



THE CUSTOMER IS THE CHANNEL

How Princess Auto Ltd uses a consumer-driven, store-centric fulfillment model to plan and satisfy all customer demand.

BY MIKE DOHERTY AND KEN LARSON

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Editor's note: This is one of three articles exploring the supply chain transformation at Princess Auto Ltd, one of Canada's leading retailers. They include: "A digitally connected, consumer-driven supply chain," which appeared in the May/June 2019 issue and "Catalyze change and transform your inventory planning," which appeared in the January/February 2021 issue.

For most retailers, the last five years has been a relentless rise in digital commerce and heightened customer expectations. Needless to say, those trends, along with a demand for even more convenience and speed of delivery, were accelerated by the pandemic, as consumers shifted more of their purchases from brick-and-mortar and other traditional sales channels to the Web.

By all accounts, there is no end in sight. Some prognosticators on retail's future are predicting as much as a 50/50 split between online and offline channels at some point in the future. While these kinds of predictions make for an entertaining academic exercise, the reality of the situation is simple—the customer doesn't care. Steve Dennis summed it up perfectly in his book "Remarkable Retail:" "The customer is the channel." And what do customers want? Among other things, they want a simple, harmonized path to purchase that makes them feel special, appreciated and valued. And, above all else, they expect product availability—when, where and how they wish to acquire it.

Key to meeting customer expectations is keeping inventory on the shelf—whether that shelf is in a store or a distribution center. Like most retailers, that has been both a challenge and a goal for Princess Auto Ltd (PAL), a national, Canadian, hard goods retailer with 51 stores located from coast-to-coast. In 2015, before the pandemic, PAL realized it needed to improve its supply chain performance, and, as a result, embarked on an ambitious plan to improve planning capabilities, agility, inventory flow and—ultimately—its in-stock performance.

This article outlines how Princess Auto Ltd evolved its planning processes to a customer-driven, integrated supply chain, where stores are the key to satisfying customer demand, regardless

of the channel. More importantly, it will share how the retailer used the flowcasting model and leveraged the agility and flexibility to pivot their customer fulfillment planning model—in the process improving product availability, customer order cycle times and margins.

Out-of-stocks

Retail out-of-stocks have plagued the retail/CPG industry for decades. The 1996 landmark study conducted by the Coca-Cola Retailing Research Council and Andersen Consulting concluded that, on average, 8.2% of the time a product is out-of-stock for customer purchase in a retail store. In 2002, another sweeping academic study of out-of-stocks by Thomas Gruen and Daniel Corsten confirmed the original findings. Surveying a wide variety of retailers in North America, Europe and Asia, they concluded that retail out-of-stocks had stubbornly remained at 8.1% to 8.3%. The study also found that when an in-store customer experienced an out-of-stock situation, the retailer lost the sale roughly one third of the time.

Sixteen years later, the same researchers conducted a new and expanded study with a focus on e-commerce. Published by the Grocery Manufacturers Association (GMA), the 2018 report focused on online availability. Its findings were that true out-of-stock rates for online purchases also consistently hovered around 8.1%. Even more revealing and worrisome was that for online purchases, the retailer lost the sale approximately 40% to 50% of the time when a customer experienced an out-of-stock situation (likely due to the customer's ability to easily order from other digital channels).

Those findings underscore that in today's hyper-connected and always-on world, consumers rule. They have a veritable tsunami of real-time information at their fingertips that helps them make informed decisions about product purchases, shopping preferences and recommendations. They want what they want, when they want it and can find a way to get it.

And what does this mean for retail stores? Again, there are widely varying views of the value and importance of stores, with some early pundits even predicting a “retail apocalypse”—in that many retailers will close most, if not all, of their stores and will largely pivot to a pure online model. (See a single forecast retail supply chain in Figure 1.)

Most retailers have, over time, rejected this point of view. Rather than being an impending cost and margin burden, savvy retailers understand and are changing the mission and role of the stores to become strategic assets to leverage, communicate and deliver on a retailer's brand promise. At the heart of a retailer's brand promise and arguably one of the most important functions from a customer perspective is a retailer's supply chain—that is, the ability to plan and deliver what customers want, when and where they want it.

That is the model adopted by Princess Auto Ltd when it implemented a consumer-driven approach to planning.

Flowcasting: consumer-driven planning

“Flowcasting” is a retail demand and supply planning process and solution that generates forward looking forecasts of consumer demand, by item/store, and using that forecast along with replenishment rules and constraints calculates all upstream current and projected inventory flows. It's based on a fundamental planning principle: Never forecast what you can calculate.

Instead of traditional forecasting of shipments to and from stocking locations, every current and planned inventory flow in the supply chain is calculated from a long-term forecast of consumer demand at store level (or any customer acquisition location). The planned shipments of inventory at every location are calculated, thereby producing an update-to-date forward looking inventory flow model, as depicted in Figure 2.

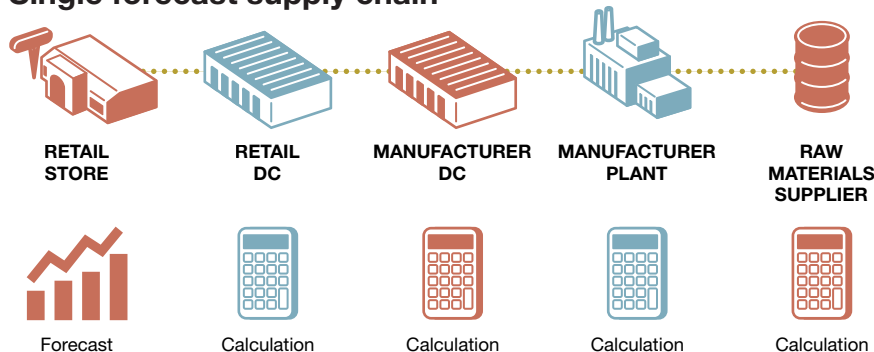
In the model, the planned outflow for each item/store is the forecast of consumer demand, derived from the item/store sales history along with any known events that will impact future sales. The inbound planned arrivals of inventory at the store are the calculated planned outflows of inventory from the Retail Distribution Center (DC) to support each store's forecast and resulting inventory requirements—and this flow model extends for a long planning horizon, typically a rolling 52+ weeks.

The model also extends to merchandise suppliers, whereby the planned inflows to the retail DCs would represent the planned outflows from the supplier to collaborate on and plan for—often referred to as a supplier schedule. Regardless of how product flows from supplier to end consumer, all demands in the extended supply chain are dependent on only one forecast—consumer demand.

Flowcasting makes a completely integrated retail supply chain possible while providing substantial bottom-line benefits for both retailers and their trading partners. Actual sales and changes at the store are translated to projected inventory requirements throughout the extended supply chain—providing retail stores, distribution and manufacturing facilities complete visibility of current and future product flows and projected inventory levels.

FIGURE 1

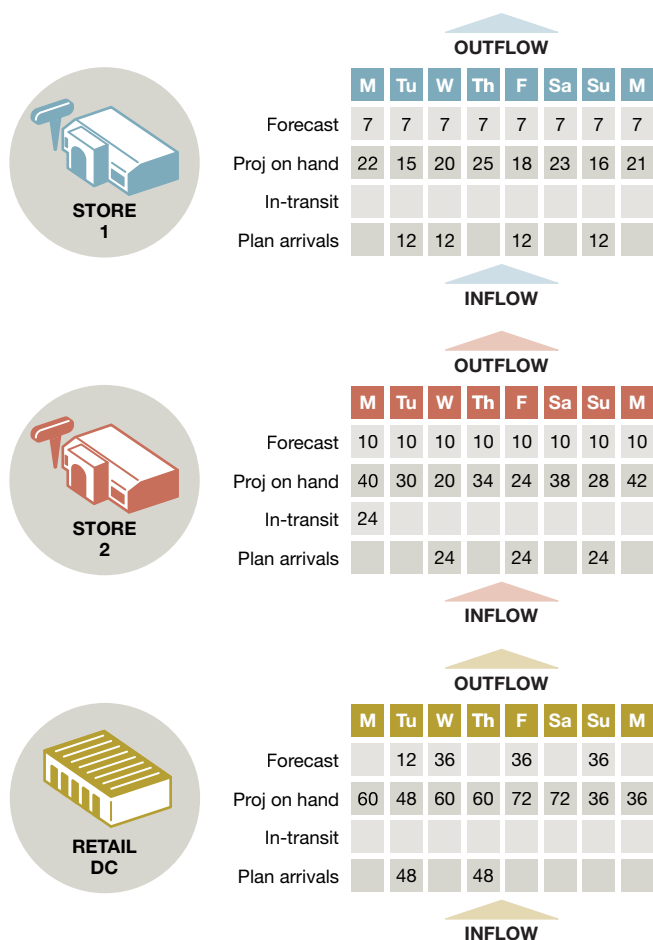
Single forecast supply chain



Source: Authors

FIGURE 2

Forward-looking inventory flow model



Source: Authors

Princess Auto: delivering to the anywhere shelf

Princess Auto operates 51 stores in Canada, located from coast-to coast, selling a wide variety of products, targeted to help their customers—the “figure-it-outers”—do, fix, tinker and make things. The stores and online portal offer their predominately male customers approximately 15,000 products, sourced from more than 400 merchandise vendors located around the globe, flowing through a network of three distribution centers.

In 2015, PAL realized it needed to improve supply chain performance and, as a result, embarked on an ambitious plan to improve planning capabilities, agility, inventory flow and ultimately, store in-stock performance. The team would implement the flowcasting process, for all products, channels, stores and suppliers. The only forecasting that would occur in the entire, integrated supply chain would

be consumer sales, for a rolling period of 52+ weeks, by item/store (or webstore). Adhering to the principle of “never forecast what you can calculate,” all resulting time-phased inventory and supply projections are continuously re-calculated (based on the forecasts and the inventory and ordering rules) and shared, across the entire PAL ecosystem.

The flowcasting process and enabling solution calculates baseline forecasts for every item/location (typically stores but can be any customer acquisition location) combination and generates forecasts that range from one to two units per year per store, to tens of thousands of units per year per store. Given that the process can forecast and plan for any item/location sales volume including slow and ultra-slow selling products, the result is that they can integrate their entire supply chain from point of consumption to supply regardless of product or channel flow.

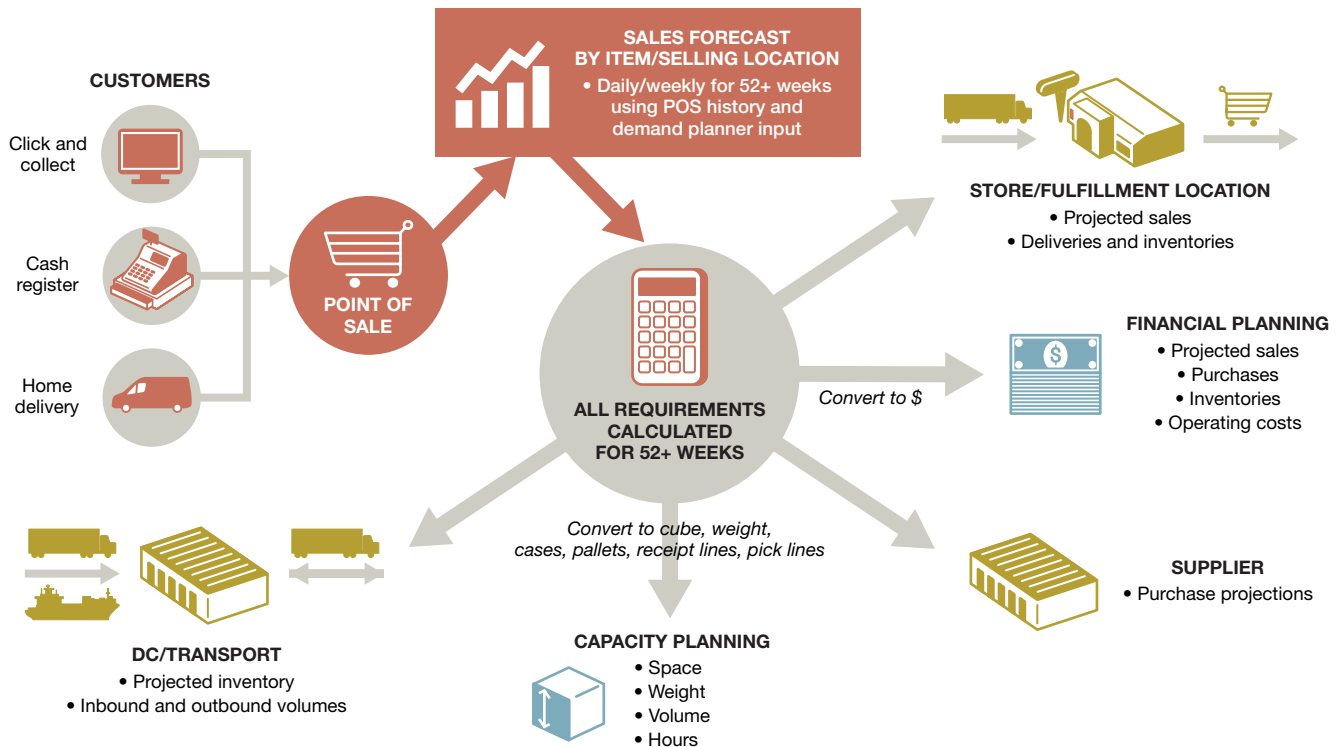
The supply chain process is agile and flexible, and re-calibrates the entire supply chain daily, based on what is and isn’t selling in retail, in addition to newly minted strategies and tactics agreed upon by senior management. The result has allowed PAL to consistently achieve exceptionally high levels of daily in-stocks—even during promotional periods—and improved inventory flows and performance.

In the early days of e-commerce, PAL established its online fulfillment like many retailers—fulfilling online customer orders from a central distribution center (DC). The centrally-stocked distribution model was not without inherent disadvantages for delivering online demand. The DC was not well suited to picking and shipping in single unit quantities (by far the most common customer order), in addition to the significant transportation costs and longer customer order cycle times resulting from potentially shipping a single unit across a country as large as Canada. As Amazon continued on its relentless quest to improve product availability and reduce customer delivery times, it was apparent that the central stock DC model was flawed, not responsive or competitive.

As a result, PAL’s Executive Leadership Team (ELT) decided to implement a new strategic direction for any-channel fulfillment. Rather than supply online demand from a central warehouse, the retailer decommissioned the central DC and moved to leverage the stores to deliver all customer demand—including online customer orders (though some big, bulky slow selling products are still

FIGURE 3

The “anywhere shelf”



Source: Authors

planned and delivered from a distribution center). The flowcasting process provided the capabilities needed to forecast consumer demand, at the store level, and plan all resulting replenishment flows to meet this demand. Figure 3 outlines how the supply chain has evolved to deliver to “the anywhere shelf”—the reality that consumers can browse, purchase and acquire merchandise in any manner they desire.

Modeling the business

The new planning process develops up-to-date consumer-driven, integrated plans that are valid across the entire value chain—including plans that span multiple organizations. PAL and its trading partners now have, for the first time, a complete model of their business—that is, a *digital future-dated twin* of the supply chain—containing all *projected* product flows from factory to front door for an extended planning horizon of 52 or more weeks. The result is that they have gained unprecedented control over their businesses. High-level sales plans and targets are connected to and influenced by the day-to-day operating plans based on what is and isn’t selling. This gives top management the ability to identify issues and

opportunities in order to meet their financial plans and targets.

In addition, the bottoms-up item level projections have provided the business with the information required to aid in the annual budgeting process, as depicted in Figure 4.

The item/store forecasts in units are converted to financial sales projections, and then aggregated to category, department and sub-department level to provide the baseline budget for the upcoming year. The impacts of additional strategies and tactics are then added to the calculated baseline to arrive at the budget, or business plan, for the upcoming year. A similar exercise is done to develop projected inventories and purchases since the new process develops long term item/location inventory and purchase projections.

Given that the new planning process is always recalibrating based on the latest information it has provided the leadership with a continuous, forward-looking critique of how well the business plan is being realized. Instead of looking in the rearview mirror to evaluate the plan, the ELT has the capability to determine where the plan is at risk, before it happens—giving them time to make any tactical adjustments necessary to get back on track.

Forecasting, planning and delivering from the store

In the new planning and fulfillment model depicted earlier, the operational sales forecast of consumer demand—at the store level—is a combined estimate of consumer demand, regardless of the sales channel. Some of the sales in the store will be through the cash register, some by customer pick up (e.g., curbside or click & collect), and still others by shipping from the store to the customer delivery location.

Regardless of the customer acquisition method, it's still a sale and contributes to that specific store's sales history—which, in turn, informs the forward-looking forecast of consumer demand.

Like many retailers, PAL has stores strategically located within close proximity of a significant percentage of the Canadian population. If a customer orders an item online to be delivered to their home, then the order is automatically routed to the designated store to supply this order. In the event that the preferred store cannot fill some or all of the customer order, then the order is re-routed to the next closest store—and that re-routing continues to utilize available store network inventory to fulfill the customer order.

From a planning and inventory flow perspective, click & collect (or buy online pickup in store, commonly referred to as BOPIS) orders work in a similar fashion. When a customer orders a product for click & collect or pickup in store, the order is assigned to their designated store (based on postal code), is picked and fulfilled and the customer visits the store to collect their order.

A total forecast of consumer demand

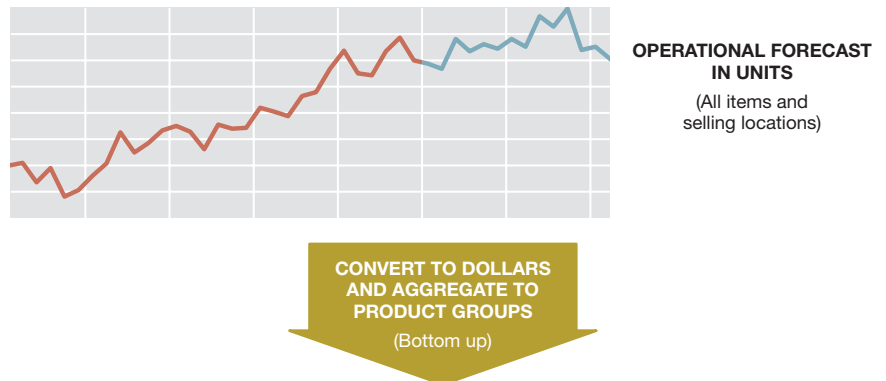
Forecasting, planning and delivering customer demand from the store required that a total forecast of consumer

demand be developed by item/store. While a channel specific forecast (e.g., a separate forecast for walk-in customer's versus online demand) could be developed and has worked in other industries, PAL decided, instead, to develop a total forecast based on the blended sales history.

Given the slow selling nature of many products at the store level, PAL determined that fragmenting the demand between each channel could introduce more uncertainty

FIGURE 4

Bottom-up item level projections



	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK52	YEAR
CATEGORY 1										
Dept 1.1										
SubDept 1.1.1	\$50	\$50	\$55	\$55	\$60	\$60	\$60	\$60	\$45	\$2,925
SubDept 1.1.2	\$35	\$35	\$35	\$30	\$30	\$30	\$30	\$25	\$40	\$1,625
DEPT 1.1 TOTAL	\$85	\$85	\$90	\$85	\$90	\$90	\$90	\$85	\$85	\$4,550
Dept 1.2										
SubDept 1.2.1	\$120	\$115	\$110	\$110	\$100	\$100	\$110	\$115	\$125	\$5,720
SubDept 1.2.2	\$5	\$8	\$8	\$7	\$8	\$9	\$10	\$7	\$6	\$403
Dept 1.2 TOTAL	\$125	\$123	\$118	\$117	\$108	\$109	\$120	\$122	\$131	\$6,123
CATEGORY 1 TOTAL	\$210	\$208	\$208	\$202	\$198	\$199	\$210	\$207	\$216	\$10,673
CATEGORY 2										
BASELINE BUDGET										
Dept 2.1										
SubDept 2.1.1	\$70	\$70	\$70					\$50	\$80	\$3,250
SubDept 2.1.2	\$25	\$25	\$28	\$28	\$30	\$30	\$30	\$30	\$23	\$1,463
DEPT 2.1 TOTAL	\$95	\$95	\$98	\$88	\$90	\$90	\$90	\$80	\$103	\$4,713
Dept 2.2										
SubDept 2.2.1	\$40	\$38	\$37	\$37	\$33	\$33	\$37	\$38	\$42	\$1,907
SubDept 2.2.2	\$20	\$32	\$32	\$28	\$32	\$36	\$40	\$28	\$24	\$1,612
Dept 2.2 TOTAL	\$60	\$70	\$69	\$65	\$65	\$69	\$77	\$66	\$66	\$3,519
CATEGORY 2 TOTAL	\$155	\$165	\$166	\$152	\$155	\$159	\$167	\$146	\$168	\$8,231

Source: Authors

and uneasiness in the process. In addition, it concluded that the selling pattern for each channel would be very similar given that forecast was a market driven estimate of sales for a particular product. Finally, the retailer did not believe that creating channel specific forecasts

would warrant the effort and costs to essentially double the number of item/store forecasts to be processed and managed, even by exception.

As a result, PAL has been operating with a blended sales history and a combined total forecast of consumer sales, by item/store. Given the new process allows the supply chain to re-calibrate daily, trends and shifts in consumer behavior are captured quickly—market specific in terms of sales and resulting selling pattern at store level—and are translated to all partners in the supply chain.

The sales history does, however, delineate between online and offline sales, which is mostly used from an analytics perspective to help in assortment/space planning and marketing/promotional initiatives (see Figure 5).

FIGURE 5

Online and offline sales

LOCATION	POSTAL CODE	PRODUCT	DATE	SALES
12	L3P 0A1	1234567	2021-02-09	1
12		1234567	2021-02-09	3
12		1234567	2021-02-16	2
12		1234567	2021-02-23	4

Source: Authors

In Figure 5, the sales history depicts that during the week of February 9th there was an online order/sale of one unit, in addition to sales through the cash register of three units—thus the sales history used for that week to develop the baseline forecast would be four units. To ensure the store forecasts are reasonable and complete, in the event that the original store did not fulfill the entire order, the sales order history is assigned to the designated store that the order should have been fulfilled from.

In addition, if PAL decides to plan and satisfy market specific online demand from a different store/location, the relevant sales history can be assigned to the new fulfillment location to help ensure that reasonable forecasts are created for all locations that are then used to calculate the resulting integrated replenishment plans.

Store inventory model and integrity

A forecast of total consumer demand, by item/store, also necessitated that—for some products and categories—the inventory model and stocking requirements were and continue to be revised. No longer is the store supplying

just demand from walk-in customers. The inventory levels required would need to be sufficient, on a daily basis, for all potential sales. As such, planners would review and change—where needed—the minimum inventory requirement to protect for sales forecast variability and also to help ensure product availability, regardless of sales channel.

The shift to a store-powered planning and fulfillment model also shined a spotlight on an important issue that has plagued retailers and retail planning for decades—store level inventory integrity. Based on numerous studies and actual physical inventories, retail store level inventory accuracy has hovered in the 50-70% range—though there are some exceptions. This means that, for a typical retailer, on average, the inventory balance in the system (which is often digitally displayed to the customer) and the corresponding physical inventory are not in sync—potentially causing issues for customer order fulfillment and replenishment planning.

Inaccurate store inventory integrity is especially pertinent for click & collect and buy online pickup in store (BOPIS) because the customer has been given reassurance that the inventory is available and, as a result, their shopping trip will not be for waste. Needless to say, the shift to a store-centric fulfillment model requires store level inventory integrity and that improves the customer journey and a retailer's competitive positioning—that is, being able to deliver on the promise of product availability.

Agility and flexibility

The COVID-19 pandemic and resulting impacts to the retail supply chain has highlighted the importance of agility and flexibility—the ability to quickly assess, pivot and re-plan based on current and fluid market conditions. For Princess Auto, the new planning model provides a rigorous and complete planning approach that has allowed them to quickly re-plan the entire integrated supply chain, assess risk areas and—where possible—take advantage of opportunities.

As an example, as COVID restrictions were imposed and then relaxed, market by market, the new planning process was able to seamlessly translate the updated demand plans into revised projections of demand, supply, inventory, capacity and financials for all stakeholders to plan to and collaborate on—including merchandise suppliers. This next level agility and planning flexibility allowed them to recalculate product flows quickly and easily and remain focused on delivering to the customer

who, during this time and as expected, shifted more demand online. While the new inventory flow planning model is store-centric, the flowcasting planning philosophy can enable other fulfillment models, as depicted in Figure 6.

The planning process starts with a total forecast of consumer demand, by item and fulfillment location—for PAL, that is usually a store, but for big, bulky, slow selling and difficult to handle items can be from a distribution center. Deciding on where and how consumer demand will be supplied and the resulting supply chain network to flow inventory from supply to end consumption is central to supply chain and business strategy.

Dark stores, micro-fulfillment centers, showrooming, zero-inventory stores and endless aisle are just a few of the recent flow models designed to improve product availability and customer order cycle times, while amplifying the customer journey and path to purchase choices. Every model, however, has a common starting point—a forecast of consumer demand by item/fulfillment location, depending on how the resulting sales will be transacted and delivered to the customer.

The flowcasting model connects the consumer demand forecast from consumption to supply. The forward-looking forecast of consumer demand is used to create integrated, time-phased replenishment projections for the entire extended supply chain. A consumption driven planning process will be required to enable these and yet to be conceived planning and fulfillment models—in all cases, translating a consumer demand forecast into current and projected inventory flows throughout the entire supply chain network.

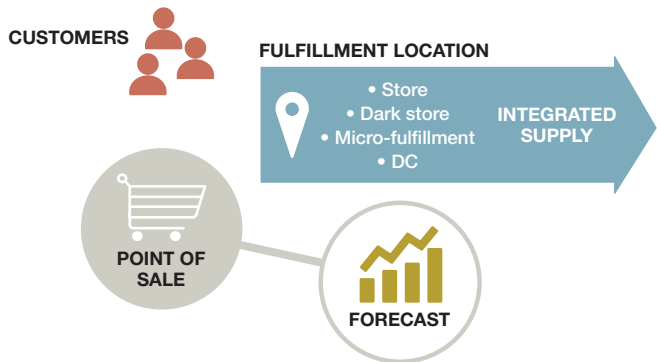
Benefits of consumer-driven planning

The flowcasting process and store-centric consumer-driven planning and fulfillment model has measurably and significantly delivered the following benefits.

- Improved daily in-stock rates to consistently 97% to 98% for all products and channels during a period of significant growth—both online and offline.
- Improved inventory flow to the store shelf, resulting in a reduction in backroom inventory and congestion in most stores.
- Significantly reduced online order cycle times as a result of planning and fulfilling online

FIGURE 6

Flowcasting planning philosophy



Source: Authors

customer orders from store level.

- Improved overall margins as a result of reduced costs for online customer orders.

From consumer to factory

There is no doubt that customer demands and sentiment are shifting, driven by the shift to a digital world and amplified by disruptions like the global pandemic. As a result of the digital shift in customer mindset, Princess Auto Ltd has changed the way the entire company plans and delivers online demand—delivering online customer orders from the store, driven by a total forecast of consumer demand.

The entire retail supply chain is re-synchronized daily, based on yesterday's sales and inventory movements. This new channel-agnostic, planning and fulfillment model combines the best of customer driven, integrated planning and store level fulfillment to move as close as possible to the customer, thereby significantly reducing customer order cycle times and last mile fulfillment costs. And, importantly, it allows them to be in stock—for any channel desired by their customers.

PAL can plan for any business scenario desired and have the capability to quickly envision and re-plan the entire, extended supply chain as global and local events dictate. These agile and flexible planning capabilities are serving the retailer well as it continues to deliver industry leading in-stocks, inventory performance and customer journeys—regardless of the channel. After all, when it comes to sales channels, the customer doesn't care.

They are the channel and they know it. ☺☺