

Demand Driven Logistics: Consumer Direct and the Last Mile

How to manage and optimize the direct-to-consumer (D2C) supply chain

With retail storefronts under siege, the smart move for manufacturers is to strengthen your consumer-direct channels. Since retail foot traffic will be down for the foreseeable future, this paper describes how network-based strategies help suppliers protect the business with the ability to better match supply and demand, increase real-time responsiveness, and enable world-class logistics execution capabilities down to the last mile. All of this will improve service levels, create a great customer experience, and increase loyalty and market share.

Is it possible to move to smaller order quantities and actually decrease costs at the same time? Yes, as long as real time network visibility and collaboration are used to reduce variability for all trading partners and eliminate information lead times across all tiers and echelons in your supply chain.

By Joe Bellini, COO One Network Enterprises



THERE'S CHANGE. AND THEN THERE'S PERMANENT CHANGE

Consumer-driven needs and behavioral shifts have generated a rapid and ongoing shock to most supply networks since the start of the COVID-19 disruptions. This shift has created structural change in our supply chain networks that will change business processes as well. In many cases, the associated deployment of these new processes will achieve permanence across industry sectors over the next two years. For example, buying behaviors which may have taken a decade to evolve in normal circumstances have been forced front-and-center by virus-related restrictions. Government mandated quarantines have driven a global increase in ordering food, groceries, pharmaceuticals, and other essential needs online. Even for non-essential goods, businesses have seen an enormous surge in ecommerce. Where consumers would ordinarily have gone to a local retailer, the transaction has shifted on-line or direct from the manufacturer.

[Forbes](#) notes that there has been 146% increase in all online retail orders in North America and that “ecommerce and online retailers’ supply chains, order management, and fulfillment systems are all being tested by the triple-digit order and revenue growth going on today.” While some consumers will revert to old habits as the situation normalizes, the longer pandemic behaviors persist, the larger the fraction of consumer spending that will remain permanently locked in newly expanded direct-to-consumer channels.

[Accenture](#) reports that “much of this new e-commerce activity has been from new users. COVID-19 will permanently change consumer behavior. Consumers’ attitudes, behaviors and purchasing habits are changing—and many of these new ways will remain post-pandemic. The trend toward digital commerce is expected to continue post-outbreak with consumers reporting that the proportion of instances they shop online will increase from 32% to 37% after the outbreak, illustrating the clear need for a substantial increased investment in this channel.”

At One Network Enterprises, we are experiencing surging volumes across our food retailing, healthcare networks, 3PL's, and overall direct consumer delivery activities.

In some networks, unit, order, and transactional volumes have increased over 100% in just the past few months. We have boots on the ground in just about every industry across every geography giving us a first-hand view as to what is really happening within supply chains and supply networks across the globe.

NETWORKS ENABLE A FAST RAMP UP...

For example, over 30% of retail food in the US moves across our network. The volumetric increases the past few months have been unprecedented. And our Network uptimes continued to perform at 99.99% as the supply network architecture we provide for our customers is designed for resiliency, security, and performance.

Resilience, flexibility and sourcing strategies need to be built into the fabric of the network software that is planning and executing to fulfill demand across the network. As you've probably seen with your own eyes while looking for items at retail stores or trying to order on line, this capability was not in play for certain manufacturers who probably thought their ERP systems would see them through.

... OR A FAST RAMP DOWN

Of course, certain industries have been hit hard with slowing demand due to the virus, such as our restaurant food service sector. But even there the power of the network ecosystem was evident in that we turned a couple of dials in the software and the entire supply network from the carriers and distributors upstream through the producers and suppliers was able to adjust to the new demand profile in real time. In times like these where working capital becomes a key focal point for certain sectors, the ability to adjust plans and schedules in real time is vital.

Specifically, for our automotive, high tech, and industrial sectors, there have been slowdowns, but many now understand that the old hub-and-spoke solutions from ERP vendors have never enabled a nimble network-based trading ecosystem. We are finding a strong appetite from many companies whose businesses have slowed to invest in supply network infrastructure during the slowdown - since the capability will be a significant market advantage once the economy fully recovers.



NEW DOMINANCE OF THE DIRECT-TO-CONSUMER (D2C) CHANNEL

While there are many important variables to consider across tiers in the supply network, front and center during the past few months has been the ability to respond to single item demand generated by the “at home” consumer along with the associated last mile delivery. For example, the ability to respond to the recent demand increase for home delivery of food, grocery and pharmaceutical orders.

A real time demand and supply network with over 90,000 participants ranging from carriers to retailers to 3PL's to manufacturers to suppliers has the ability to flex capacity to execute on the surge in delivery demand. Fleet capacity increases of 20 to 30% can easily be achieved through this type of multi-party planning and transactional network.

Whether you need medicine delivered same day/next day or you want to support your local restaurant through home delivery, those capabilities are made available in a very cost efficient and effective manner. Basically, all the capabilities that enable the entire network to provide the highest levels of customer service at the lowest possible cost are fully extended to the consumer through our demand driven logistics capability.

ACHIEVE ECONOMIES OF SCALE WITH SINGLE ITEM DEMAND? REALLY?

Process automation has, of course, been available for many years in pockets across the supply network. Today that automation has been extended across the network and into the home with the ability to trigger a response from the network, based on individual home-based orders. In essence we have now enabled one-step home delivery powered by a supply network ecosystem that meets the demand of the individual in real time across the last mile, while also aggregating this demand in real time across all customers to leverage economies of scale.

This allows the network to achieve the highest levels of customer service at the lowest possible cost, even when the orders are home-based for individual items.

MAKING OPTIMAL DECISIONS NETWORK-WIDE

The nature of the network is to view inbound and outbound orders as two sides of the same coin. What one trading partner considers inbound another considers outbound. Thus, the only way a last mile solution can benefit both the consumer as well as the companies providing the goods and services, is to optimize all inbound and outbound across

HEALTH, SAFETY AND QUALITY

A key concern in today's supply networks is the health and safety of the end customer. Current software and IoT infrastructure have been designed for the usual network-level visibility, control, and tracking related to food and pharmaceutical safety variables like temperature, packaging, handling, labeling, and placement, but today the burden is even higher. Delivery services must provide measures to demonstrate that they have delivered goods safely. Variables like hygiene must now be measured and reported across the supply network, in addition to variables like temperature variations and violations. Carriers now provide data related to vehicle cleaning cycles, hand sanitization procedures, schedules and more. The bar is higher, and new technologies are required to manage it.

the network. Providing visibility, control, and math-based decision-making at different supply chain touch points empowers trading partners to make well-informed decisions about positioning and moving inventory.

Given the number of variables in play across a complex network, companies are relieved to find that automated and math-based workbenches to aid in decision making are available today. In the shift toward becoming more demand-driven, companies need to weigh various options such as Incoterms selection based on geography in order to drive carrier preferences, transportation pricing, and inventory ownership.

Another tactic is to divert inbound product at ports of entry to match real-time demand shifts and related mode selection. Companies have the option to segment parts, sort by mode, prioritize by need, then pair components at a fulfillment location closer to demand. This approach maintains responsiveness at a lower cost, while also reducing the carbon footprint.

Real time knowledge across the network, along with the ability to collaborate between trading partners, will drive superior performance for all participants. The ability for participants in these business networks to expand their customer base is quite significant. Capabilities like [telematics](#) and full order visibility empower customers and drive satisfaction levels, which in turn drive word of mouth.

For companies that measure NPS (net promoter scores), these capabilities are certainly a strong accelerator in driving customer loyalty for the direct-to-consumer channel.

PLANNING WITHOUT EXECUTION IS A FALLACY

In today's world, the idea that planning is enough, even with what some are calling rapid response planning, is ridiculous. The pandemic has taught some hard lessons in regard to planning.

- Scenario planning has become pointless in today's climate. No one knows what the future will look like, so there is no point creating complex planning scenarios. After all, how many plans factored in today's scenario? It's one nobody could have predicted.
- Traditional forecasting is not going to give an accurate forecast. It's impossible to forecast consumer behavior based on the past, and the lockdowns are different country- by-country and state-by-state with rules changing rapidly over time. As we've said, the shift to ecommerce sales has been dramatic and could not have been forecasted.
- The upshot is that no one knows what will happen in the next 3, 6, or 12 months, so a new approach in supply chain management is needed: End-to-end (e2e) visibility with an autonomous supply chain that combines planning and execution in real time.

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After all, the closer you are to making delivery, the more decision-making is compressed. Within the delivery window you are executing transactions, not planning. If a network platform does not provide seamless planning and execution across all phases of forecast, commit, and delivery, then it is not capable of enabling demand-driven logistics. Without this seamless environment across time horizons, the risks of failure are significant because you have less time to react and fewer choices when taking action.

Coordinated planning and execution control is critical to logistics performance whether it's crossdocking to expedite retail replenishment and avoid stockouts, or dynamically routing last-mile shipments to meet delivery demands. Demand-driven capabilities like postponement must be woven throughout the supply network. In fact, in order to be demand responsive in real time, a single cloud-based platform which includes procurement, contracting, shipment planning/execution/tracking, yard management, appointment scheduling, and financial/claims settlement must be included in the multi-party planning and execution services available on the network.

For enterprises saddled with technology silos and separate systems in these functional areas, achieving real-time responsiveness is simply unattainable.

THE DEMAND DRIVEN MANUFACTURER

From the shipper's perspective there are many variables where you feel that you have little or no control – such as consumer buying patterns, fuel costs, supply disruptions, and capacity allocations. You can try to apply statistical forecasting techniques or even machine learning but these variables will always be difficult to predict. Regardless of how low you can drive forecast error, you will always need to react to problems and alerts during execution, and basically be in “reactive mode.”

Deploying the demand driven logistics capabilities discussed in this paper will empower manufacturers to drive collaboration across their trading partner ecosystem including customers, carriers, and suppliers, leading to improved costs and customer service levels. Transportation management systems (TMS) and real time supply network capabilities around visibility, decision making, orders, inventory, and fulfillment all available on a single cloud-based platform provides shippers with the ability to share information and manage transportation and logistics processes throughout the network. Having data in one [federated master data management \(MDM\) repository](#) that feeds upstream planning and analysis helps facilitate demand-driven logistics.

MAKING “ORDER SIZE ONE” WORK

We must also remember that the dominant philosophies upstream in the supply network have been to enforce minimum order quantities in order to drive efficiencies and lower costs. Today shippers must process a “little-and-often” approach that is predicated on point-of-origin collaboration and consolidation to move smaller quantities more frequently based on real time demand updates.

On the surface this approach appears like it may push additional costs onto the manufacturer, but that does not need to be the outcome.

In fact, it is possible to move to smaller order quantities and actually decrease costs as long as the real time network visibility and collaboration reduce variability for all trading partners and eliminate information lead times from a demand perspective across all tiers and echelons.

Sub-optimizing each tier in the supply network, separating tiers with large inventory buffers, and the “toss it over the wall” mentality that creates the bullwhip effect upstream in the supply network, must all be eliminated to enable the

ordering of smaller quantities from suppliers while keeping costs the same or even lowering them. Once all trading partners have visibility to the big picture - which is that no one really gets paid until the end customer buys a product or service - then the trading ecosystem can really thrive. Then, from a transportation perspective, mixed loads will become the new normal.

IT'S STILL AN OMNICHANNEL WORLD

Even as a growing fraction of your business shifts toward direct-to-consumer, you still need to manage multiple channels on a single platform, with integrated logistics management from first mile to last. Fortunately, leading business network platforms handle that seamlessly, with a unified view of demand across all channels, along with the ability to execute, forecast, and plan.

THE VALUE POTENTIAL IS LARGE

Now let's summarize the opportunity. For manufacturers and suppliers, a demand-driven consumer-direct strategy enables you to take back control of your supply network and capture value in these areas:

- With end-to-end visibility, everyone in the network knows what's going on in real time (identify and respond to issues more quickly)
- Optimize inventory across the entire network with multi-echelon inventory optimization (MEIO) (liberate working capital)
- Implement autonomous supply chain management to balance demand and supply, and manage transportation more optimally (drive out cost)

- Execute on consumer-direct "drop ship" logistics to increase ecommerce sales and gain market share (maintain revenue growth)

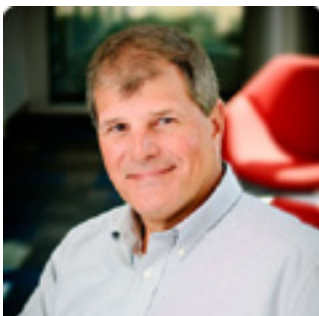
On top of all this, strengthening your consumer-direct channel mitigates risk and offers manufacturers a sure way to blunt the impacts of a retail market that may take years to recover.

WHAT'S NEEDED IS A REAL-TIME REACH ACROSS ALL TIERS IN THE SUPPLY NETWORK

For those who are sourcing globally, failing to communicate in real time with upstream partners creates significant inefficiencies and costs. Trying to do so across dozens of deployed ERP instances will be like being tethered to an anchor. Today companies must strive to reach across all tiers and echelons in their supply network and work more closely with suppliers and manufacturers to fine-tune production systems and make sure they are in lockstep with downstream processes.

What's needed goes well beyond a basic ecommerce platform. It includes a complete supply chain solution with integrated multi-tier inventory optimization, order brokering, merge and cross docking, including last mile delivery, and the ability to create an allocated Available-to-Promise (ATP) for order promising to a delivery window in a home within a few hours. And all this needs to be optimized on cost.

A tall order? Perhaps not. Today's network platforms make it possible, and in this way, you'll enable your whole ecosystem to capitalize on the shift toward direct-to-consumer and achieve a fast ramp in consumer-driven last mile deliveries. And you'll be fully prepared as economies recover.



About the Author

Joe Bellini is Chief Operating Officer at One Network Enterprises. Joe's experience extends across some of today's leading technology companies, including General Electric, HP/EDS, Brooks Automation, IRI, R1 and Oracle. Joe was granted patents in Supply Chain Planning and is the co-author of the business strategy book, "The Real-Time Enterprise." Joe holds degrees in Mechanical Engineering, Applied Mathematics and Statistics, is an alumnus of Harvard Business School, and is certified in Artificial Intelligence and Machine Learning from the MIT Sloan School.



ABOUT ONE NETWORK

One Network is the intelligent business platform for autonomous supply chain management. Powered by NEO, One Network's machine learning and intelligent agent technology, this multi-party digital platform delivers rapid results at a fraction of the cost of legacy solutions. The platform includes modular, adaptable industry solutions for multi-party business that help companies lower costs, improve service levels and run more efficiently, with less waste. This SaaS and aPaaS platform enables leading global organizations to achieve dramatic supply chain network benefits and efficiencies across their ecosystem of business partners. One Network offers developer tools that allow organizations to design, build and run multi-party applications. Leading global organizations have joined One Network, helping to transform industries like Retail, Food Service, Consumer Goods, Automotive, Healthcare, Public Sector, Defense and Logistics. To date, more than 75,000 companies have joined One Network's Real Time Value Network™ (RTVN™). Headquartered in Dallas, One Network also has offices in Japan, Europe, and India. For more information, please visit www.onenetwork.com.



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