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Thought Leadership Series

Nine Key Elements for Developing a Successful Supply Chain Network Strategy

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While understanding the day-to-day operations within the four walls of a warehouse distribution center, there is a bigger picture to examine: how product flows through individual distribution points and how the entire supply chain network is designed and utilized.

Building an efficient supply chain network strategy can be challenging. In this FORTNA Insight, we will describe nine essential elements of building this strategy.

What is a distribution network?

A distribution network consists of physical buildings that move products from suppliers and manufacturers through a distribution center that receives, stores and fulfills customer orders. This can include multiple distribution facilities that transfer items within the network, orders shipped to customers or retail stores and returns processing.

Designing a distribution network strategy using a digital twin

A distribution network strategy is built by focusing on nine elements within an organization's supply chain. Prior to building this strategy, it is important to fully understand and conceptualize your current network and product flow. This is accomplished by using a digital twin, a virtual representation of your network that can be manipulated to simulate change and improvement scenarios and their results. A digital twin will include all source, manufacturing and distribution points, customer locations, and all transportation lanes that support the network. Creating a digital twin will require loading an enormous amount of data, typically a year's worth of order and shipment history, performance and inventory metrics for each facility, as well as existing and potential transportation lanes.

Key elements of a supply chain network strategy

1. Network layout

A key output of a supply chain network strategy is the number, location, type and size of facilities in the network. Organizations must strategically locate facilities and adjust their size and throughput capacity to meet customer expectations and be flexible for future growth.

Another important factor to consider for these distribution facilities is what their role and mission are in the supply chain:

- Full-service distribution center (DC)
- Centralized (hub) DC
- Forward stocking DC
- Cross-docking center
- Import center
- Mixing center
- Returns center

2. Cost controls

As with most organizations, cost control is a primary focus. Understanding capital and operational costs and realized savings after implementation are important factors when evaluating and creating a strategy to optimize your distribution network. Operations will need to understand key service metrics that include time in transit, on time in full (OTIF), and carbon footprint impacts. Other essential costs to consider are:

- Variable facility costs
- Inbound and outbound transfer freight costs
- Inventory carrying costs
- Leasing or rental fees
- Labor costs and availability
- Maintenance and repair costs

3. Transportation

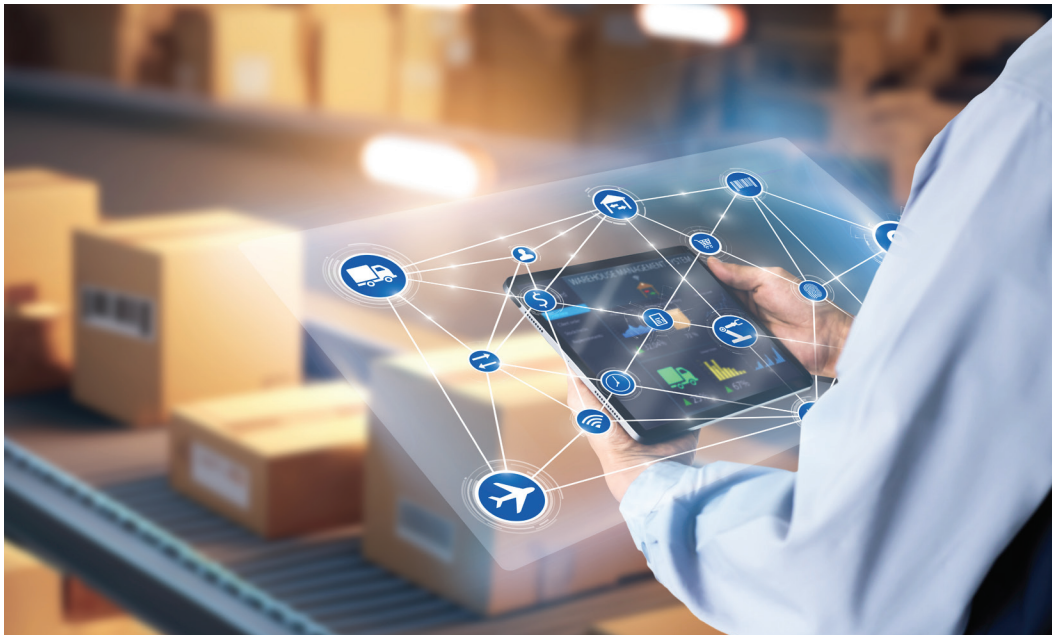
Transportation to and from a distribution operation can be as vital as the operation itself. A facility built on inexpensive land that lacks easy and shorter routes for trucks and air transport can hamper an operation's ability to meet customer demand. A sound network strategy should consider this, understand current transportation methods, and evaluate alternative options that can improve service and reduce costs.

4. Inventory

A thorough supply chain network strategy project will evaluate alternative inventory positioning strategies to improve service levels and reduce working capital. Performing a supply chain network strategy without evaluating inventory strategies can limit overall results and lead to a disappointing return.

5. Service

Service to the customer is a critical component of a supply chain strategy as it defines the intended and promised service (delivery time, return policy, credit and communications). This part of a strategy drives the number of facilities needed, their size, throughput and automation. For example, if your organization promises next-day delivery and free returns, you will need to calculate the labor, automation and delivery costs to decide if the service offering is feasible and realistic in peak and non-peak periods.



6. Business case

A key output of a supply chain network strategy is to develop a sound, data-backed business case before any investments are made to expand and optimize a supply chain network. The output of the supply chain model will be the return on investment (ROI) of the new network configurations over the status quo, called the baseline network. To create a business case, you must understand the investments required to build the network and compare them to the ROI to determine if the network changes have the intended return on investment.

7. Risk/continuity

Risk and continuity are key factors to examine in a supply chain network strategy as they test the flexibility and resilience of the supply chain network. Performing sensitivity analysis around key inputs in the supply chain network model can answer questions about how the network would react to outside forces like natural disasters, geopolitical unrest and economic instability. Some questions to consider in the analysis are:

- What if the labor market continues to tighten and the labor pool continues to shrink?
- What if diesel fuel increases by 50% over the next five years?
- What if there is a trucking or port strike that affects shipments?

You can also test a network's resiliency by modeling; for example, if you were to temporarily or for an extended period of time lose a node to a natural disaster or some other type of downtime event. Running virtual scenarios and models can help an organization understand its risk and continuity concerns and help prepare for them.

8. Qualitative factors

While many of the outputs of a distribution network strategy are quantitative in nature, there is more to it than numbers. It will also include many qualitative factors, such as:

- Implementation complexities and challenges
- Availability of internal and external resources to support the project
- IT network structure and software
- Sustainability

A solid distribution network strategy needs to consider both quantitative and qualitative factors.

9. Implementation roadmap

Developing an implementation roadmap is the final step in a distribution network strategy. This should include all major activities to move to the future state network and will typically include major activities such as:

- Acquiring a greenfield facility or renovating a brownfield site
- Creating an operational design, and processes and a plan for the automation to be used
- Implement distribution software such as a warehouse management system (WMS) or a warehouse execution system (WES)
- Lead times for material handling equipment manufacturing, installation, integration, and testing
- Plan for installation either in a new facility or in an operating facility
- Operational readiness and stress testing for the entire system
- Hiring new employees with skills needed for the new operation

Developing a realistic implementation roadmap, a vendor communication plan, as well as a plan to address integration obstacles can lead to a successful and on-time implementation.

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FORTNA CAN HELP

Developing a distribution network strategy can be challenging and complicated. Partnering with FORTNA can help simplify the complex while producing data-backed information that can confidently drive business decisions and position your business for growth. The FORTNA team of strategy and operation design experts can take you from the first steps of an optimization plan to a fully realized strategy.

Contact us today at **www.FORTNA.com**