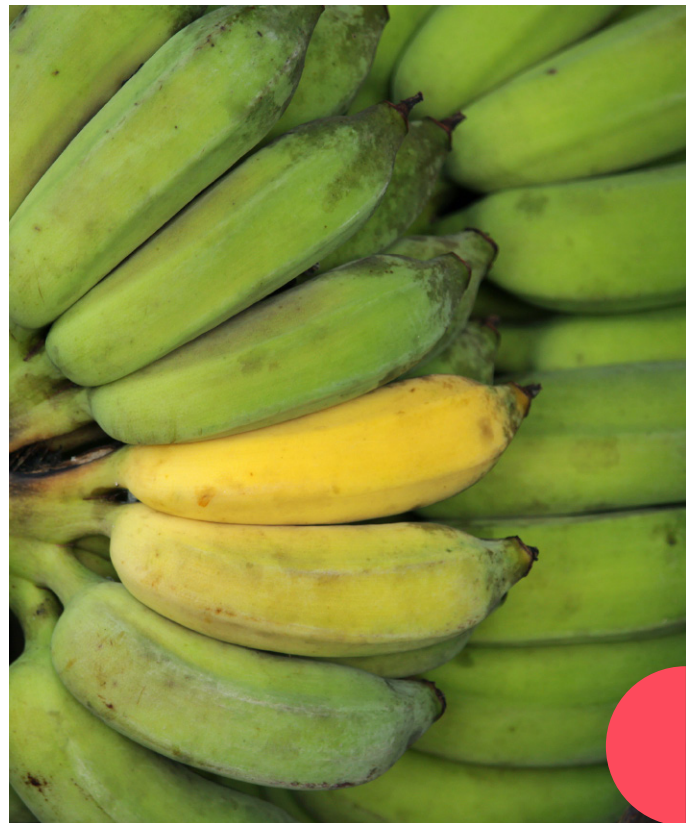
Today, grocers need to take bold steps to address these issues and find new ways to prevent fresh food waste in the first place. They need to re-examine their inventory planning strategies and see how they can maximize profit margins and reduce waste without sacrificing quality or customer value. It is an opportune time for them to go back to the drawing board on their supply chains and take a closer look at how they can enhance their demand forecasting and replenishment capabilities.

Enhance demand forecasting capabilities to lower the risk of overstocking

As grocery retailers look to efficiently position inventory in their supply chain to minimize waste, there is a need to understand that this all starts with accurate and robust demand forecasting. The more precise the forecast, the lower the risk of overstocking. The better the forecast, the higher the financial benefit.
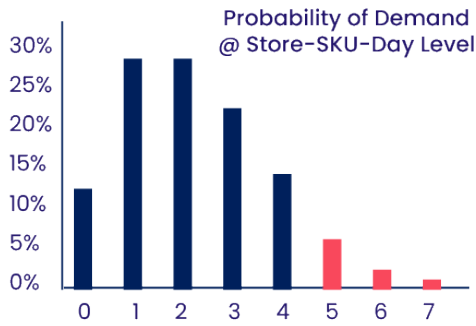
As the complexity of planning increases, advanced analytic techniques and explainable AI is the only way for grocers to generate highly accurate forecasts -and the only way to determine optimal stock levels.

And potential rewards of robust and detailed forecasts are endless – grocers can make more intelligent, data-driven, right-time decisions that maximize profitability, reduce waste at stores while fulfilling environmental responsibilities.

Optimize fresh food replenishment decisions

Old-fashioned replenishment systems with service-level frameworks fail at managing the fast-changing world of fresh products. Due to the variability of local demand based on events, changing trends and tastes, weather, as well as price changes and promotions, can make grocers' job a lot harder. Plus, the constant substitution and cannibalization across categories can be very challenging.

In this environment, modern replenishment solutions taking advantage of **AI-powered demand forecasting**, demand sensing and probabilistic forecasting capabilities can help grocers to optimize their fresh food replenishment decisions.

Probability of Demand @ Store-SKU-Day Level

SKU – Store Day Level Forecasting Features   AI-Based Models

| Sales&Order History | Inventory Curve | Weather | Store Price Elasticity |
Price	Incoming Stock	Waste Ratio	Category Demand Curve
Exp. Date	Promotions	LIFO Ratio	Store Traffic
Cannibalization	Special Days	Product Attributes	Competitor Price Elasticity

Optimized inventory decisions balance the cost of wastage versus the cost of lost margin dollars for every product at each store for each day and ship the optimal amount of product to stores given the replenishment schedule over the week and the anticipated demand for the upcoming few days.

With accurate probabilistic forecasts, it is possible to characterize the risk of spoilage versus the risk of a stockout (lost margin) for each case pack of a product that will be shipped to a store. That, in turn, gives us optimal inventory ordering decisions. A simple interpretation of the algorithm corresponds to the one rule that matters "send every case pack to the store that maximizes overall net profit margin of the product."
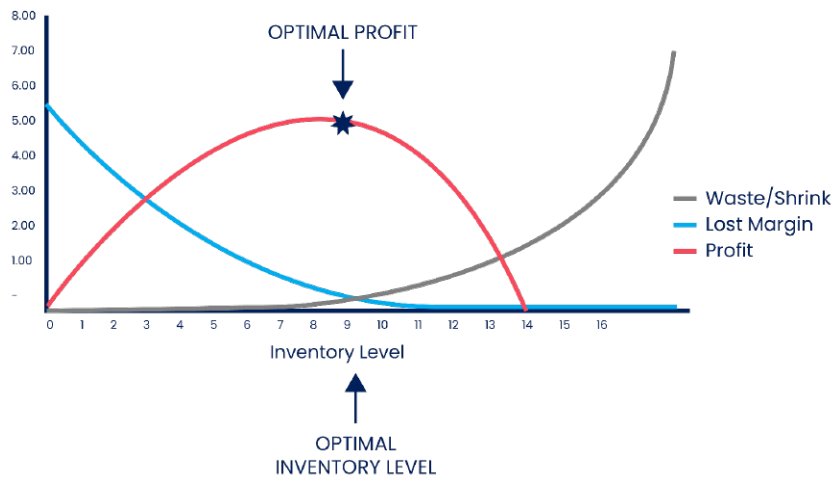
The profit-optimization logic based on probabilistic forecasting also helps retailers allocate across stores optimally when available inventory is limited either at DC's or from the vendor – making sure that product flows every day to the locations that will have the maximum sales potential (demand) and minimum chance of going to waste.
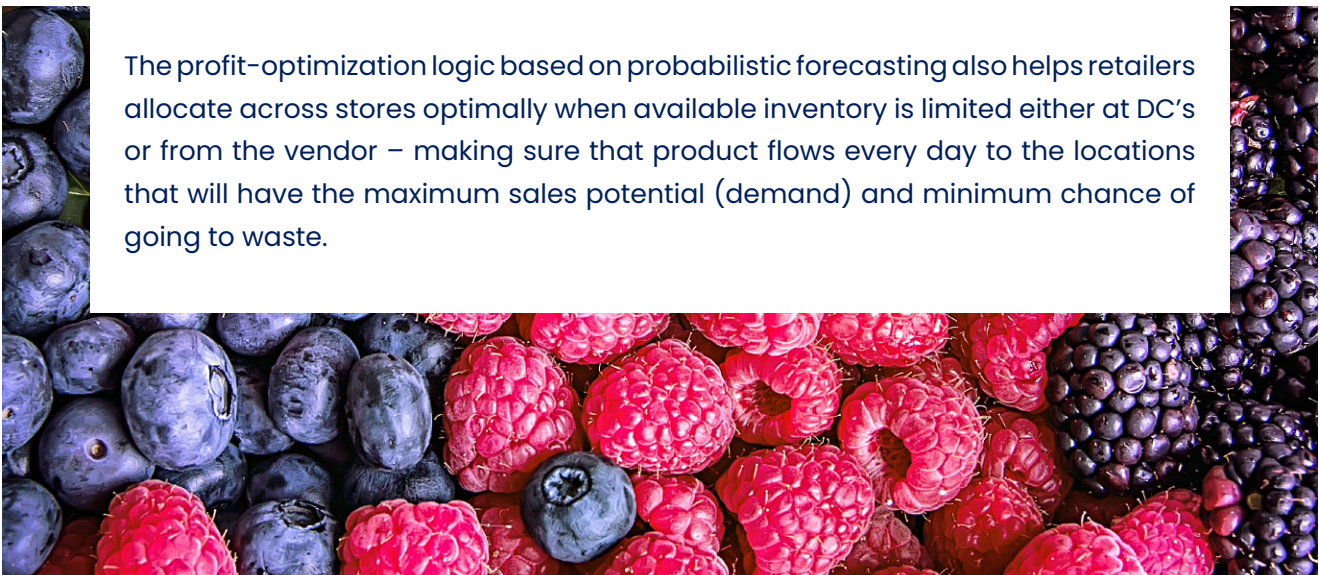
How Invent Analytics can help

The question today is how can grocers make fresh food less wasteful, more efficient, and profitable? By upgrading inventory decisions from a judgment-driven, KPI-measured process to a financial optimization-driven and measured processes, grocers can ensure rapid replenishment cycles and higher customer service levels.

Invent Analytics' **Omni-Store & DC Replenishment** give grocers what they need to compete in a rapidly changing environment and turns food waste from a costly burden into a valuable profit resource.

The sophisticated solution helps to achieve better inventory planning at the store level by using real-time online orders. It balances lost margin from out-of-stocks and the cost of carrying inventory. In addition, it determines the optimal reorder points and order quantities by taking into account the fresh product profitability, changing demand patterns, and weather.

As a result, grocers can make profit-optimized inventory decisions every day. And deliver superior customer service while increasing the profit margin for the business.
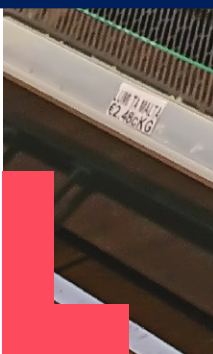
Game-changers in Retail: An Interview with Maksym Tipukhov, Demand Forecasting Director, Fozzy Group

Maksym Tipukhov

Demand Forecasting Director, Fozzy Group

FOZZY GROUP

We are all living in a very different world than we were just a year ago. The grocery retail landscape is rapidly changing, and the majority of the changes incorporated in the industry are technology and customer-requirement-driven. In this Game-changers in Retail interview, we met with Makysym Tipukhov, Demand Forecasting Director, Fozzy Group, to discuss the future of grocery retail and how grocers can thrive in this new omni-channel era.

- What do you think today's consumers expect from omni-channel grocers?

Today, consumers are setting high standards for how they want to shop. They demand frictionless, fast, and comfortable shopping experiences 24/7. And as we all know, consumers' lives are increasingly centered around their smartphones and tablets. So, they also want to have the flexibility to order their groceries online using the website or applications. I observe these evolving consumer expectations in Ukraine, but I think the same applies to all consumers worldwide.

– What should grocery retailers do so well to meet the expectations and win in an increasingly competitive space?

Customer-centricity is becoming the new game in town, requiring grocery retailers to prioritize the customer experience. To win in this new competitive space, retailers need to create 5-star personalized customer experiences and provide special offers. In addition, they need to quickly adapt to the new omni-channel world and leverage new technologies to serve them better. In other words, if grocers give their customers positive experiences, they will continue to do shopping with them and even recommend them to others.

– What do you consider to be the biggest challenges for grocery retailers today from an inventory planning perspective?

I would say the biggest challenges grocery retailers face today revolve around e-commerce. Rising customer expectations for omni-channel shopping are creating new challenges and opportunities for retailers. Today, when shoppers go online, they expect a similar if not the same experience as one they would get in a brick-and-mortar grocery store. And that's why grocers must rethink how they manage their inventories and how they do the planning to meet the demand of omni-customers across all touchpoints.

- How do you see the online shopping vs. physical store shopping experience in the near future?

Remember the times when Kindles were first released? It was like the next big thing. And years later, the e-book market continues to grow, but it doesn't mean that people prefer reading e-books only. For most people, old-school print on paper still wins, and the reason for that is some people like to smell of the books, the others want to touch them and take a look at the pages or get bookmarks. I think the same applies to the grocery shopping of today.

Even though more and more people prefer to do their shopping online due to its convenience, physical stores are still valid, and the in-store experience is here to stay. A large percentage of retail still happens in physical stores. That's partly because shopping is a part of the culture and it brings joy to shoppers. For example, at Silpo, our customers can go to a theatre inside the store or dive into the world of books and movies and have a great time there. They can also taste delicious pizza at the restaurant right in the supermarket or eat their favorite rib-eye steak. So basically, it's much more than just shopping, it really is an experience.

So I think at the end of the day, we will see 80% physical in-store shopping and 20% online shopping in the post-pandemic world. During the pandemic period, online shopping will definitely be stronger. I believe retailers need to think holistically and carefully about finding the balance between e-commerce and traditional shopping. They need to make sure they offer the best grocery-shopping experiences through customers' preferred channels at the right time, whether it is the online or brick-and-mortar store.

In achieving a best-in-class customer experience, all the functions of a retailer should work hand in hand. Customer experience is not only about having nice stores or friendly store employees. It also requires high availability, freshness in products, competitive prices and promotions, optimal assortment, etc.. That's why supply chain and planning teams are also very critical in contributing to superior customer experience.

– How do you see the role of dark stores or micro-fulfillment centers in grocers' fulfillment strategies?

I don't think dark stores have a "role". They practically take center stage now. In today's "quick delivery market," any grocery retailer who wants to stay ahead of the game needs to have dark stores. I see them as the only effective way in grocers' fulfillment strategies.

– What do you think are the 3 key things grocers need to do to optimize their supply chain capabilities to differentiate themselves from their competitors and meet their financial goals?

In today's market, transparency is the new gold standard. Grocery retailers need to make sure that their business processes are transparent and clear. Transparency in a business generates better performance, it builds trust and improves efficiency.

Secondly, grocers need to implement AI/ML-based solutions anywhere where it's possible and makes sense. These solutions hold the key to any retailer's success in winning, serving better and retaining their customers. So, they should leverage the power of AI and advanced analytics to improve their operations, reduce costs and increase sales.

Lastly, grocers need to prioritize environmental responsibility and focus on waste reduction and eco-friendly initiatives. While optimizing their supply chain for efficiency, they should also reduce waste by successful planning. Today, machine learning and advanced analytics technologies can be very helpful in addressing these issues.

- How important do you think it is to make granular, data-driven forecasts in the omni-grocery era?

In one word: Critical.

Retailers need to make granular, data-driven forecasts to survive and thrive in the omni-channel world of retail. There is no other optimal option. They need to leverage a successful demand forecasting solution's advanced capabilities, such as quick simulations, forecast horizons, cost optimizations, and real-time parameters considered by the system.

-What do you consider as the biggest challenge in omni-channel demand forecasting?

I would say the biggest challenges in omni-channel demand forecasting include the data cleansing process, data validation, and master data support. On top of that, retailers should utilize AI/ML-based demand forecasting systems to incorporate weather impacts, cannibalization-halo effects in between products, competitor cannibalization, and so on. However, even those are not enough for the new world of omni-channel retailing. For example, while making a forecast for a store-SKU, retailers should consider the physical demand at the store, and they should take into consideration online sales that would be fulfilled from stores.

-What do you see as the 3 top benefits of accurate demand forecasting for grocers?

By accurately forecasting demand, grocers can position inventory at the right amount at each location. In addition, they can take advantage of forecast horizons to reduce warehouse and transportation costs. Lastly, I would say accurate demand forecasting helps to reduce waste, inventory write-offs, and markdown losses.

- What do you think is the most effective way for grocery retailers to improve availability and reduce waste?

Improving availability is a critical element of delivering excellent customer service. However, achieving high levels of availability without holding high inventory levels is challenging, so grocers working to improve availability and reduce waste need to be creative. They should focus on their business operations and take advantage of AI/ML-based solutions and mathematical models and algorithms. Planning for fresh items requires different logic. Retailers should consider the shelf life of each SKU, remaining expiry days, consumer habits - LIFO ratio, waste probabilities and, balance it with lost sales by also considering product margins.

-What do you think will be key trends shaping the grocery industry in the coming years?

Firstly, e-commerce will continue its march. Pandemic accelerated the shift towards e-commerce, and I believe we'll see it rising in the future. There will be more quick delivery services as more customers enjoy the convenience of the doorstep experience. Lastly, I think we'll be seeing more marketplace platforms in the coming years.

-Finally, what do you think should be the top 3 inventory planning strategies for grocery retailers who want to become the Omni-Grocery Champions of tomorrow?

The Grocery-Champions of tomorrow will be the ones who focus on just-in-time delivery, make successful planning using the right customer decision trees, and proper promo planning based on personal propositions.

Thank you Maksym.

MiGROS

Migros – a Top-50 Grocery Retailer Worldwide - Reduces Inventory Days by 11% and Increases Availability by 1.7%

Migros is one of the world's top-50 grocery retailers, with over 2000 stores and annual revenue of $4 billion. Migros serves its customers with a variety of formats, ranging from 50,000 sq-feet hypermarkets to 1,000 square-feet convenience stores. With a well-deserved reputation for superior customer service and a wide selection of products, including high-quality fresh produce and fresh meals, Migros hypermarkets and convenience stores are the go-to grocery shopping destination for millions of customers every day.

Migros appointed Invent Analytics as their trusted partner to help manage their business-critical inventory operations. Following A/B testing in 200 stores, Migros rolled out the Invent Analytics AI-Powered solutions across their 11 warehouses and 2000 stores. These solutions provide Demand Forecasting, Store Replenishment, and DC Replenishment.

Increase

by 1.7%

in availability

Reduction

by 11%

in inventory days

Why did Migros choose Invent Analytics?

Migros is an innovative retailer with a history of efficient inventory management. As part of their DNA, they are constantly looking to improve their operations and customer service.

Following an in-depth assessment of 10 solution providers, they chose Invent Analytics' **AI-driven forecasting** and replenishment solutions to further reduce inventory levels without compromising product availability across their large, complex SKUs.

> *Invent Analytics is not just a solution provider for us. They are a flexible forecasting and inventory planning partner. They achieved excellent results in a high expectation environment. Our partnership with Invent Analytics has been one of our best decisions."*

Özgür Tort,
CEO, Migros & Global Co-President,
Consumer Goods Forum

A profit-optimizing solution to conflicting KPIs

A fundamental challenge in retail is managing the trade-off between conflicting KPIs, such as inventory turns and in-stock ratios, across a wide range of products and stores and multiple distribution channels. The core of Invent Analytics solutions is the financial portfolio optimization approach which upgrades inventory decisions from a judgment-driven, KPI-measured process to a financial optimization-driven and measured process. This change enables retailers to simultaneously deliver superior customer service while squeezing every last basis point of margin from the business.

The team at Invent Analytics tailored their solutions to meet Migros' specific needs. After successful results in the A/B test, the systems rolled out for daily planning of Migros' 2000 stores and 11 warehouse operations by taking the following information into account:

- ✓ Store capacities and visual minimum quantities
- ✓ Demand fluctuations with special days and promotions
- ✓ E-commerce order fulfilment from the stores
- ✓ Expiry dates for perishable items
- ✓ Seasonal products such as fruits and vegetables
- ✓ Salvage costs of daily fresh products and fresh meals
- ✓ Promotion effects on competing or complementary products
- ✓ Supplier constraints.

> **We were impressed at how quickly we started seeing the benefits of Invent Analytics systems. With 1.3% lost sales reduction, inventory days reduced by more than 11% and stock availability increased by 1.7%, we saw a significant reduction in working capital in just five months."**
>
> İlker Tunaboyu,
> Supply Chain & Marketing Planning Director,
> Migros

Key Benefits
Speed To Value

With simulations during a pre-go-live phase and successful A/B testing, Invent Analytics proved the benefits of their profit-optimal solutions.
Change-requests at no cost, forever.

For this project to succeed, Migros needed more than a set of black-box tools. They turned to Invent Analytics to tailor inventory optimization solutions to meet their specific, and evolving, omni-channel retail needs.

How Migros benefits from sophisticated AI-powered demand forecasting

Each day, the system detects outliers and lost sales and automatically selects the most effective AI-based forecasts from the product-store-day level forecast models. That means it can predict the probability of sales for each unit of each item at each store.

Store Replenishment Optimization

Taking all the business rules, strategic priorities, and the supply chain and store constraints, the system then calculates the optimal inventory levels and places orders that maximizes profitability.

Advanced DC Forecasting & Replenishment

The solution generates store replenishment orders from multiple warehouses at the product-store-day level for over 30,000 SKUs at 2000 stores. The algorithm also calculates the e-commerce order fulfilment probability of each store to ensure availability with omni-channel orders. Total omni-channel demand at the product-store level is aggregated and supply recommendations are generated for optimal safety stock and maximum profit. The system also simultaneously plans warehouse replenishment from around 5000 suppliers.

The Migros team sets the strategy, Invent Analytics system takes care of the rest

Implementing the Invent Analytics' store and warehouse replenishment solutions has saved the Migros inventory planning team a huge amount of time. They no longer need to calibrate the system parameters to deal with changing operational developments each day. The system itself determines the optimal re-order points and order quantities taking into account product profitability, strategic considerations, changing demand patterns, and supply chain constraints.

Tailor-fit capabilities

The system makes over 20 million profit-optimized inventory decisions every day, without the need for constant parameter calibration. Invent Analytics team delivers new tailor-fit capabilities every week and works with Migros team to identify opportunities to improve system performance every day.

Achieving key results in record time

As a grocery retail giant, Migros is well known for pushing the boundaries of what is possible with advanced analytics and innovation. This financially optimized inventory management project is a great example of that. Crucially, store managers and central planners found the system easy to work with and the results transparent and accessible.

As a result, the system quickly gained credibility and there were minimal overrides of replenishment orders. Now, Migros is looking to extend its use of Invent Analytics solutions into other key areas of management decision making, such as assortment and pricing to maintain the competitive edge in the new omni-channel world of retail. The objective is to further improve efficiency, customer service, and profit margins.

With Invent Analytics AI-powered inventory solutions, Migros has achieved an 11% reduction in inventory days, alongside a 1.7% increase in inventory availability, across its entire retail and supply footprint.

Fozzy Group, a Major Grocery Retailer in Europe, Partners with Invent Analytics to Improve Its Demand Forecasting

Invent Analytics' AI-powered Demand Forecasting Solution empowers Fozzy Group's objectives to optimize their inventory management and drive profitability by achieving higher forecasting accuracy.

Fozzy Group undertook an extensive review of 11 solution providers for this project and selected Invent Analytics as it was the company that has provided the highest forecast accuracy during the POC period. Invent Analytics' **AI-powered Demand Forecasting Solution** will enable Fozzy Group to increase availability and decrease days of supply by creating forecast even at the lowest level of detail (Store-SKU-Day, Category –Channel- Week and so on).

Fozzy Group will be implementing Invent Analytics' Demand Forecasting Solution - a fully automated, AI-powered demand forecasting system allowing retailers to have probabilistic forecast that takes into account all types of omni-channel transactions and effect on demand. Through this solution, Fozzy Group will have the ability to improve its forecast accuracy for its 42500 SKUs and feed its inventory decision systems.

Already a strong player in the retail space with over $3 billion annual revenue and 1100 stores, Fozzy Group expects the partnership with Invent Analytics to increase promotional item forecast accuracy and determine cannibalization and halo effects in substituting items, as well. Invent Analytics' technology will help Fozzy Group to improve new SKU and new store opening forecasting and empower the retail giant to improve inventory levels with decreased stock outs and spoilage.

Embracing AI-powered demand forecasting is no longer a 'nice-to-have' future-focused project; it is a 'must-have' capability for all retailers competing in the ever-changing retail landscape. Retailers can use AI to improve their forecasting and reduce inventory carry costs and lost sales more effectively. Invent Analytics' sophisticated, cloud-based forecasting solution that leverages AI is perfectly in line with our desire to enhance our demand planning, allowing us to be more proactive and innovative in the new retail world. I believe the science and technology Invent Analytics bring will help us achieve higher forecast accuracy and make data-driven decisions quickly and efficiently. Plus, their continuous support and innovation will help us to take our business to the next level."

Maksym Tipukhov,
Demand Forecasting Director, Fozzy Group
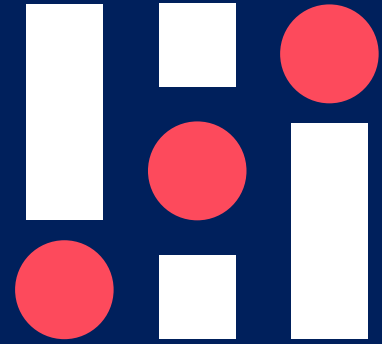
About Invent Analytics

Invent Analytics' Omni-AI **delivers significant financial improvement** by empowering retailers to **profit-optimize** their supply chain. It orchestrates a retailer's entire supply chain **by unifying network planning, inventory and price optimization, and fulfillment in one framework.**

Invent Analytics puts your **omni-customers at the heart of its tailor-fit solutions**. It **proves the financial benefits** with pre-go-live simulations and rigorous **A/B testing.** Invent Analytics' over 30 clients have experienced a **2-6% increase in profitability.**

Invent Analytics' Omni-AI SaaS solutions are:

- Omni-Network Design
- Omni-Plan Suite
  - Omni-Demand Forecasting
  - Omni-Store and DC Replenishment Optimization
  - Omni-Allocation Optimization
  - Omni-Transfer Optimization
  - Markdown Optimization
  - Assortment Optimization
  - Dynamic and Competitive Price Optimization
- Omni-Fulfillment

Invent Analytics has been selected as the **Top Supply Chain Technology Company by Retail Industry Leaders Association (RILA)** and **won the 2020 Innovation Awards for Supply Chain.**

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