



# Supply Chain & its current affect on NDT

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# Topic Discussions

- Supply Chain:
  - What is it?
  - Composition of a Supply Chain
  - Types of Supply Chain that are utilized
- Reasons for Supply Chain Issues & What has Covid done to our supply chain?
- How does Supply Chain work for the NDT market?
- Discussion



# Supply Chain – How does it affect the NDT Industry?

- A supply chain is a **network between a company and its suppliers to produce and distribute a specific product to the final buyer.** ... The supply chain also represents the steps it takes to get the product or service from its original state to the customer.
- Supply Chain Simple definition:
- In its simplest form a supply chain is the activities required by the organization to deliver goods or services to the consumer. A supply chain is a focus on the core activities within any organization required to convert raw materials or component parts through to finished products or services.
- Some examples of items impacted related to the NDT Industry:
  - NDT Consumables
  - NDT Accessories
  - NDT Capital Equipment



# Supply Chain

- Composition of a Supply Chain
- What I also consider a major part of the Supply Chain mechanism is labor force!



# 4 Components of NDT Supply Chain

- **Components to the evolution of a supply chain network:**
- Stage 1: Integration
  - Integration starts at your strategic planning phase.
  - Having a reliable source of information on your NDT supply chain to reduce or eliminate delays, shortages, and over/under-stocking allows you to plan ahead for all contingencies.
  - Assess your NDT supply needs and [ensure your choice gives you the right tools](#) to integrate your full supply chain solution while being flexible enough to change and grow with your business.



# 4 Components of NDT Supply Chain

- Stage 2: Operations
- Your operations require accurate and real-time stocking levels of your inventory based on production schedules in order to monitor and forecast scheduled and non-scheduled NDT activities.
- Align your operations with the rest of your business to provide accurate information on the production and current inventories for more efficient fulfillment processes.
- Improve your profitability by predicting likely interruptions and challenges to reduce their impact on your business and streamline your operational processes to facilitate [a smoother, less expensive path to fulfillment.](#)



# 4 Components of NDT Supply Chain

- Stage 3: Purchasing
- Sourcing products in your supply chain and ensuring you are taking advantage of the most competitive pricing and most reliable products.
- [Demand forecasting](#) gives you a solid and practical method of ensuring you have the right product, in the right quantity, at the right time.
- Keep track of suppliers, competing producers, and demand cycles, so that you can reduce your operating costs across the sourcing and purchasing process.
- Example: Demand of Supply Chain for NDT cycles
  - Purchasing NDT supplies in bulk amounts at set costs allows for consistent pricing for scheduled outages/shutdowns etc....



# 4 Components of NDT Supply Chain

- Stage 4: Distribution
- The transport, delivery, and return of goods is a component of your supply chain that can *always* be simplified, optimized, and corrected for better client service and reduced operating costs.
- With varying options of stock origin, your delivery and returns process should be centralized for a real-time view of inventory, order status and stock location regardless of whether an order originated in-store or online.





## 3 Major Inventory Management Styles

- Push Strategy:
- **The push strategy is when a brand is pushing out products based on expected or forecasted demand.**
- Instead of waiting for a customer to ask for a product such as in the pull model, brands leveraging the push strategy would create as many products as they think customers will demand and then wait for the requests to come in. In the [push strategy](#), it's easier to keep operating costs low because you're creating more products at one time, but there is also more risk involved compared to the pull strategy. If the demand for a product doesn't meet the forecasted levels, a brand could be left with serious excess inventory, driving down the cost of the product overall.
- Example: NDT Supplier Companies manufacturing too much Industrial X-Ray Film compared to existing needs to meet fluctuations in forecasted levels.



## 3 Major Inventory Management Styles

- Pull Strategy:
- **In a pull strategy, a brand is manufacturing inventory based on clear demand from customers.**
  - Essentially, customers are ‘pulling’ product from the brand, creating a two-way street of supply and demand. When customers demand a product, the brand will supply it. [Pull strategies](#) are good for brands looking to keep inventory costs low. However, if consumer demand changes rapidly, there can be problems adjusting output levels to keep up, which results in stocking out. The downside of stocking out is loss of demand and a drop in organic product ranking.
  - This could be anything from true “Make to Order” or based upon re-order points...Basically “water marks” for ordering level of stock.
  - Example: NDT Supplier Companies manufacturing Industrial X-Ray Film when an order is submitted. Companies most likely do not have ability to meet such demand in a short period of time.



## 3 Major Inventory Management Styles

- Just In Time Strategy
- **The just in time (JIT) inventory model is when products are created based on a demand schedule that will deliver the final product to a consumer right when they request it.**
- Elements from both the push and the pull strategy are evidenced in the JIT model as there is a *need for both outspoken demand from customers as well as a clear understanding of market forecasting to succeed.*
- The **JIT strategy** relies on *manufacturers having raw materials on hand but not actually creating products until the demand comes in, which can keep overhead costs low but can also create delays in delivering the end products to consumers.*
- Example: Manufacturing companies, **(such as aerospace or automotive)** that utilize NDT, order their product only at the time they are required to have it in their stock from their suppliers.



# Examples of Reasons for Supply Chain Issues

- Example(s): Non-Covid but can be enhanced due to Covid – Workers frustrated due to conditions or demands.
  - **China has rolling brown-outs:**
    - to meet the extremely high demand for energy in their country...This leads to factories and various manufacturing sites in the brown-outs.
    - Aluminum is hardened by Magnesium which is exported from China.
    - Due to Brown-outs, China then has limited capacity for Magnesium exports which in turn reduces supply of Aluminum cans for items such as food products.
    - Price for Aluminum and Magnesium are then also increased due to demand.
  - **Longshoremen Strike:**
    - Recently was an issue in Montreal, Canada. Labor force are unhappy with conditions and strike.
    - OR
    - Possible strike looming in US (Believe NYC). Longshoremen contract ends mid 2022. If strike ensues, Container shipping is either stopped or severely reduced.
    - Product which is needed, does not ship either exporting or importing.
  - **Weather:**
    - Container ships loaded with NDT supplies that are possibly lost at sea due to inclement oceanic weather



## Examples of today's issues due to Covid and how it affects logistics for NDT supply chain

- Worldwide – to reduce cases, countries systematically “shutting down” their borders. Cannot ship or receive product and still if shipments allowed, transportation vessels need to follow strict rules from residing country.
- Mass resignations. For example: Labor Force
- In North America:
  - ~18,000 open vacancies for Truck drivers in Canada
  - ~80,000 open vacancies for Truck Drivers in United States
  - Longshoremen – vacancies in work force due to Covid. Less than ideal number of person(s) to unload container vessels.
  - Lack of a full work force for Customs Inspection Agents
  - With increased Covid variants, employees may have increased absence from their positions due to individual companies Covid policies
  - All these and other reasons affect the transportation logistics in order to receive your products from the supply chain. Both Inbound and outbound including manufacturing.



# Congested Harbor Locations



# NDT Industry – things are sometimes hard to schedule

- End Users
- Does the NDT industry understand our customers expectations for their Industries?
- What are the Schedule/Service expectations for our NDT Customers?
  - Planned Shutdowns
    - Inspection companies can plan ahead of time and order products required to perform their work
  - Unplanned emergency work
    - Due to Covid, this makes these types of inspection jobs difficult because at the time, you may not have all the product needed to perform the work and due to Covid/Supply Chain issues, products are not readily available

**OUR Customers however EXPECT you to have the products needed readily available**





# Open Discussion