

Optimizing Direct Procurement

Improve resilience, lower costs, and optimize operations with demand-driven inbound supply management

Optimizing direct procurement and inbound supply means much more than just streamlining your “procure-to-pay” processes for purchasing and accounting. In this paper, we describe how real-time business network platforms enable a new collaborative relationship between manufacturers, their suppliers, co-manufacturers, logistics providers and customers. It’s one that operates in real-time to optimize decision making, increase resilience, and unlock enormous business value for all parties. We’ll explain how.

INBOUND SUPPLY CHALLENGES

When it comes to direct materials – the products that go into your finished goods - many manufacturers struggle on the one hand with increasing costs due to high inventory levels, and on the other with critical out-of-stock situations. This at times results in lost production time, costly plant issues (such as unplanned overtime, production line setups and teardowns), and high logistics costs. **Inventory costs** rise when you're carrying excess inventory in some areas and not enough inventory of the right materials in others. **High transportation costs** result when expedites are required to cover inventory shortages.

Another problem is **long information lead times** with suppliers that impact responsiveness. Even when companies send weekly or daily communications to suppliers, communications can lag dramatically the further down the supply chain you go, known as “bullwhip effect”. Companies need to be agile to get information to all suppliers with close to zero time lags to ensure that replenishment needs are met with desired service levels.

Most importantly in today's environment, you'll want to **ensure a resilient supply process** is in place, one that provides for a continuity of supply and minimizes disruptions to operations and your customers. Part of this includes a streamlined and highly efficient process for **rapidly onboarding qualified suppliers** worldwide and the ability to quickly **ramp your supply network up or down** in response to demand or supply shifts, regulatory, geopolitical changes or natural disasters, such as the recent pandemic.

In a win-win process, your company may be judged on the quality of your order forecast to suppliers, and you'll need a way to evaluate suppliers and hold them accountable on **supplier delivery performance**, with a consistent and accurate way to measure and record this performance, which both parties can see.

Finally, let's acknowledge that for many companies, a key barrier to optimizing inbound supply processes is the state of your own systems. Companies can have dozens – even a hundred or more – **separate, siloed enterprise systems** or ERP/MRP instances. How can you expect to put in place standards for replenishing components and raw materials, along with consistent processes for your many suppliers, without also addressing the fundamental issues of your IT landscape?

KEY FINANCIAL BENEFITS:

- Reduce inventory network-wide by 20 to 40%
- Improve capacity throughput by 10%
- Reduce expedited freight cost by 30 to 50%
- Improve logistics utilization by 5%
- Improve staff efficiencies by 50%

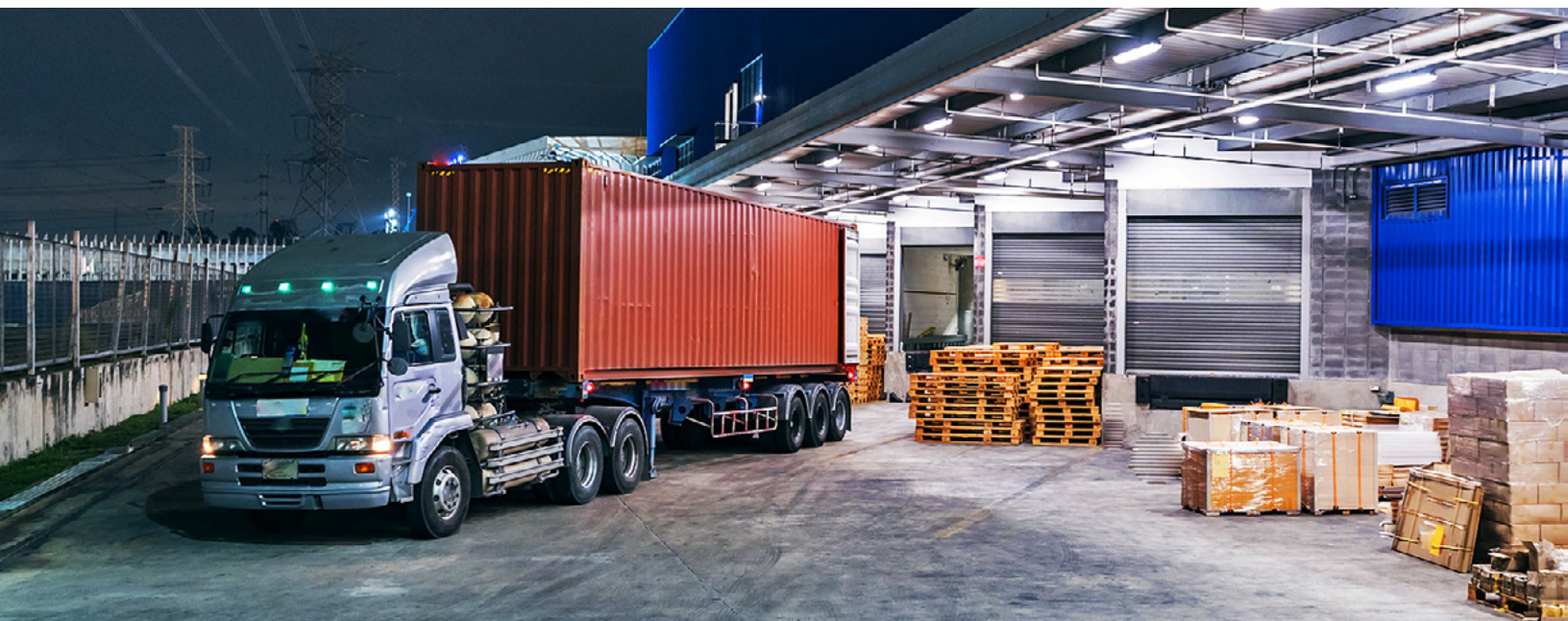
REQUIREMENTS FOR WORLD CLASS SUPPLY MANAGEMENT

What does it take to reach world class performance? As you look to optimize your direct procurement processes, you'll need to ensure that your platform provides these essential capabilities.

Orchestrate All Inbound Supply: Your business will require a comprehensive platform for managing the flow of raw materials, intermediates, parts, and components from supply to assembly or manufacturing to final assembly and packaging across your business. Your supply platform must also include workflows well beyond basic ordering, including forecasting, planning, collaboration, executing and delivering material orders. You'll also need early detection alerts for material and logistics issues, as well as ways to identify, resolve, and automate issue resolution to the greatest extent possible.

Correlate Each Transaction Beginning to End: You'll need control and visibility over the entire life cycle of each transaction with full insight into cash flow and financial commitments. Procure-to-Pay services will also need to integrate purchasing, logistics, and financial operations into a single environment, so you can track each order from beginning to end, shipment for the order, invoice, etc. Services should include supply management, requisition, sourcing, order management, logistics tracking, invoice management, and data feeds to payables (external payment systems).

Propagate Demand to Upstream Tiers: Can your system effectively propagate demand from finished goods all the way back to the n-level vendor tier in near real-time? The answer will need to be “yes”, precisely computing net requirements based on stock on-hand, on-order and your replenishment policy to generate accurate order forecasts (i.e. inbound supply requirements). Distributors and vendors will need the



ability to view and operate with accurate long-term forecasts so they can plan their capacity and distribution accordingly.

Automatically Reallocate Inbound Materials: You may need to dynamically plan and execute “milk runs”—where consumed materials or parts are replenished on a regular basis—according to real-time data. You’ll be able to reduce the risk of shortages by autonomously matching demand and supply around the clock. As demand across each facility changes, you’ll want intelligent agents to automatically reallocate materials in transit accordingly.

High Precision Matching of Deliveries with Requirements, and Greater Accountability: Most companies have heavily invested in their MRP systems. These create forecasts and firm orders where suppliers ship according to shipping instructions, typically specified on a weekly basis. Suppliers can have leeway to ship any time during the week. So, suppliers can ship to deliver on Monday even though the real need is in the latter part of the week, say Thursday or Friday. The result is that you may have maximum inventory violation at the beginning of the week! In addition, supplier performance is often loosely measured, where as long as the supplier ships in the specified week, they ship on time. Ideally, you would like to instruct suppliers to ship and arrive at the time your factories actually need it, such that supplier performance is measured at the exact required ship date or request date. Suppliers may think their performance is greater than 90% based on loosely-defined delivery dates, while the actual performance could be only at 70% when measured on the

exact required ship or delivery date. You’ll require greater precision in your instructions to suppliers, as well as improved tracking mechanisms for greater accountability.

Integrate Transportation Too: You’ll need a highly responsive real-time platform to make sure material supply meets fluctuating demand – while at the same time reducing transportation costs by maximizing container and shipment use, right-sizing the container, consolidating deliveries into a run, and driving out expediting costs. This will require the ability to aggregate demand, source materials, and transportation requirements across the supply chain, offering an integrated view of supply, demand, production capacity, and transportation across both internal manufacturing operations and the operations at suppliers and service providers.

Work with Logistics Providers in Real Time: A world-class inbound supply process will also need a highly capable transportation management capability with end-to-end, real-time visibility for material and logistics planners. It will need to integrate materials management and logistics for inbound, outbound, international, domestic, and cross-border transportation, offering consolidated views that eliminate the need to manually track shipments via email and phone. Logistics features will need to include global trade document and milestone management, multi-modal and multi-leg shipment visibility, global milestone management, alerting, and third- or fourth-party logistics integration services.



ONE NETWORK SOLUTION FOR INTELLIGENT SUPPLY MANAGEMENT

The good news here is that One Network's solution matches all of these criteria above and more with multiparty, multi-tier visibility and collaboration across the following areas:

Demand Management and Forecasting: One Network takes the gross demand feed from your existing MRP systems into the One Network platform to fully leverage your MERP/ MRP investment, and automatically creates order forecasts and discrete orders for the forecasted demand and actual demand. Alternatively, the platform has the capability to take the end-item demand, perform the bill-of-materials (BOM) explosion, and run MRP to automatically create the order forecast and discrete orders for forecasted demand and actual demand.

Global Demand/Supply Visibility: One Network provides a real-time view of their customers' requirements and their suppliers' material availability across the multi-tier supply network including third party warehouses. This multi-tier solution provides a full, global supply-demand match across multiple tiers and multiple parties, providing visibility and actionability to all. This includes full chain of custody management services with serial and lot tracking.

Multi-Tier Global Supply-Demand Match: The platform is architected to allow companies and their partners to see and influence demand, supply and service levels across a multi-tier value chain. From supplier to international freight, to 3PL warehouse facilities, into the factories. With all participants in one global supply-demand match and execution transaction, your business can now orchestrate the supply planning and execution process end-to-end.

Logistics Management: Use One Network's proven Intelligent Logistics solution to manage regional and intercontinental shipments.

Multi-Tier Supplier Collaboration: Collaborate with all suppliers on orders and order forecasts – and resolve issues quickly. Gain visibility into short- and long-term supplier capacity by automatically propagating actual scheduled demand through the supply chain and matching it to supplier commitments - either as unit volume or as line capacity. Manufacturers can secure supplier commitment as demand levels fluctuate, to maintain stable production. As you introduce new products or features, the system supports network-based capacity planning and impact analysis to help prepare for a broad range of what-if scenarios.

Multi-Tier Replenishment Planning: Plan replenishment for every item at all consumption and stocking locations based on demand data and your company's replenishment policy. One Network takes the total gross material demand (after the BOM explosion) and nets this against on-hand inventory to derive net demand. With net demand and your replenishment policy, we can generate an inbound order forecast and purchase orders. One Network provides this capability as a standard network service, and will work with your existing MRP system.

Vendor Managed Inventory (VMI) Services: One Network's VMI or consignment program enables true consumption-based replenishment in an environment where all trading partners can easily connect and coordinate. It provides real-time visibility of inventory and inbounds (including inventory in-transit) and automatically generates alerts when inventory violations occur against replenishment policies to ensure that the specified levels of product availability are achieved.



Multi-Echelon Inventory Optimization: The objective of One Network's Multi-Echelon Inventory Optimization (MEIO) is to optimize the inventory subject to the desired customer service levels at all service locations, subject to a budget constraint, and to optimize service levels and inventory across the whole value chain.

Complete Procure-to-Pay Services: These integrate purchasing, logistics, and financial operations into a single environment, with requisition, sourcing, order management, logistics tracking, invoice management, and data feeds to payables systems.

Contract Manufacturing Capabilities: Contract manufacturers (CM) and electronic manufacturing service (EMS) providers are enabled with real time visibility into site capacity and material-constrained translation of customer or consumer demand (forecast and orders) for each site. They also have visibility to upstream component inbound supply with accurate ETAs to each factory. Brand owners have clear visibility into production status, production capacities, production schedules, Tier 2 component inventory, Tier 3 materials, projected inventory, and inbound supply.

Single Version of the Truth (SVOT) for Supplier Performance: To measure supplier performance with respect to requested arrival dates or required shipment dates, One Network can create the discrete order (releases) to instruct the supplier of the exact dates to ship and arrive. All parties can then see the ship and request dates, and the performance can be measured and tracked on the platform as single version of the truth.

THE ONE NETWORK DIFFERENCE

The Network Effect and a Single Version of the Truth:

One Network has been a technology leader for more than 15 years, and the advance that has provided the greatest performance benefit for customers is the sharing of applications, data, and transactions on one common business network. Here the entire supply chain can be viewed, managed and optimized as one unified system, as opposed to many small, disparate systems. The platform's end-to-end capabilities have been conceived and built entirely by One Network to be network-based. They are not a collection separately acquired, stitched-together systems, making our unified approach unique in the industry.

Any new company joining the One Network community has immediate access to this established business network of manufacturers, suppliers, customers, and logistics partners. We refer to this as the "Network Effect", which is particularly advantageous in the manufacturing and automotive industries because of the massive numbers of parties involved in the collective group of OEMs, Tier-1s, Tier-2s, logistics providers, and contract manufacturers. The total number of parties can be in the thousands. The same holds true for foods, health care and many other industries. Companies only need to on-board once, and chances are good that many of your customers, suppliers, and logistics providers are already on the network, greatly accelerating projects and time-to-value.

Having all business partners on one backbone lets information flow throughout the network seamlessly and quickly. Thus, a problem anywhere in the network is quickly recognized and can be dealt with in a fraction of the time of former

approaches. This means the “bull whip effect” problem can be minimized -- where a small disruption in the supply chain gets amplified as it traverses and affects the rest of the supply chain. The longer the time for the original disruption to be felt elsewhere in the network, the greater the amplification. Squelching small problems before they become large problems requires quick notice and action - one of the many benefits the Network approach.

A Complete Set of End-to-End Capabilities: One Network is the only solution that offers a seamless, integrated suite of solutions across all supply chain functions. These enable planning, execution and optimization across all supply chain functions, to maximize results. This lets companies maximize efficiencies by coordinating their replenishment process with the logistics planning and execution process, thus optimizing service levels, inventories and operational costs concurrently. As Gartner recently stated (May 2020), “One Network’s solutions cover processes across supply chain planning as well as supply chain execution with a single transaction backbone and master data management system. Its ability to offer this supply chain convergence is **leading among providers**.”

Rapid Partner On-Boarding Services: One Network uses a rapid onboarding and automatic quality assurance testing process, which enabled hundreds of suppliers, carriers, and freight forwarders to be onboarded in weeks instead of months, along with a service model for onboarding new partners, or for the elimination of those no longer required.

Only One Network: Let’s look in detail at additional capabilities that no one else in the industry can offer:

Hub-to-Hub Optimized Execution – Concurrent and Across Tiers. With continuous and incremental supply-demand matching in real time, your business can ensure that inbound supply is truly demand-driven and matches the needs of your end customer at the other end of the value chain. While other solution providers may claim this at a high level, One Network enables this in real time at every level of granularity and time horizon - even at the item level, enabling **discrete ordering with inventory min-max controls, delivering product just-in-time for your production sequence, including daily and intra-day if needed.**

Truly Integrated Inventory, Logistics and Order Management.

With One Network, **system lead-times approach zero**, driven by MRP gross demand. With a real-time view into inbound, inventories and shifting demands you’ll be able to increase service levels even as you dramatically reduce inventories. You’ll eliminate excess inventory buffers, and the costs that go along with it, as well as the problems of having the too much of the wrong product and the wrong location. With One Network, **shipment visibility includes visibility into every order that makes up the shipment. And the inventory that makes up the shipment can be used for dynamic decision making in real time – just like any other inventory quantity in your warehouses, plants, or retail locations.** This explains why One Network helps optimize business performance with automation and prescriptive analytics in ways that others can’t.

Multi Party Collaboration Across 3PLs, 4PLs, Forwarders, Corporate & Suppliers. With global supply-demand matching and process orchestration across business partners, One Network enables you to **identify supply chain exceptions in real time and resolve them optimally** through multi-party collaborative work benches with intelligent algorithms and the latest in artificial intelligence and machine learning (AI/ML) technology for automated or prescriptive decision-making. We call that global real-time visibility with actionability.

A DevNet-Enabled Modular Architecture Enables Extensibility. Let’s face it – no solution will fully match your needs out-of-the-box. That’s where the **One Network platform is designed to be highly extensible** and enables swapability of core modules. This enables a solution that fits your requirements as if built to purpose, yet is fully supported during its lifecycle with One Network’s “never legacy” approach. It also helps provide rapid deployments implemented through a “value first” agile methodology for a self-funding strategy where value is realized each step of the way.

MULTI-TIER PROCUREMENT, INVENTORY PLANNING AND COLLABORATION

With the One Network platform, customer demand is continuously translated across each tier and site in the network. Demand propagation across the supply network considers the current demand forecast, inventory, production schedules, in-transit supply, supply commitments, bills of material (BOM), carrier pickup and delivery schedules, and the transportation network between sites. This provides each site (across n-tiers) with accurate real-time demand visibility, as permitted by the network relationships each party has agreed to, at each site, upstream and downstream to the end customer. Key capabilities include:

- Constrained multi-echelon supply and production planning with execution and collaboration across n-tiers
- Integrated distribution and transport planning with industry-leading execution capabilities

Continuous multi-tier tactical planning and intelligent NEO agents automatically create and adjust procurement and production orders, transportation orders, shipping and loading instructions, and pickup and delivery carrier appointments. In addition, NEO intelligent agents continuously monitor execution streams in real time to adjust plans and respond to changing conditions including predicted weather impacts on site capacity and transport lanes, missed shipments, delayed production, cancelled orders, and unexpected demand fluctuations.

Here are examples of the types of automated decisions agents can make or recommend:

- When, how much, and where to procure or make product
- Predictive detection and proactive mitigation of stock outs, late supply, supply delays, plan-to-actual deviations, cost overruns, and revenue shortfall
- Cancel, change and create transport, replenishment, procurement, production orders directly with partners on the network, to execute agent decisions immediately
- Decide how (transport lane, mode) and when to move product from site to site
- Schedule movement of products from site to site directly with carriers
- Pickup and delivery-aware last-minute allocation of supply to site or store orders in cases of supply shortage
- Automated cancellation of transport orders to carriers to align transport with order commitments and inventory positioning
- Proactive detection of environmental impact (weather, traffic) on supply and transport
- Proactive response to environmental impacts via reshaping supply movement, allocation, stocking and distribution
- Automated order expediting, aggregation, consolidation

"We have seen dramatic inventory reductions; on average more than double what we had targeted."

- Global Director of Materials and Logistics, Dana



BUSINESS BENEFITS

One Network works closely with customers to understand their business and ensure the solution meets and exceeds expectations – and is easy to use for their staff and their trading partners.

For example, Dana Incorporated, the \$9 billion automotive components manufacturer, had an initial target of an overall 10% reduction in inventory that was far exceeded with a 31% average reduction overall. Some parts inventory levels were reduced by as much as 68% with the minimum reduction of 10% across the board. Along with the inventory reductions, Dana saw a dramatic drop in shortages and expedite costs by having the right inventory at the right place at the right time.

In addition to those mentioned above, additional benefits for Dana's business include:

- On-time delivery performance improvement
- Visibility across a multi-tier network with inventory across thousands of products, dozens of plants, hundreds of suppliers and hundreds of planners
- Reduced supply/demand variability due to real-time visibility and ability to collaborate
- In general, higher service levels at a lower cost
- Multiple ERP systems are now synchronized with a "single version of the truth" across their network

Network benefits also accrued to their suppliers:

- With daily visibility into demand, suppliers are better able to satisfy demand
- A greater ability to collaborate with Dana means they can provide better service, faster
- One Network's easy-to-use interface has enabled suppliers to be up and running quickly with minimal training

Unlocking Additional Value with a Unified Business Network

Platform: When inbound supply processes are moved onto the network, a range of efficiencies and additional capabilities are enabled:

- When inbound supply orders are generated in the network layer, there is less integration required and there's no need to pass information back and forth between separate systems to run supplier collaboration with orders and order forecasts. Your suppliers are already on the network too.
- Your business is shielded from the problems associated with different MRP systems generating procurement requirements, so issues with different setups in different systems are eliminated.
- One Network can run multi-tier MRP with demand translation for the entire network.
- Multi-tier inventory optimization can be run in the network to set optimal desired safety stocks (SS) to achieve desired service levels at lowest cost.
- Invoices can be generated automatically, and there's no need to perform traditional "3-way matching" if the ASN and receiving are also performed via the network service, increasing staff efficiency and eliminating errors.

Sustainability Benefits: With more and more companies concerned about their environmental footprint and reporting on it, optimizing inbound supply can yield substantial benefits in sustainability as well. Resources are not consumed in sourcing the wrong product, and waste disposal and recycling effort may be reduced as fewer of these products become obsolete. Labor, electricity, and other site resources need not be expended in storing excess inventories. The transportation greenhouse gas (GHG) footprint can be reduced in moving the wrong product to the wrong locations, and then correcting the mistake. Transportation assets can be fully utilized for lower emissions per ton of cargo, and manufacturing capacity can operate most efficiently. Transform and lead your industry with One Network.



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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