

# MBA: Supply Chain & Logistic Management

## 1. Supply Chain Basics



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# Supply Chain Management Basics



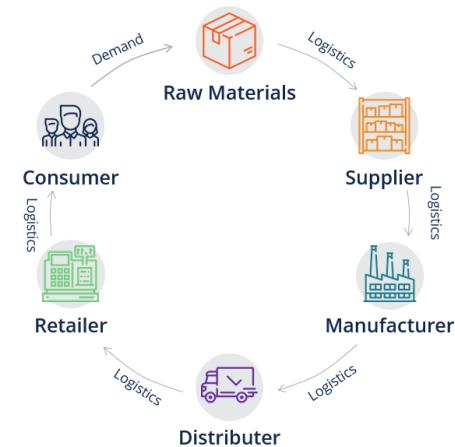
# What is a Supply Chain ?

An entire system of producing and delivering a product or service, from sourcing the raw materials to the final delivery of the product or service to end-users.

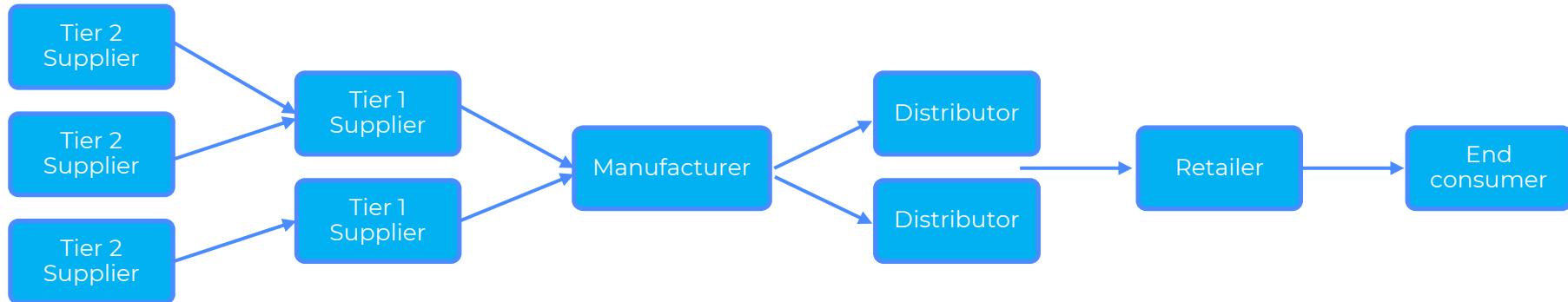
**Stage 1** Supply chain begins with the vendors or suppliers that provide raw materials.

**Step 2** Manufacturing converts the raw materials into products that are ready to sell.

**Step 3** Distribution through intermediaries like wholesalers, retailers, distributors, and even the internet.



# Process flow of a Supply Chain ?



The forward flow of Material and Goods

The reverse flow of Material and Goods

The flow of Money (Cash flow)

The flow of information (Both Direction)

# Supply chain example

**Generic Supply Chain** – Begins with the sourcing and extraction of raw materials which then reach to supplier and manufacturer with the help of a logistics provider and finally reaches the end consumer with the help of a retailer and wholesaler.

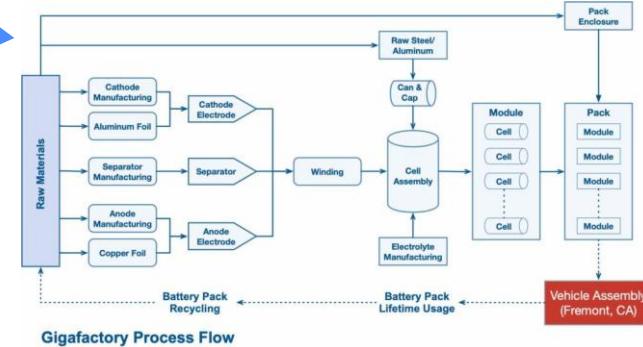
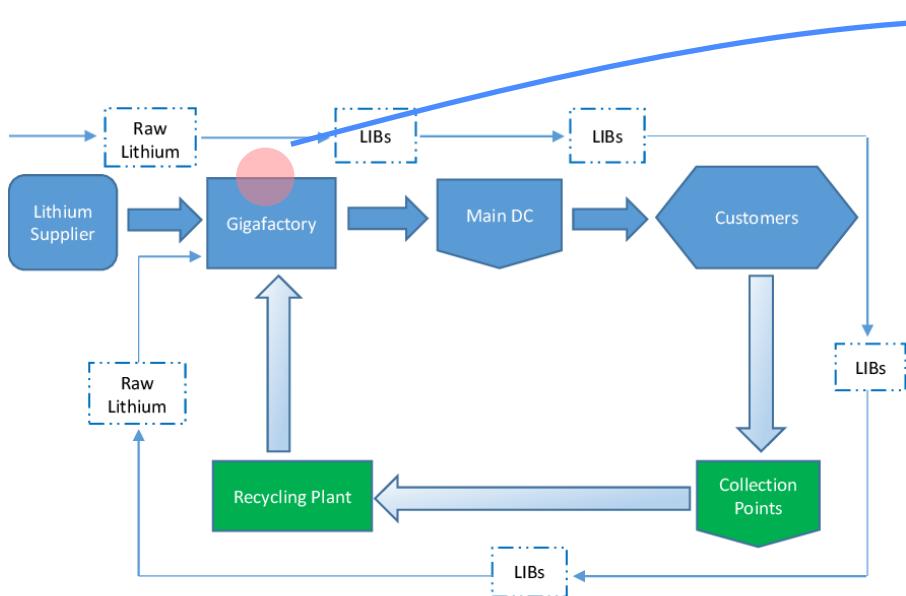


## Supply Chain for an e-Commerce Company

- The customer places an order on the website
- The website is powered by a third-party product such as Shopify.
- The payment processors like stripe, and paypal then accept the payment transactions on their behalf and update the order management system
- Order is then picked, packed and shipped directly to the end consumer using a third-party logistic provider like FedEx etc



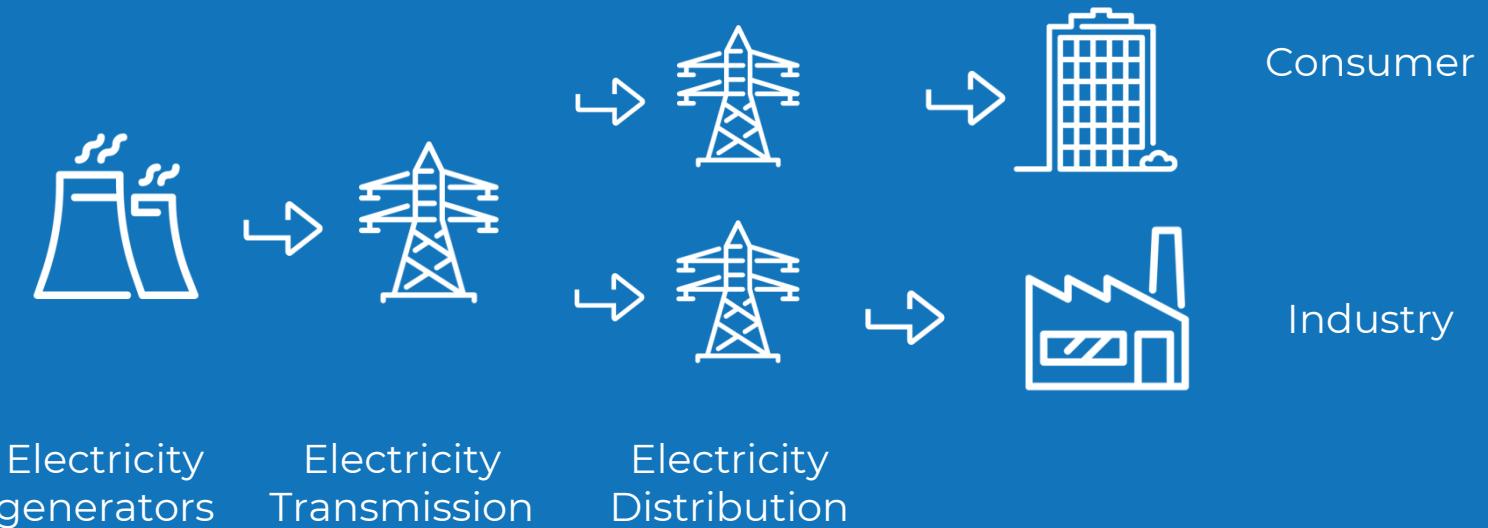
# Supply Chain of Tesla (Product) ?



Process flow in the supply chain

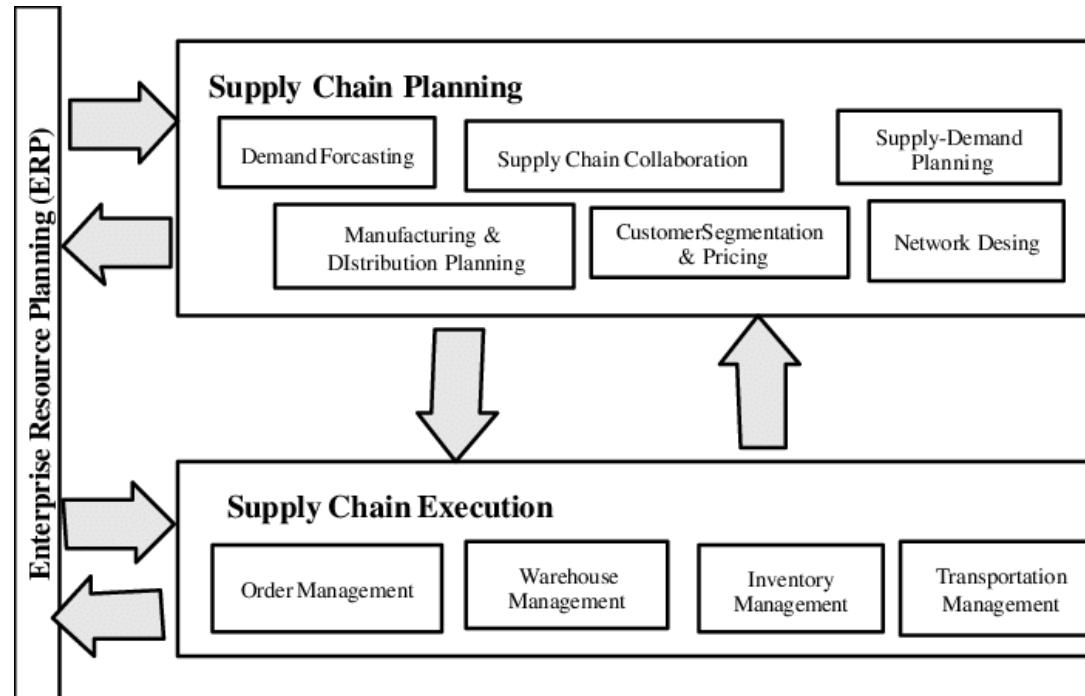
- |  |                               |  |                               |  |              |
|--|-------------------------------|--|-------------------------------|--|--------------|
|  | Forward logistics             |  | Manufacturing plant           |  | Supplier     |
|  | Reverse logistics             |  | Warehouse/DC                  |  | End customer |
|  | Material flow                 |  |                               |  |              |
|  | Forward supply chain facility |  | Reverse supply chain facility |  |              |

# Electricity supply chain (Service)

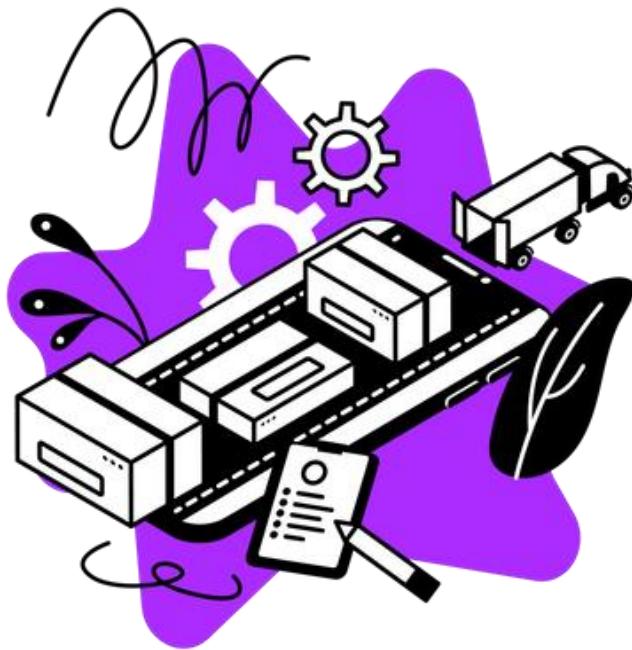


# Supply chain planning and execution

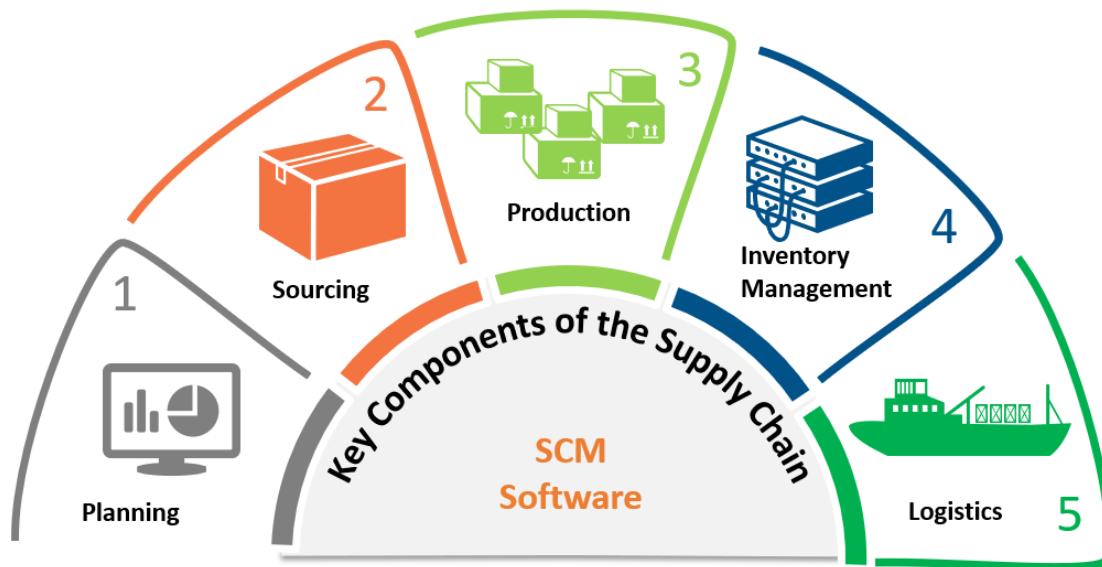
When it comes to supply chain keep this planning and execution system in mind



# Components of Supply Chain Management



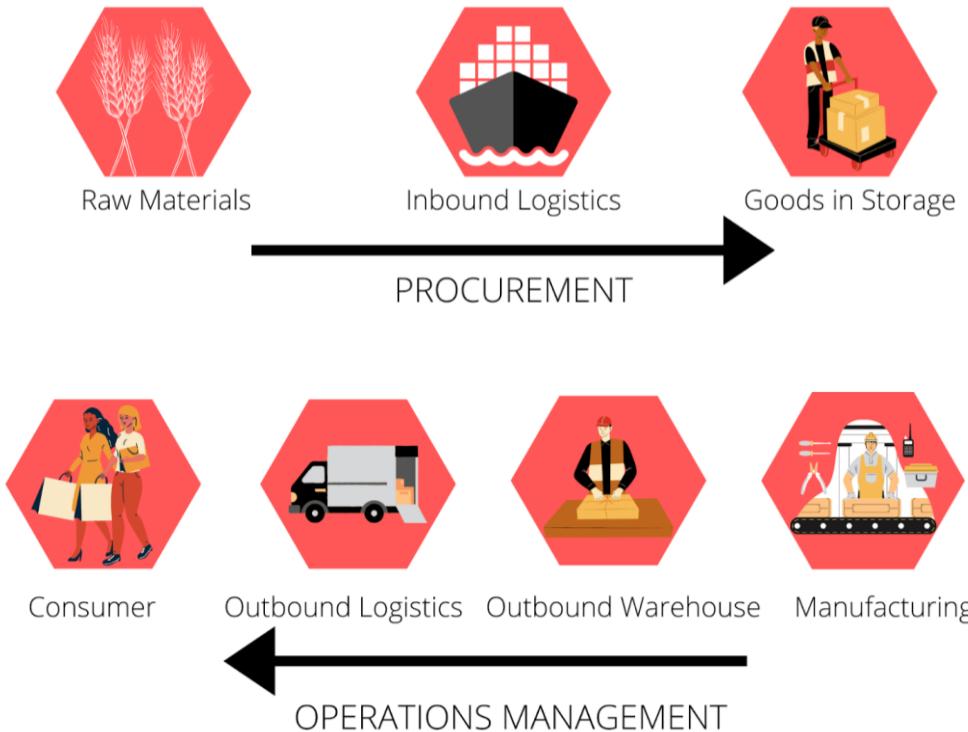
# Components of Supply Chain Management



# Components of Supply Chain Management



# Components of Supply Chain Management



# How does supply chain management work?

## 1. Planning

Plan and manage the sourcing of raw materials. So demand planning and lead time management to avoid stock out.

## 2. Sourcing

Choose suppliers to provide the goods and services.

- Right vendor offering the ideal price
- Capacity to deliver required volumes
- Turnaround time.

## 3. Manufacturing

Organize the activities required to accept raw materials, manufacture the product, test for quality, a package for shipping and schedule for delivery.

## 4. Inventory

- Enough raw materials
- Inventory turnover ratios



# How does supply chain management work?

## 5.Delivery and Logistics

Coordinate customer orders, schedule deliveries, dispatch loads, invoice customers and receive payments.

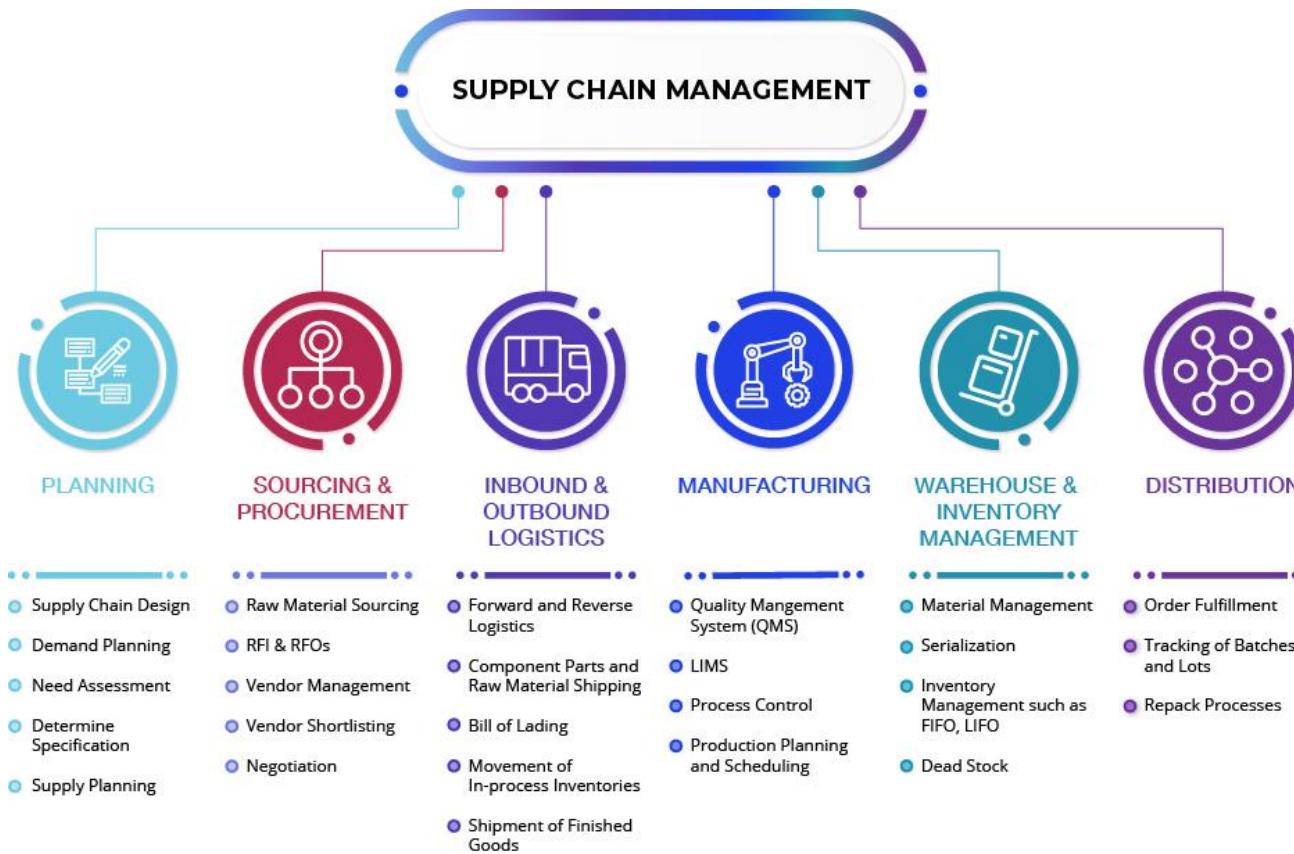
- Storage space
- Volume
- Logistic cost

## 6.Returning

Create a network or process to take back defective, excess or unwanted products.



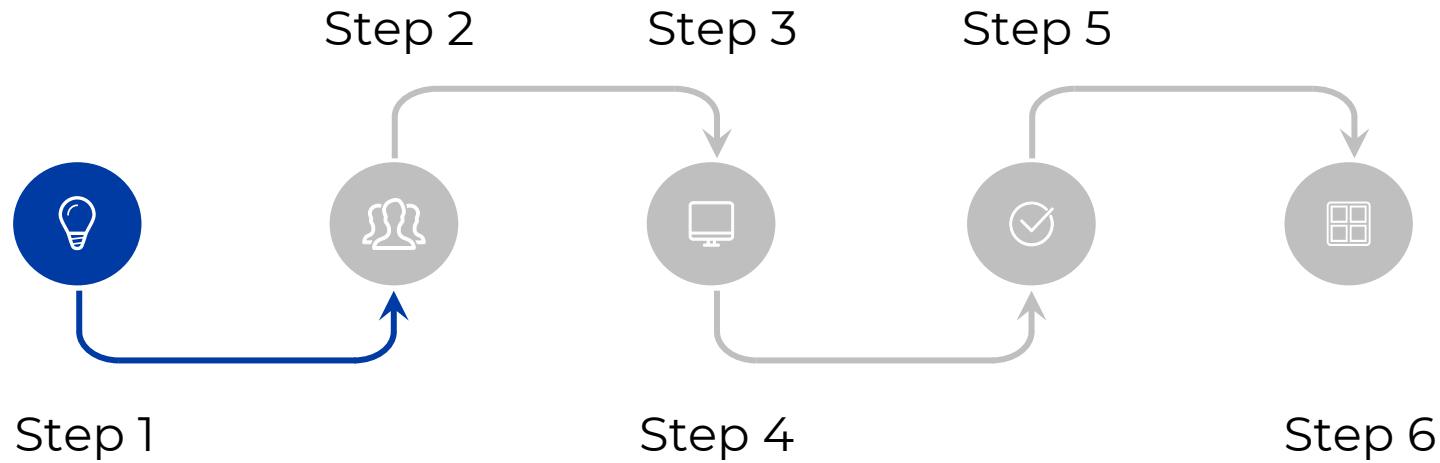
# How does supply chain management work?



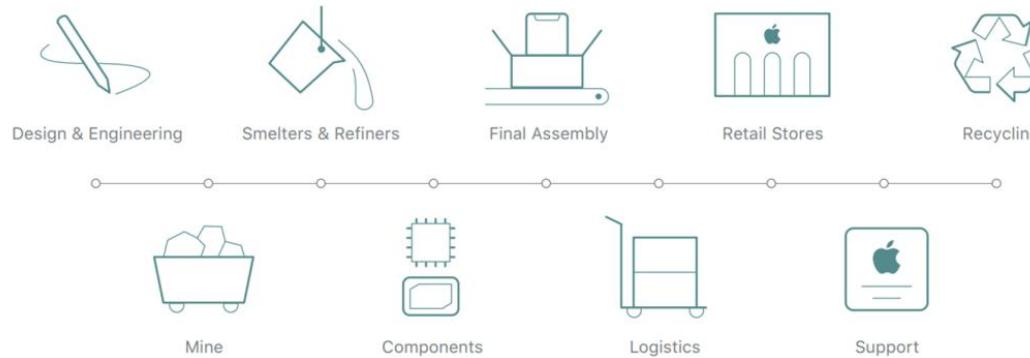
# Supply chain of your favourite product - Assignment



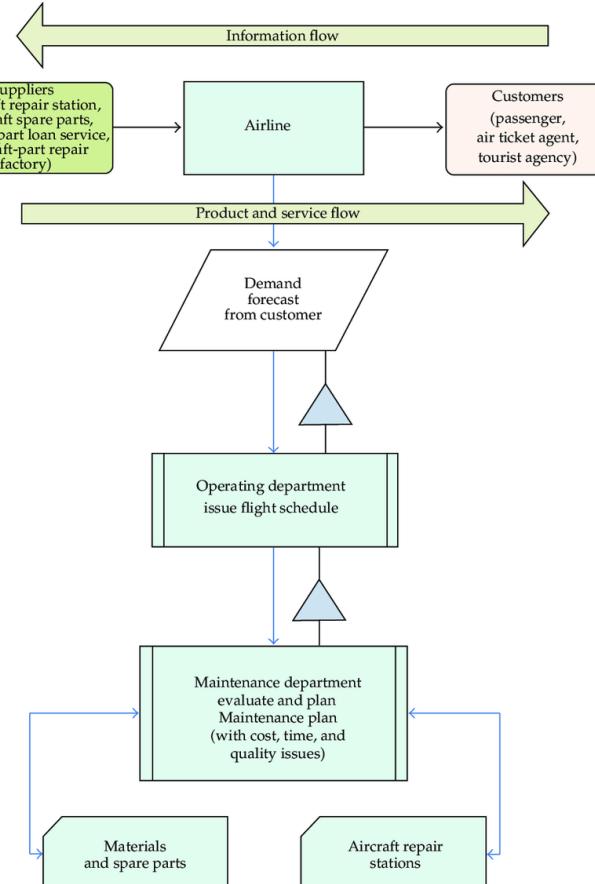
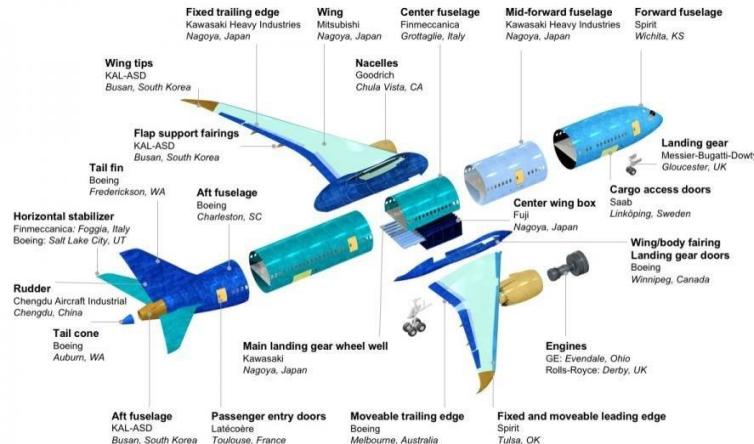
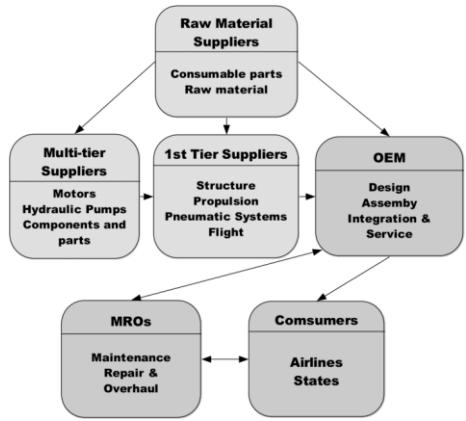
# Supply chain of your favourite product - Assignment



# The global supply chain of Apple - Assignment Example



# The global supply chain of Boeing – Assignment Example



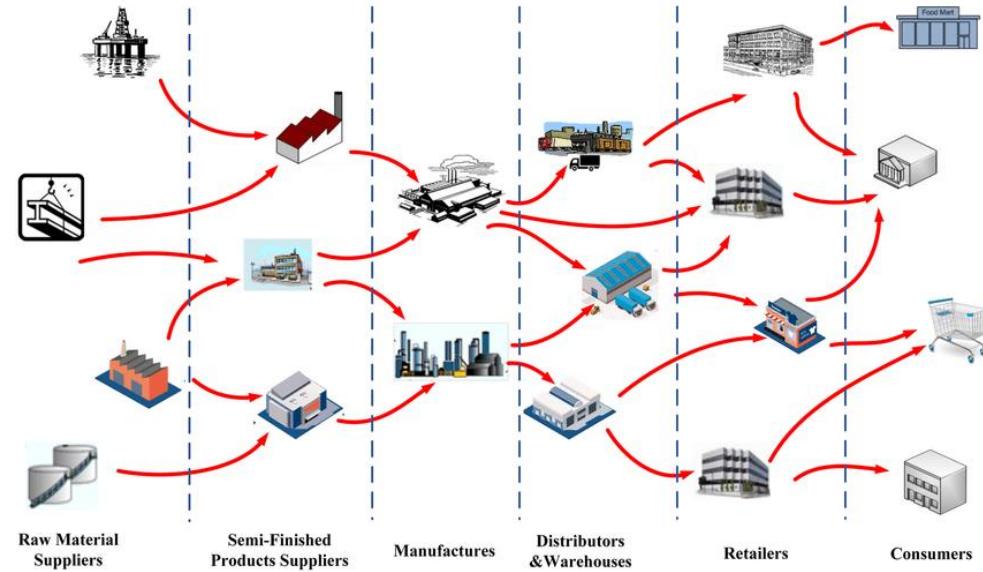
# Factors impacting Supply Chain Complexity



# Factors impacting Supply Chain Complexity



Simple  
Supply chain



Complex  
Supply chain

# Factors impacting Supply Chain Complexity

Supply chains are made from combinations of four entities, and the interactions between those entities are what drive supply chain operations and complexity

The four entities are:

**Product** — things in demand at various facilities

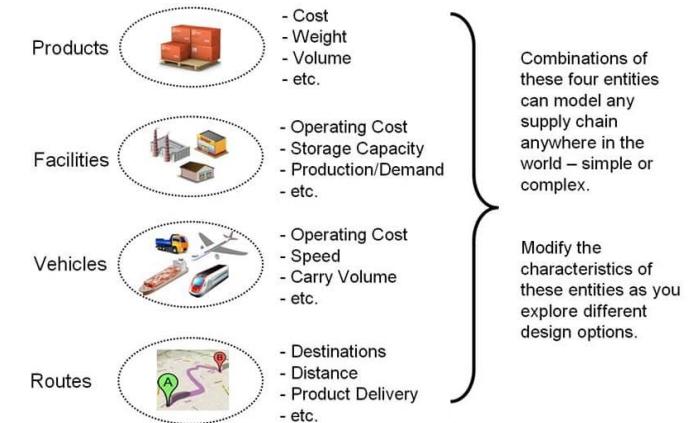
**Number of components** – iPhone have thousands of components in it.

**Permissibility and availability** – How fast you want the product

**Facilities** — places where products are made, stored, sold or consumed

**Vehicles** — mechanisms to move products between facilities to meet demand

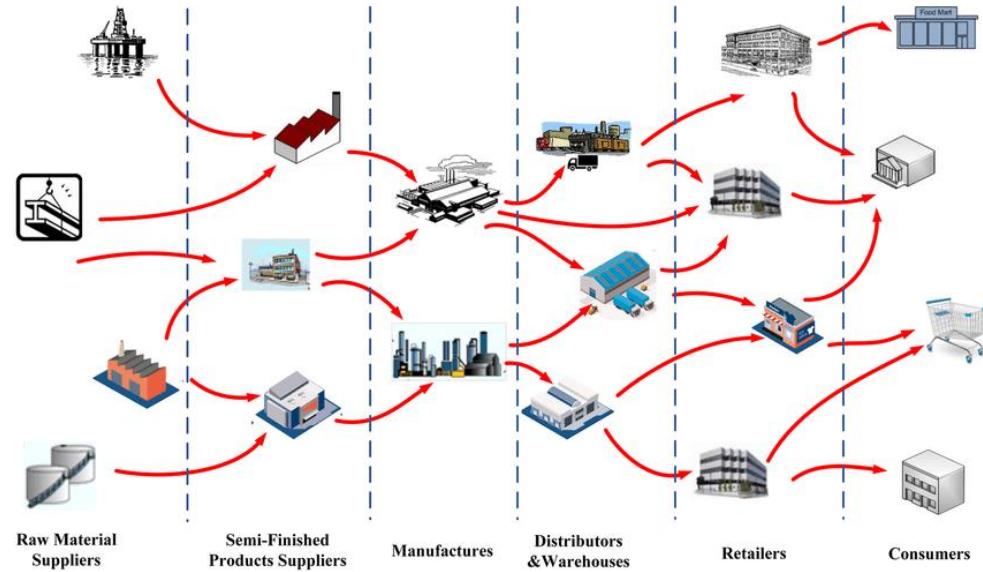
**Routes** — paths are taken by vehicles to move products between facilities



# Product type deciding Complexity in Supply Chain

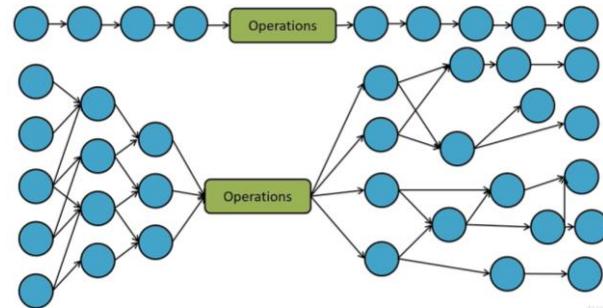
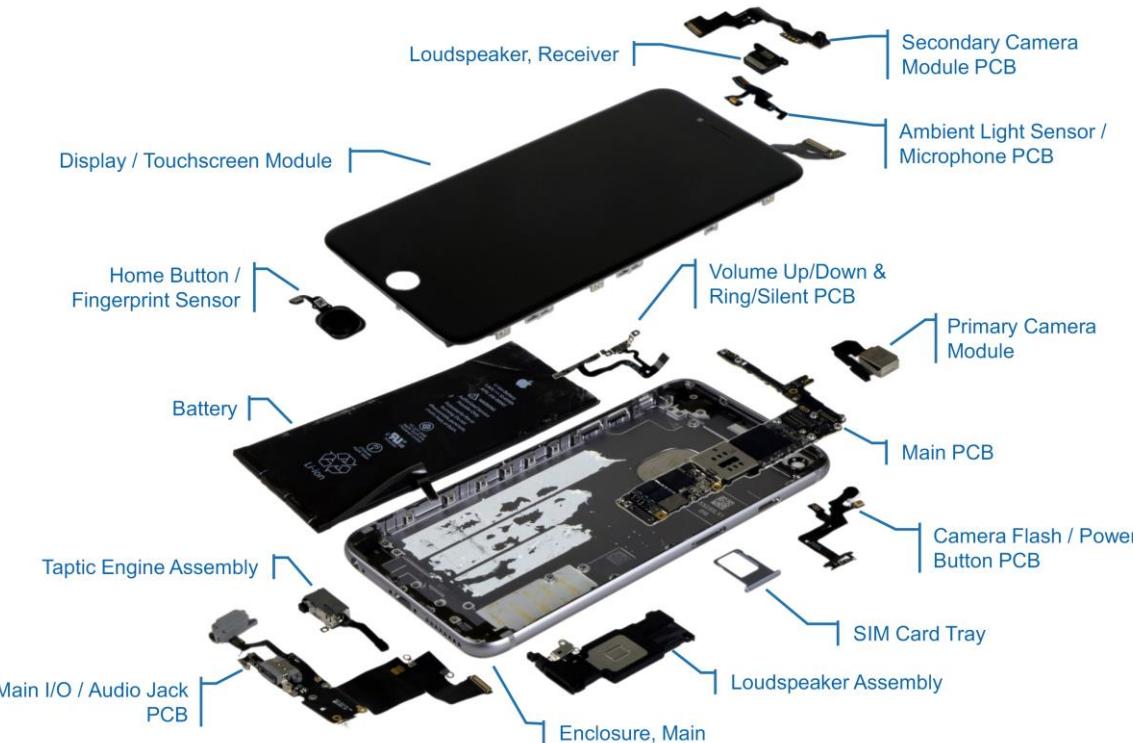


Supply chain of  
tissue paper



Supply chain of  
mobile phone

# Product type deciding Complexity in Supply Chain



Innovative and functional product

# Business model deciding complexity in supply chain

## Traditional Retailer



Manufacturer



Wholesale



Distributor



Retailer



Consumer

Good customer service  
More visibility  
Higher cost structure

## Direct-to-Consumer



Manufacturer



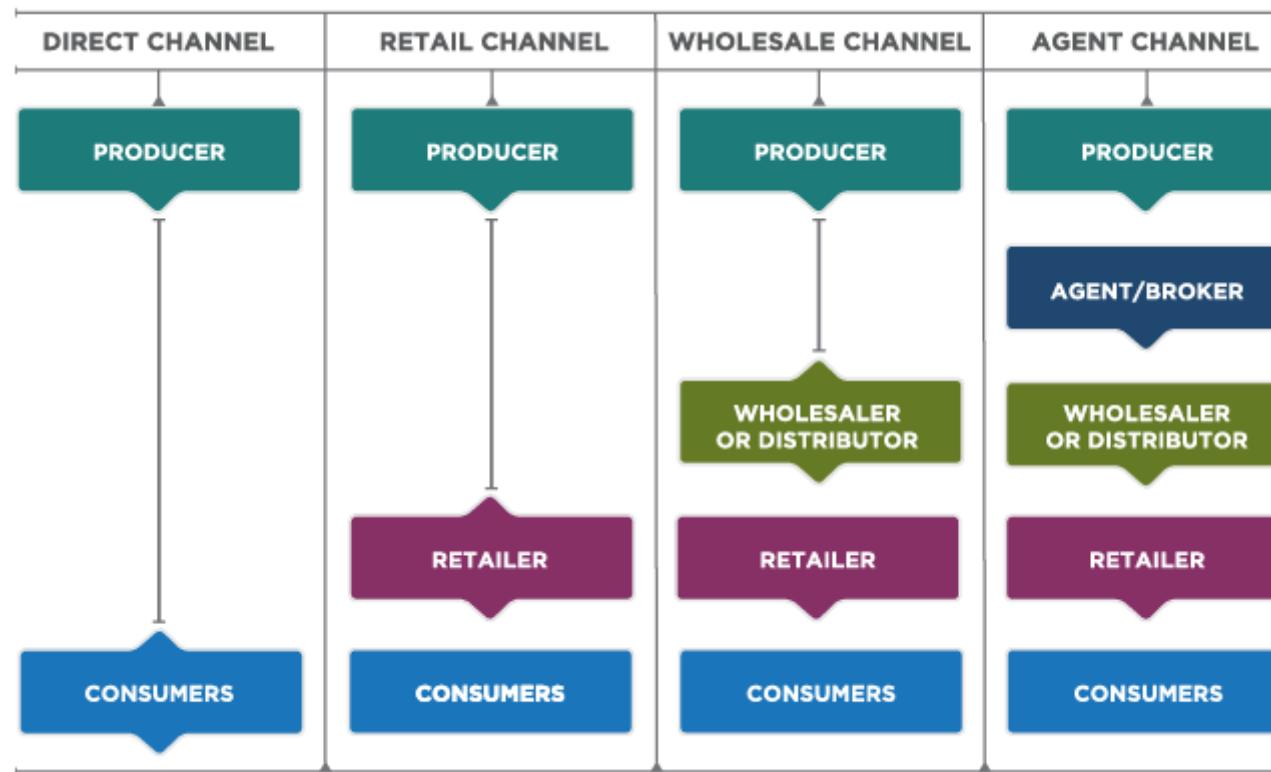
Wholesale



Consumer

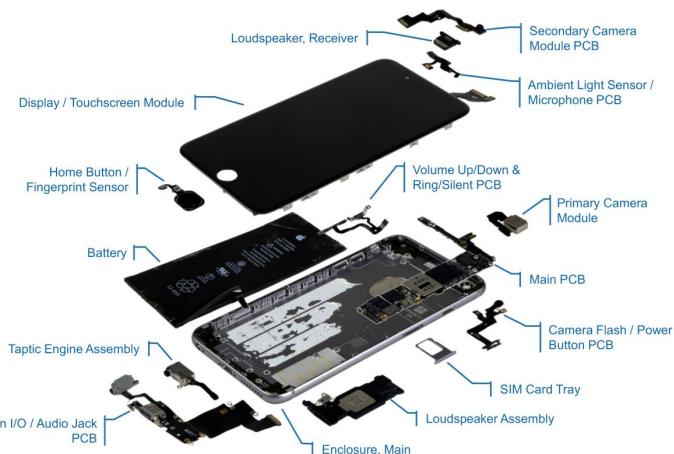
Bad customer service  
Less visibility  
Lower cost structure

# Distribution channels in supply chain



>More about this in d2c, distribution, logistic videos

# Apple components supplier/partners - Assignment

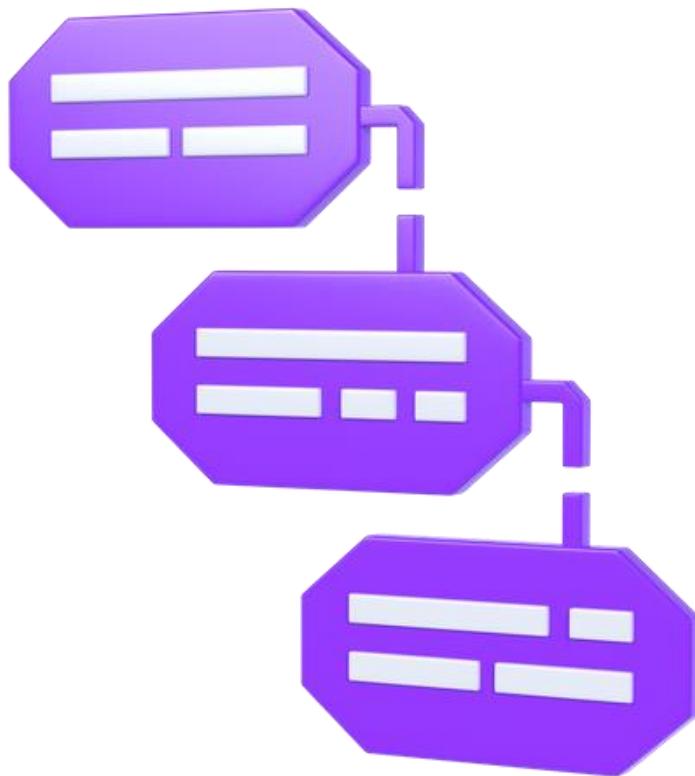


**FOXCONN**

**SAMSUNG**



# Upstream and downstream Supply Chain ?

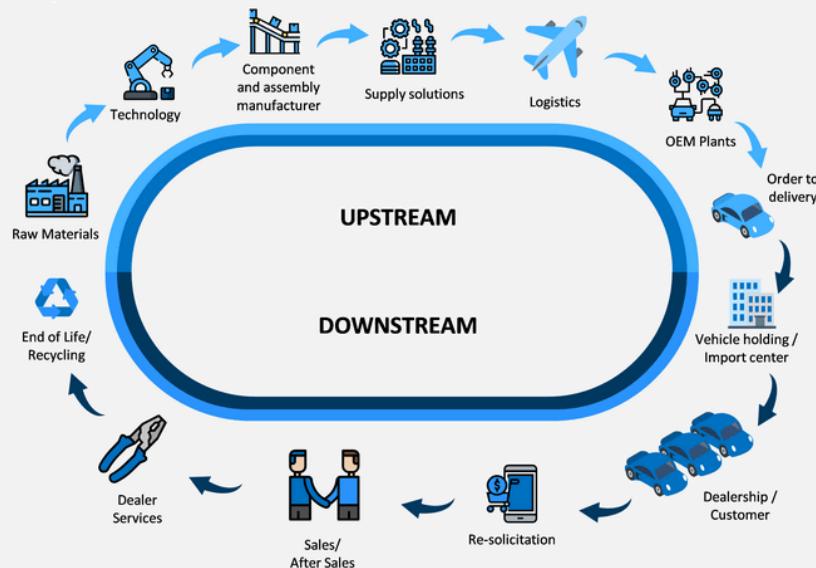


# Upstream and downstream Supply Chain

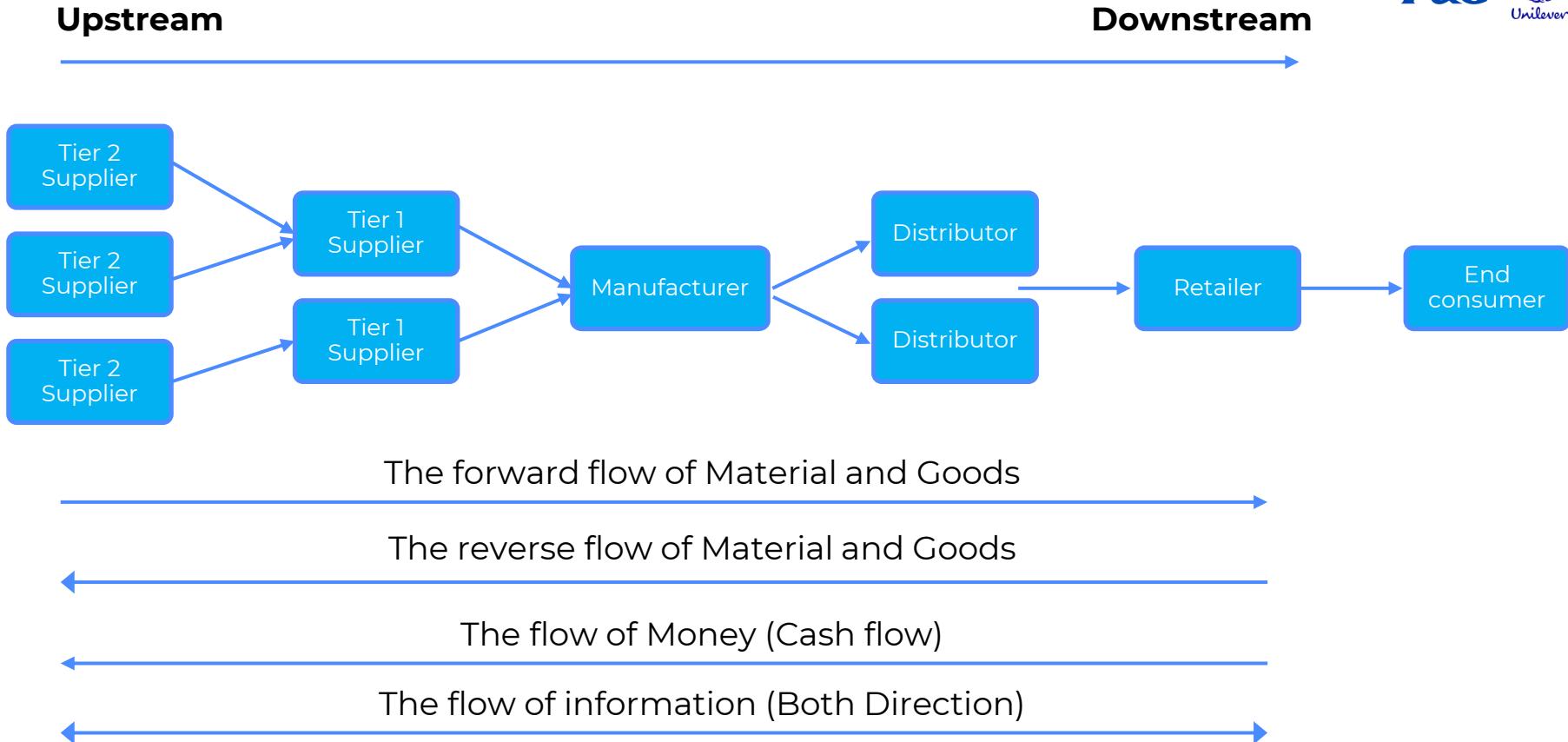
These different stages within the supply chain are referred to as upstream or downstream.

**Upstream operations** are those in which the materials flow into the organization.

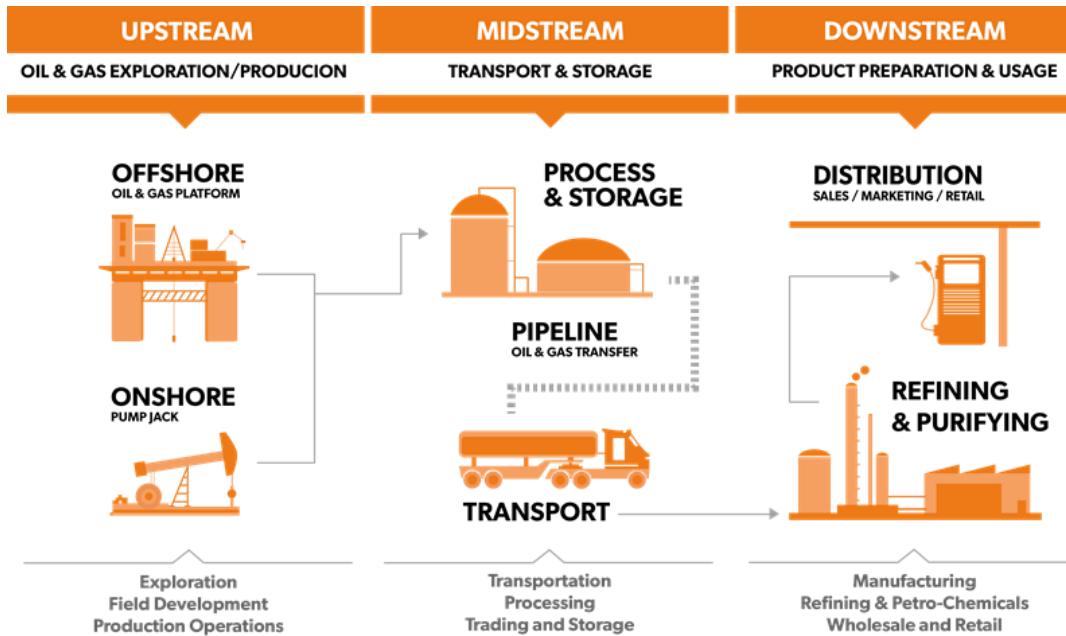
**Downstream operations** are those in which materials (mostly in the form of finished products) flow away from the organization to the customers.



# Process flow of a Supply Chain ?



# Upstream and downstream Supply Chain



# Vision, Goal and Objective/Core Values of a company



# Vision, Goal and Objective of a company

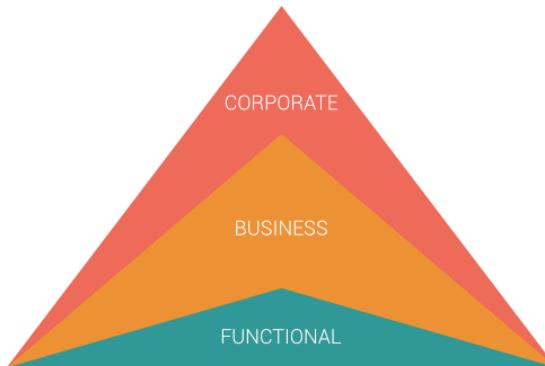
**“Begin with the end in mind,”**

Stephen Covey in his book “The 7 Habits of Highly Effective People,”

This means a company needs to focus on achieving its long-term goals and aspiration before even attempting to accomplish anything.

# Vision, Goal and Objective of a company

Why do we need these in the supply chain course?



The entire corporate level and functional level strategy works towards achieving these vision, mission, goals and objective

# Vision, Goal and Objective of a company

**Vision Statements** - Paint the future in the next 5-10 years.

**Mission statements** – Fundamental reason why you exist today.

**Goals, Objectives and Values**



# Vision

A vision statement paints a picture of **where** you are going and **why** you want to go there.



Paint the future in the next 5-10 years.

# Vision Statement

## **Where and why**

Where are you going as a company?

What does success look like in the future for you?

## **Example:-**

Company XYZ wants to be a leader in the manufacturing of Electric vehicles

## **A vision statement should be :**

- Short and Brief
- Written in simple language
- Crystal Clear and should complete from all aspects
- Non-ambiguous and Non-conflicting
- Motivation for employee

# Mission

Mission talks about the “What’s the fundamental reason why you came in this business ”  
(Purpose for existing)

Example:-

Company XYZ wants to make the most compelling car of the 21<sup>st</sup> century.

The mission statement explains the company’s reason for being **present**, while the vision gives its purpose for the **future**.

These two Mission and Vision defines the overall growth strategy of any company



## **Vision statement:**

“To accelerate the world’s transition to sustainable energy.”

## **Mission statement:**

To create the Most compelling car company of the 21st Century by driving the World’s transition to electric vehicles.



## **Vision statement:**

To provide access to the world's information in one click.

## **Mission statement:**

Organizing the world's information and making it  
universally accessible and useful



## **Vision statement:**

Our vision is to be earth's most customer-centric company; to build a place where people can come to find and discover anything they might want to buy online.

## **Mission statement :**

We strive to offer customers the lowest possible price, the best available selection, and the utmost convenience

# Goals- SMART

Goals are defined from what company wants to realize (profit or good customer service)

These should be measurable hence we use SMART (Specific, Measurable, Attainable, Realistic and Timebound).

Say for example our one of goals could be to have 15% increase in revenue or 10% decrease in non-value added activities.



# Objectives

**Objectives are the specific actions taken to achieve these goals**

Example:-

Goal - “Increase revenue by 10% and decrease waste reduction by 5%”.

**The objective for Goal 1**

“Increase revenue by 10%” – Just Add 5 new customers and retain at least 2 customers.

**The objective for Goal 2**

“Decrease waste reduction by 5%” - Optimize the process Or outsourced some processes to save cost and time.

# Amazon Mission and Vision Statement Analysis

How Amazon's mission and vision statements, and core values paved the way for the company's leadership in the industry.

# Amazon Vision Statement

## **Vision statement:**

Our vision is to be earth's most customer-centric company; to build a place where people can come to find and discover anything they might want to buy online.

# Amazon Mission Statement

## **Mission statement :**

We strive to offer customers the lowest possible price, the best available selection, and the utmost convenience

# Amazon Mission and Vision Statement Analysis

For you to understand how they do it you have to understand their flywheel diagram



# Goal of Supply chain

Improve the overall organization performance and customer satisfaction

Right Product



Right Place



Right Quantity



Right time



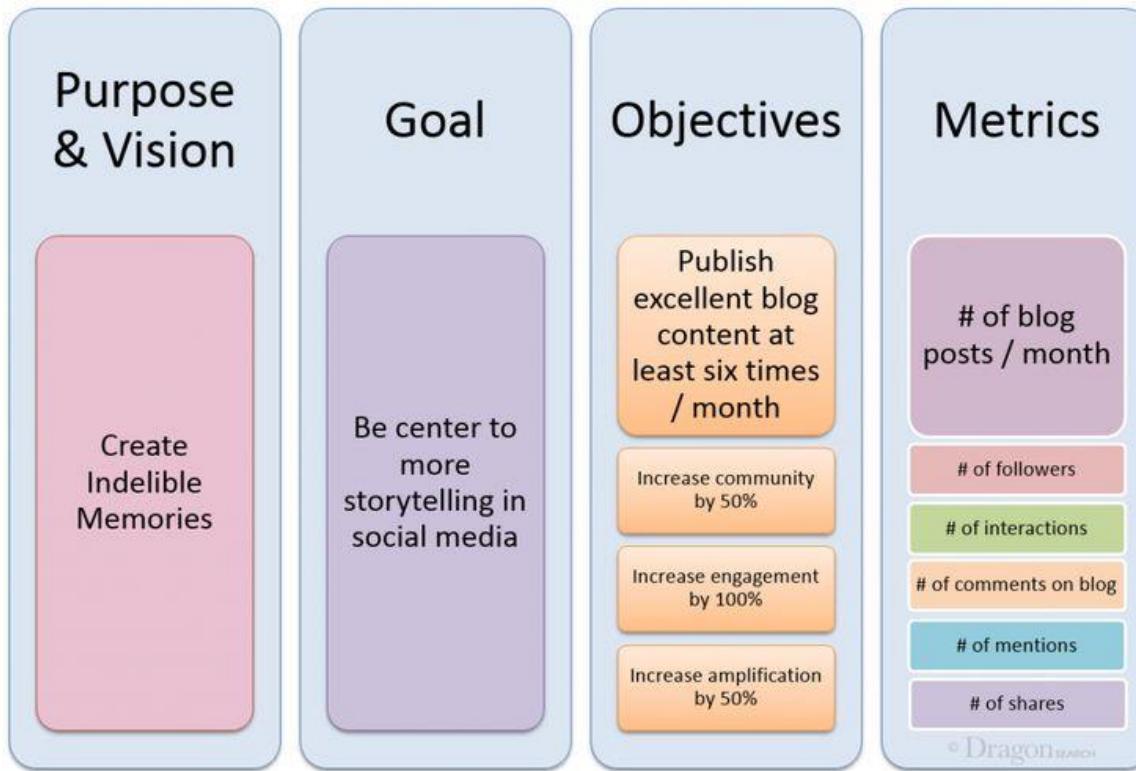
Right Quality



Right Cost



# Vision, Goal and Objective of a Digital Marketing firm



-> Let's move forward this is not a human resource management course

# Supply Chain objective

Implementing 3V in achieving supply chain objective

## 1. Increase Visibility

It is the ability to view important information throughout the supply chain like order tracking, fleet management and stock management etc

Example :- Your amazon order

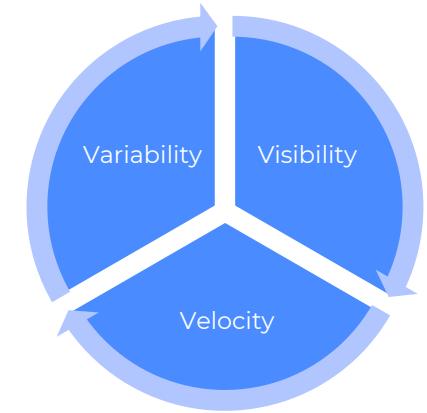
## 2. Increase Velocity

The relative speed of all transactions within a supply chain indicates a higher **asset turnover** and faster **order-to-delivery**

Example – Faster delivery(OTD) on amazon means more orders on amazon which further means higher assets turnover

### Ways to faster the delivery time

- Distribution centre or warehouse
- Catalogue limitation (Top selling product in the category is prime)
- Prime umbrella for stickiness and flywheel.



# Amazon Flywheel powering efficient supply chain



# Supply Chain objective

**Reduce variability** – The natural tendency of a business to fluctuate above or below an average value. It can in the form of lead time, demand variability, defect rate or daily sales

Puori Vegan Plant Protein Enhancer Powder - 25 Servings - Neutral Flavor  
Pea Protein with Algae Calcium for Essential Amino Acids - Dairy-Free, Vegetarian, Non GMO

Visit the Puori Store

★★★★★ 91 ratings | 5 answered questions

Price: \$26.99 (\$1.08 / Count) & FREE Returns

Get \$10 bonus when you reload \$100 or more to your gift card balance.

Ingredients Pea Protein, Algae Calcium

Brand Puori

Allergen Information Dairy Free

Diet Type Vegetarian, Vegan

Protein Source Pea

## About this item

- WHY DID WE MAKE PB: Puori Plant Protein Booster is a calcium fortified vegan protein powder intended to be used as a booster in shakes and food recipes. We developed the product to make it easy for people eating a predominantly plant-based diet to reach the desired daily intake of protein and calcium

One-time purchase: \$26.99

FREE delivery: Wednesday, Sep 1  
Ships from: Amazon  
Sold by: Puori Inc

Subscribe & Save: 10% 15% \$24.29 (\$0.97 / Count)

Unlock 15% by adding this product and 2 more to your next delivery. [Learn more](#)

First delivery on Sep 13 change

In Stock.

Qty: 1

Deliver every: 1 month (Most common)

[Set Up Now](#)

Auto-deliveries sold by Puori Inc and Fulfilled by Amazon

## All eligible product categories

5 %  
Discount

# 4 subscriptions or fewer

Different delivery dates

15 %  
Discount

# five subscriptions or more

Same delivery date

Other strategies to reduce variability is :  
Safety stock, bullwhip effect, back order etc

# Supply Chain KPIs & Metrics



Your financial and operational reporting made easy. [Click here for a demo.](#)

Supply Chain KPI



### Inventory Days of Supply



### Supply Chain Costs / Sales



### Inventory Turns



### On Time Deliveries



### Annual Supply Chain Costs / Sales



# Vision, Goal and Objective of supply chain management

## Purpose & Vision

Create Indelible Memories

## Goal

Be center to more storytelling in social media

## Objectives

Publish excellent blog content at least six times / month

Increase community by 50%

Increase engagement by 100%

Increase amplification by 50%

## Metrics

# of blog posts / month

# of followers

# of interactions

# of comments on blog

# of mentions

# of shares

# Goals of supply chain management

**The functional goal is efficiency: operating as smoothly as possible.**

Proper SCM removes friction throughout a company's supply chain: procurement and manufacturing, receiving and warehousing, picking, packing, and fulfilment, as well as reverse logistics (returns).

This means mapping your supply chain to ensure visibility and clear communication at each point:

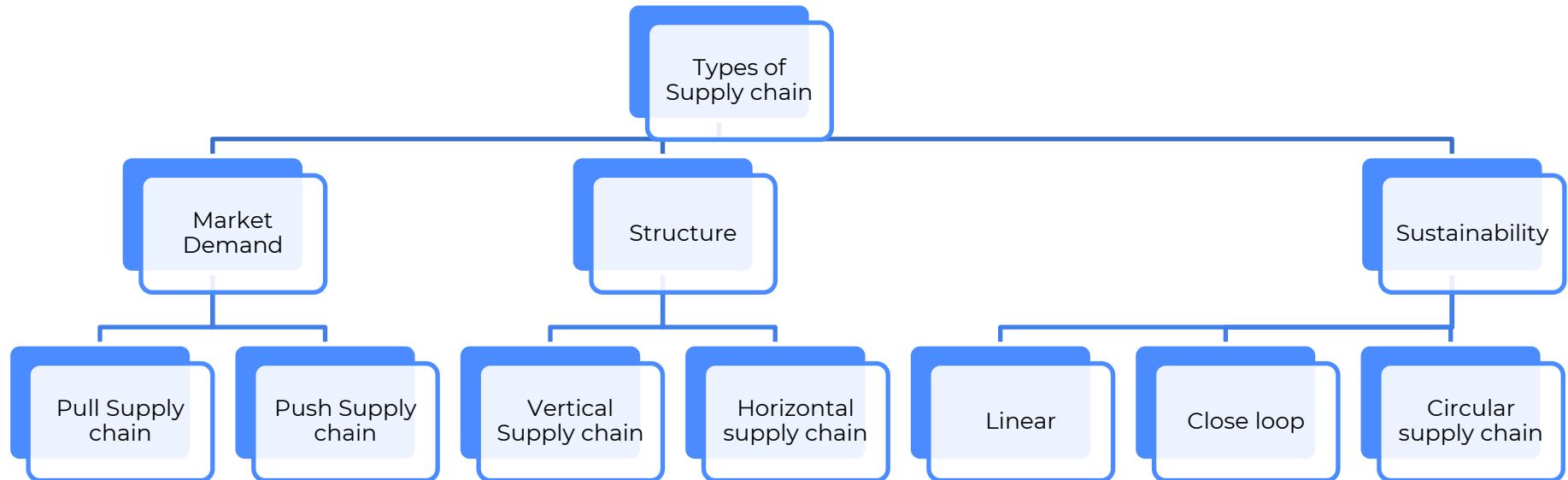
- Sourcing
- Manufacturing
- Shipping and receiving
- Distribution
- Reverse logistics



# Types of supply chain



# Types of supply chain



# How does supply chain management work?

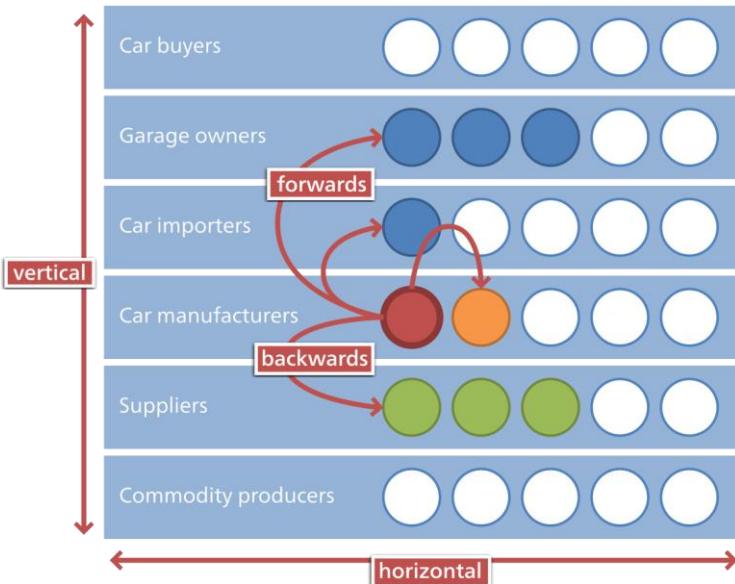


# Vertical and horizontal supply chain

In a **Vertical supply chain**, the company takes complete control over one or more stages in the production or distribution of a product.

**Example Tesla, Apple**

In **Horizontal supply chain** is the acquisition of business activities that are at the same level of the value chain in similar or different industries.  
Example – Foxconn, Nvidia



# Vertical and Horizontal supply chain

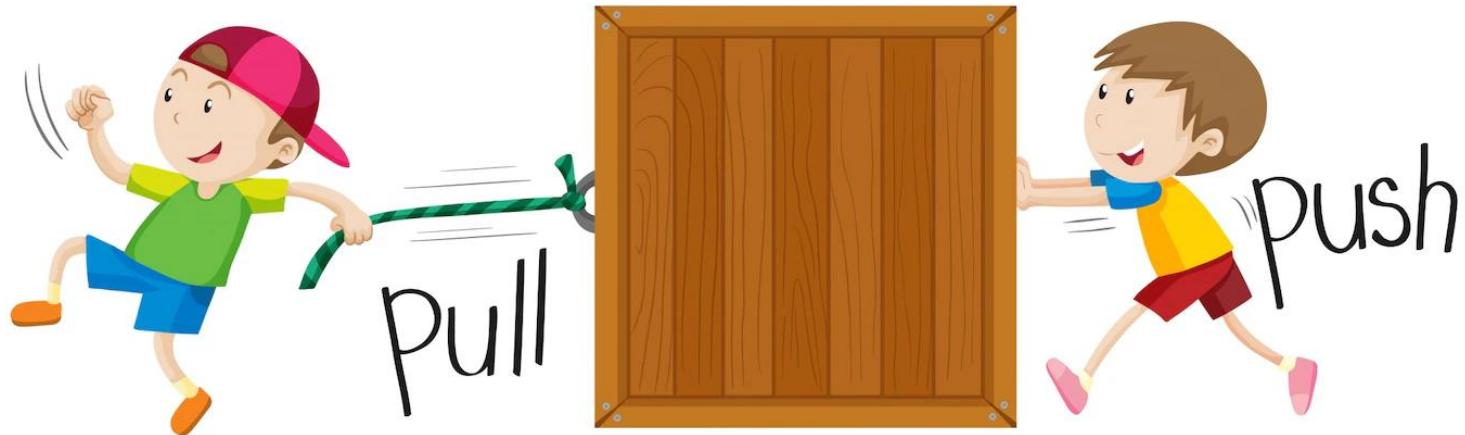
		Traditional Car Company	Waymo	Tesla 2018	Tesla 2021
Compute Hardware	Training Computer	Outsourced	Vertically Integrated	Outsourced	Vertically Integrated
	Self Driving Computer	Outsourced	Vertically Integrated	Outsourced	Vertically Integrated
AI Software	Neural Network	Vertically Integrated	Vertically Integrated	Vertically Integrated	Vertically Integrated
	Data Labeling	Outsourced	Vertically Integrated	Outsourced	Vertically Integrated
	Simulation	Outsourced	Vertically Integrated	N/A	Vertically Integrated
Automotive Hardware	Battery Design	Vertically Integrated	Outsourced	Vertically Integrated	Vertically Integrated
	Manufacturing	Vertically Integrated	Outsourced	Vertically Integrated	Vertically Integrated
Sales & Services	Charging Stations	Outsourced	Vertically Integrated	Vertically Integrated	Vertically Integrated
	Showrooms	Vertically Integrated	N/A	Vertically Integrated	Vertically Integrated
	Fleet Management	N/A	Vertically Integrated	N/A	N/A

█ Vertically Integrated   
 █ Outsourced   
 █ N/A



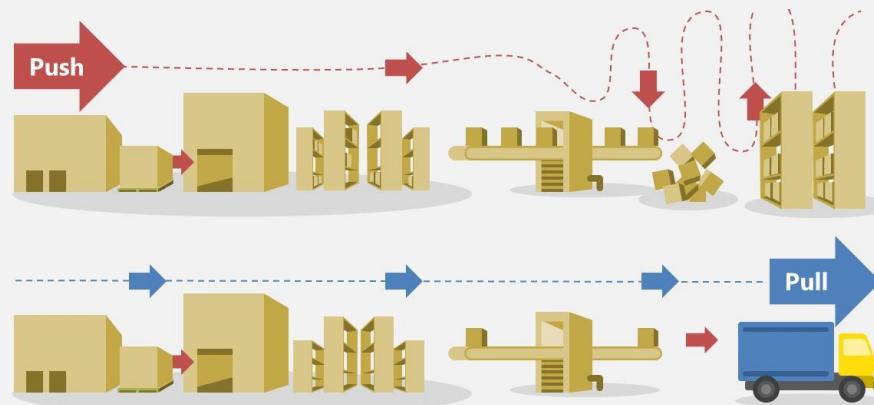
Source: ARK Investment Management LLC, 2018 | ark-invest.com

# Pull and Push supply chain



# Pull and Push supply chain

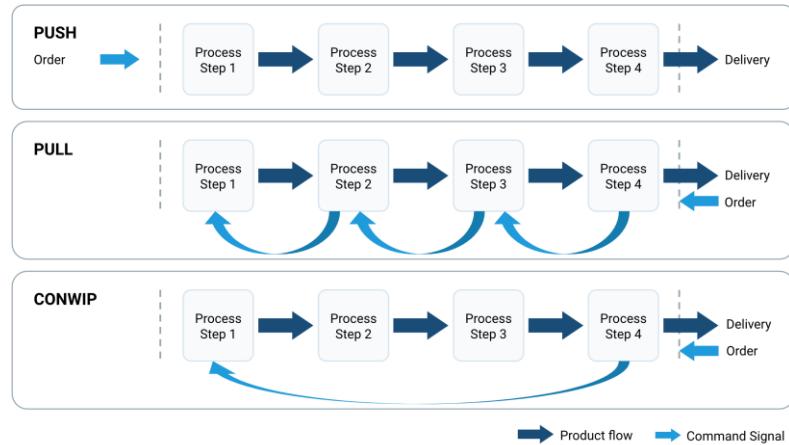
In the pull system, production orders begin upon inventory reaching a certain level, while in the push system production begins based on demand (forecasted or actual demand).



# Pull and Push supply chain

**Push-based supply chain** as products is pushed through the channel from the production side to the retailer.

- The manufacturer sets production levels with historical ordering patterns from retailers.
- Great cost advantages due to economies of scale
- It takes longer for a push-based supply chain to respond to changes in demand which can result in overstocking or bottlenecks and delays (the bullwhip effect)

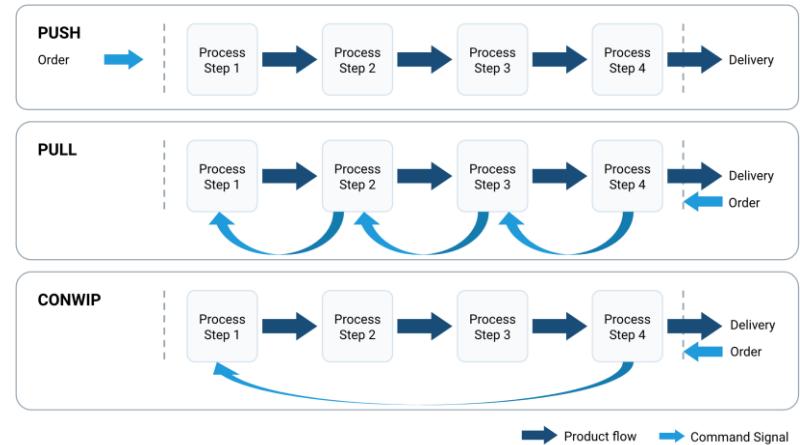


# Pull and Push supply chain

**Pull-based supply chain**, procurement, production and distribution are demand-driven rather than a forecast.

The characteristic is

- Used when there is a high demand uncertainty
- No economies of scale
- Require flexible manufacturing facility
- Used more in innovative products and expensive product

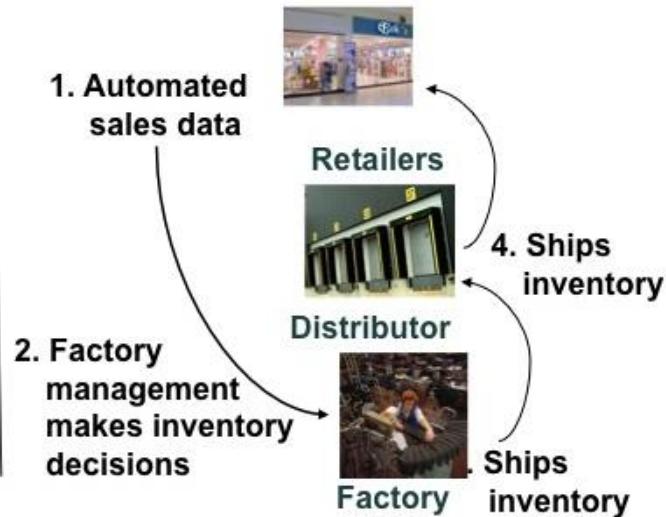


# Summarising pull and push supply chain

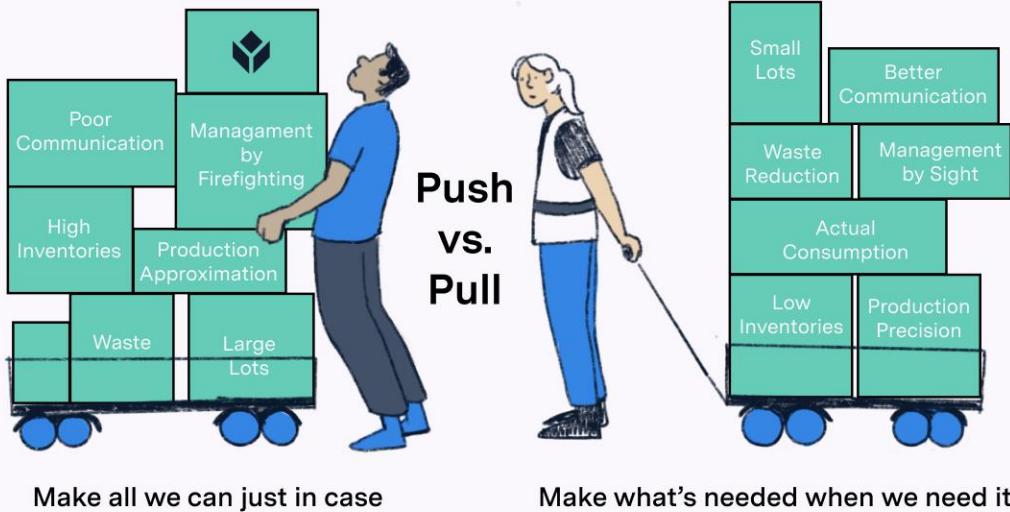
## Pull system



## Push system



# Summarising pull and push supply chain

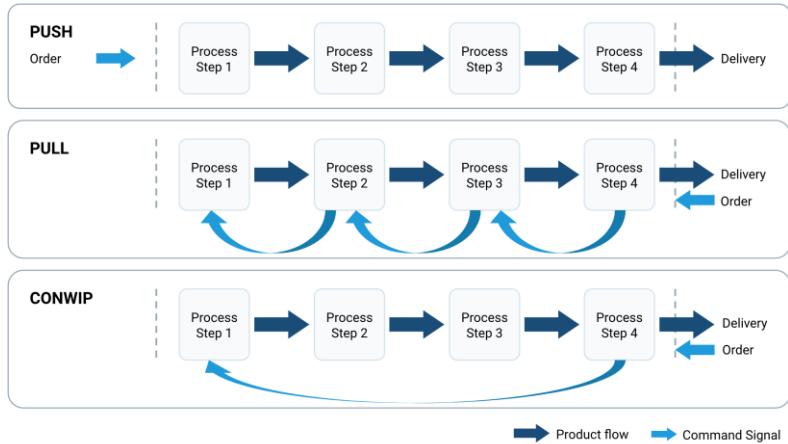


# The Benefits of Using a Hybrid Push-Pull Strategy

As with Just-in-Time vs Just-in-Case, Push vs Pull is not black and white.

Most companies have some sort of a hybrid of the two, on a spectrum between the two ends.

The push-pull strategy is usually suggested for products with **high demand uncertainty** and high importance of **economies of scale**.



## Example

Toyota Motors follow the "supermarket model" where limited inventory is kept on hand and is replenished as it is consumed.

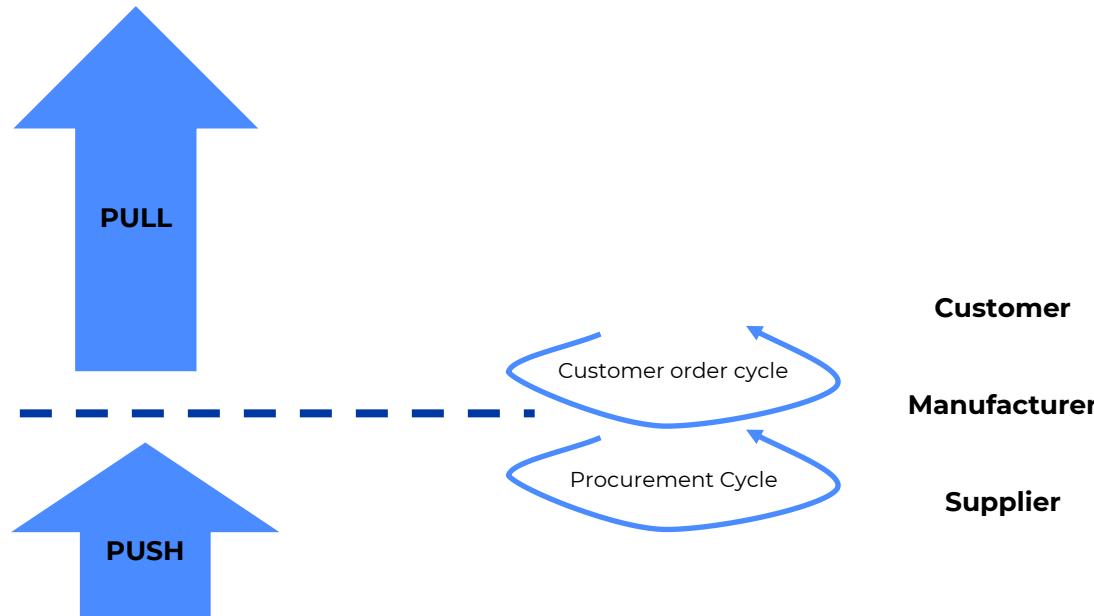
In Toyota's case, Kanban cards are used to signal the need to replenish inventory.

# Pull-push process for the supply chain of Dell

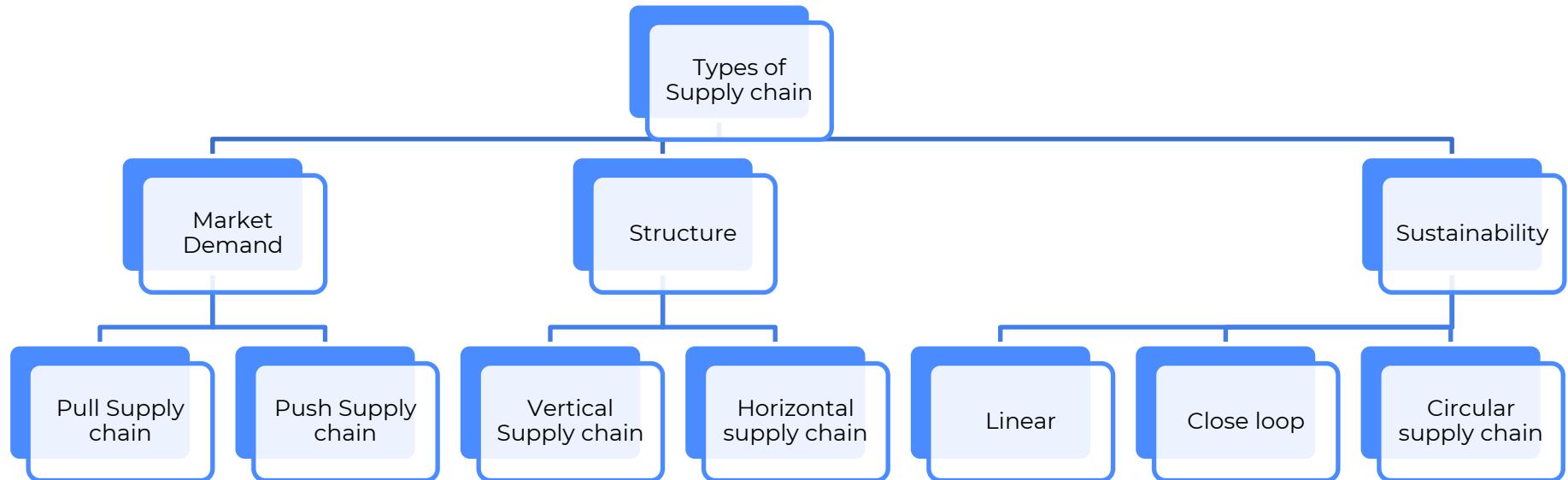
Dell pre-orders and stocks up on raw materials and components.

However, from this point on, they do not produce their computers until an order is actually placed.

They initially “push”, but then switch to “pull” in the production and assembly process.



# Types of supply chain



# Linear, Closed-loop and circular supply chain configuration



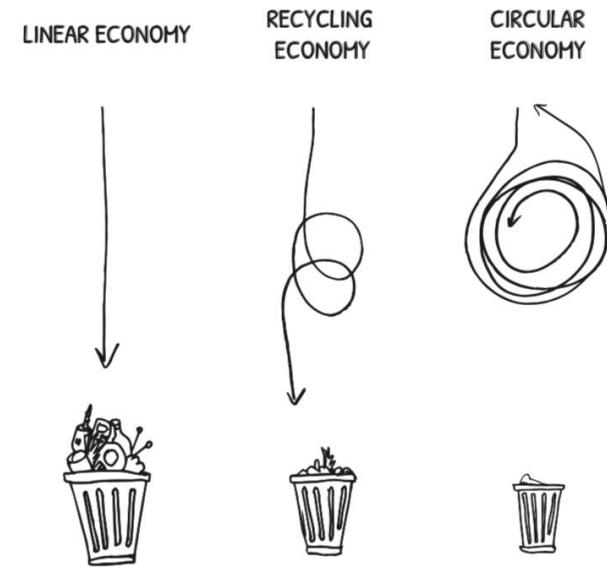
# Linear, Closed-loop and circular supply chain configuration

**Circular fashion supply chain** creates a highly sustainable system by designing, sourcing, and producing products with the intention of using them for as long as possible in their most valuable form.

This involves reusing and recycling products for as long as possible to minimize waste and avoid landfills.

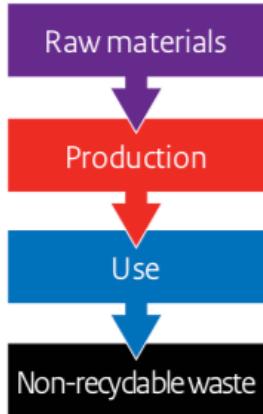
**Traditional linear supply chain** is often described as the 'take-make-waste' approach.

**Recycle supply chain** includes the proper disposal of product

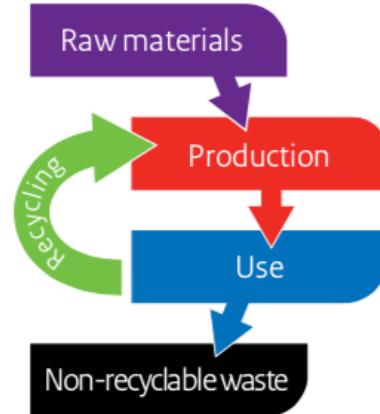


# Linear, Closed-loop and circular supply chain configuration

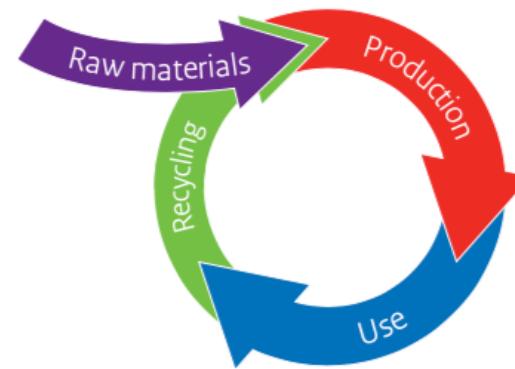
Linear economy



Reuse economy



Circular economy



# Linear, Closed-loop and circular supply chain configuration



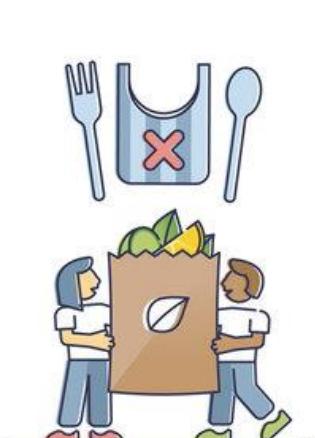
REDUCE



REUSE



RECYCLE



REDUCE



REUSE

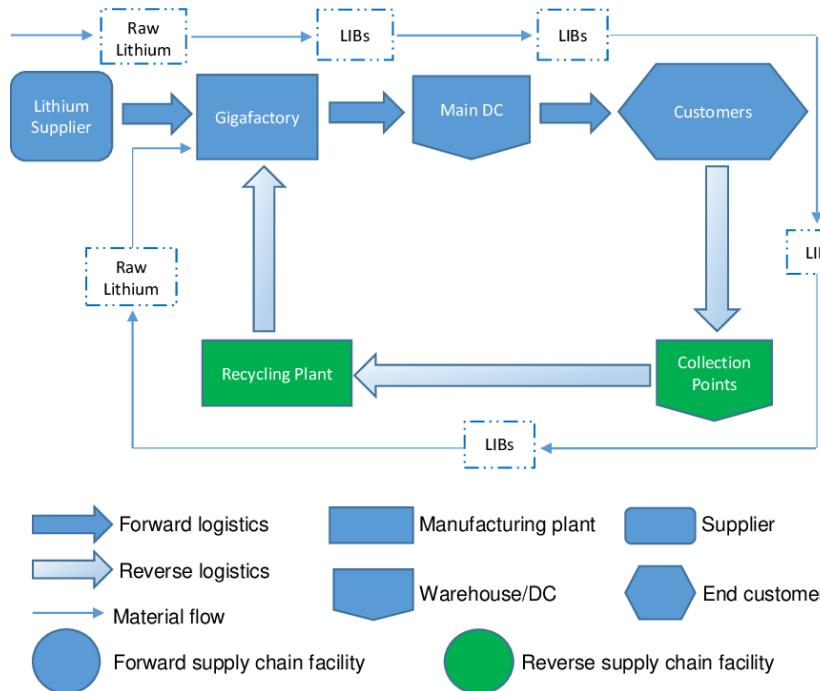


RECYCLE



# Closed-loop supply chain simulation in Tesla

Just like rockets how a disruption in the reverse supply chain may affect the performances of the company



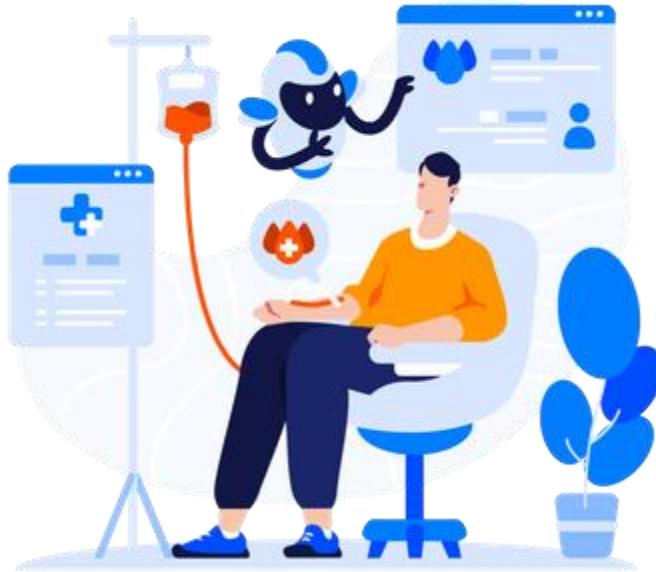
# Biggest Challenges in Supply Chains

The reason we need a responsive and fast supply chain is because of these factors

- Product life span
- Bullwhip effect
- Effective vs responsive product



# Challenges with blood bank Supply Chain



# Challenges with blood bank Supply Chain

## Challenges with blood bank Supply chain

- The supply of blood fully relies on human donations and is not a product that can be manufactured. (**Forecasting**)
- Blood is a perishable product, especially platelets must be used within 5 days of donation, and red blood cells can only be stored for 42 days (**Quality Control**)
- Lastly, inaccuracies of supply and demand can become a matter of life and death (**Distribution**)



# Solving blood supply chain issues

Blood donor



Logistic



Blood bank (Storage,  
testing)



Logistic



Clinic & hospital



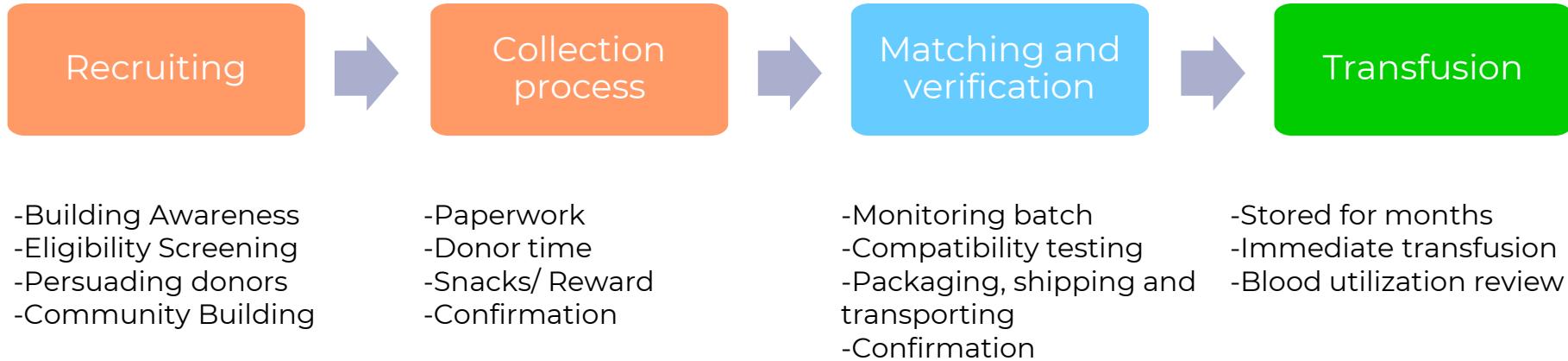
Recruiting

Collection  
process

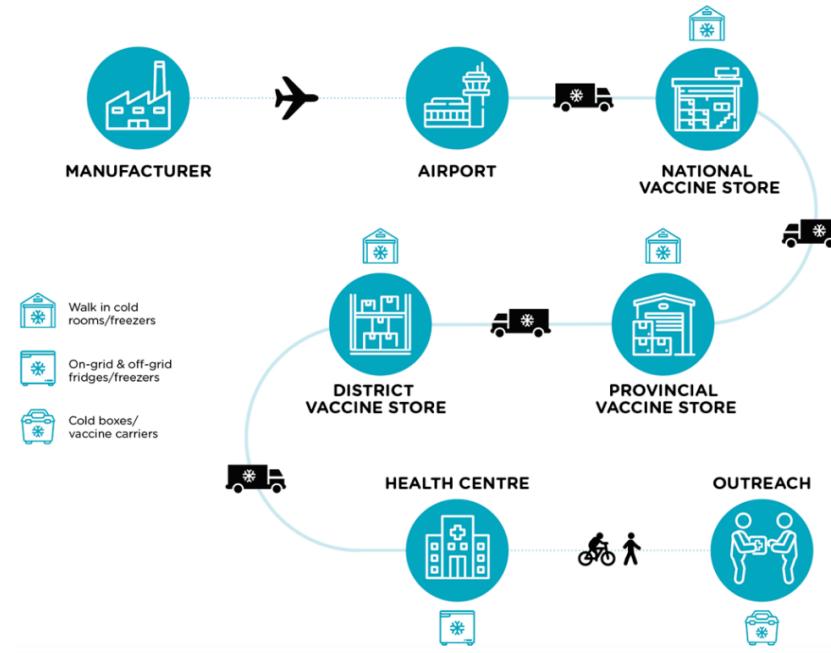
Matching and  
verification

Transfusion

# Solving blood supply chain issues



# Supply Chain of COVID 19 Vaccines



# Strategy levels in supply chain

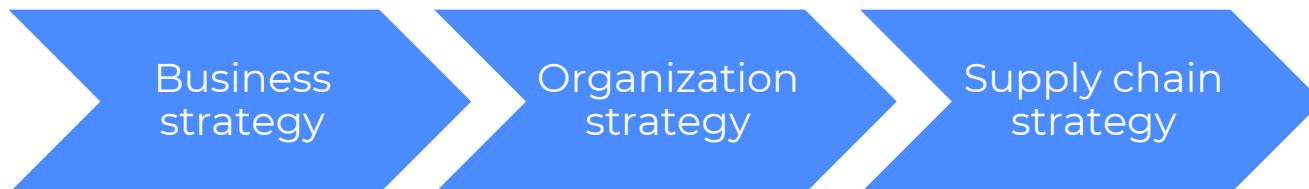
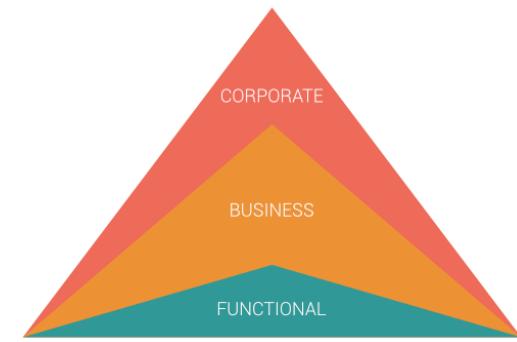


# Strategy levels in supply chain

**Corporate strategy** needs to define how you are going to be different and better than your competitors, and it needs to set specific, measurable goals.

**Business strategy** helps you choose the side: Least cost, differential, focus strategy etc

**Organizational strategy** – how to satisfy the customer and grow the business



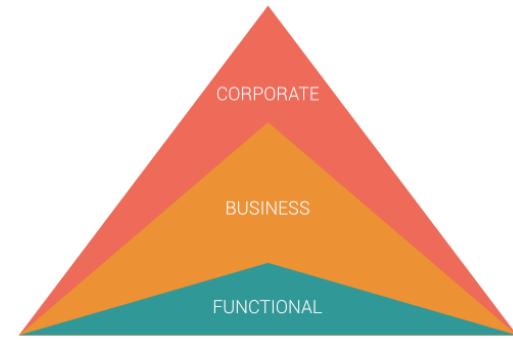
# Strategy levels in supply chain

Let's oversimplify this with an example (Amazon's e-commerce)

**Business strategy** – Cheaper (Maintain the lowest prices )

**Organization strategy** – Better (Prime Subscription Umbrella )

**Supply chain strategy** – Faster (with warehouse or distribution centre)

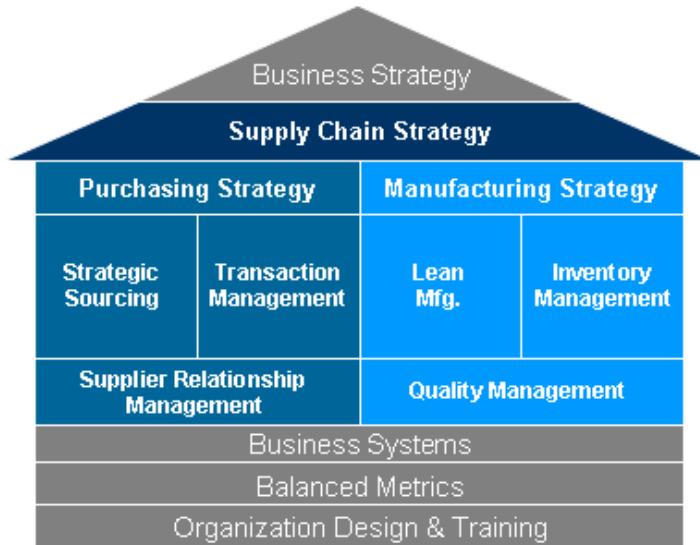


Aligning all these strategies is important  
(Walmart can't implement one-day delivery due to non-penetration of logistics)

So alignment of vision, mission ,financial objective and core capabilities and value proposition is important

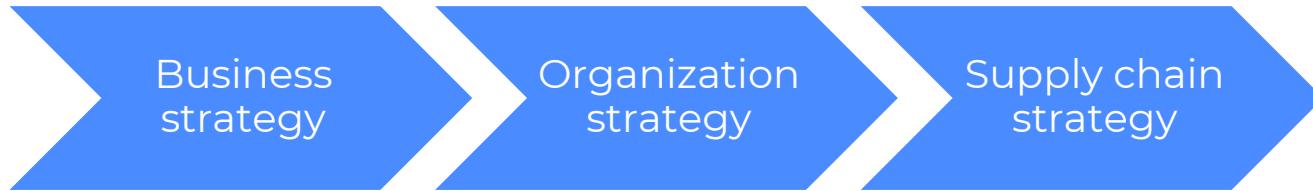
# Strategy levels in supply chain

Corporate strategy needs to define how you are going to be different and better than your competitors, and it needs to set specific, measurable goals.



-> More on BPM and TPS video

# Strategy levels Assignment - Apple vs Samsung - Assignment



# The 5 Components of Supply Chain Management

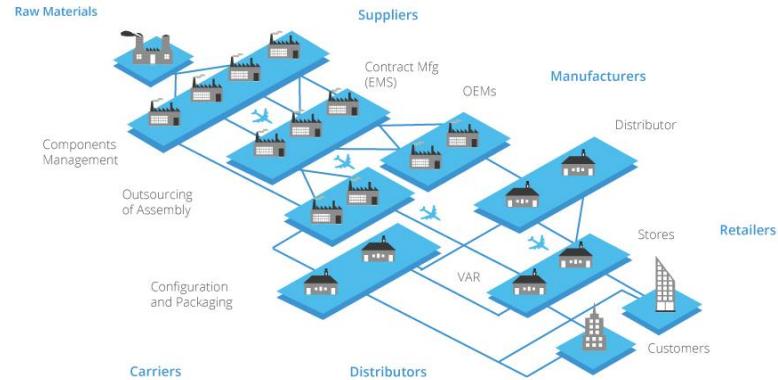
**Production:-** Whether building factories with a lot of **excess** capacity and using **flexible** manufacturing techniques to produce a wide **range** of items or limited capacity with the standard process for one product(EOS)

**Inventory:-** Whether Stocking products at regional distribution centres (DCs) for faster fulfilment or centralising inventory.

**Location –** Whether Opening up lots of stores in high footfall or volume markets or only a few central locations.

**Transportation –** Whether it should be shipped Fast with aeroplanes or flexible with trucks and or slow but cost-effective with train. Should you use a central hub facility or distribution centre (DC).

**Information –** It enhances the performance of the other four supply chain driver when companies collect and share accurate and timely data generated by the operations of the other four drivers.



# Planning in supply chain management



# Planning in supply chain management

Planning involves phases of decision to answer questions such as;

- How and when to source the product?
- What manufacturing strategy is best to convert the material to a final product?
- What mode of transportation to use in moving inventories?
- How to optimally design a distribution network
- How supply chain risks are managed?
- How costs are reduced without compromising quality?
- What information system support is needed to facilitate information sharing?

# Levels of planning

**Strategic planning** – Influences the creation of policies and procedures for procurement, manufacturing, and logistics to meet a long-term plan (planning horizon usually 3 to 10 years).

- How many distribution facilities are needed and where?
- Increase revenue by 10%
- Mergers and acquisitions to expand market share
- Supply chain configuration

**Tactical planning** – strategic plan needs to be broken down into deliverables, so it is workable and achievable (6 months to a year)

**Operational planning** – these are the day-to-day or weekly activities needed to carry out tactical goals.

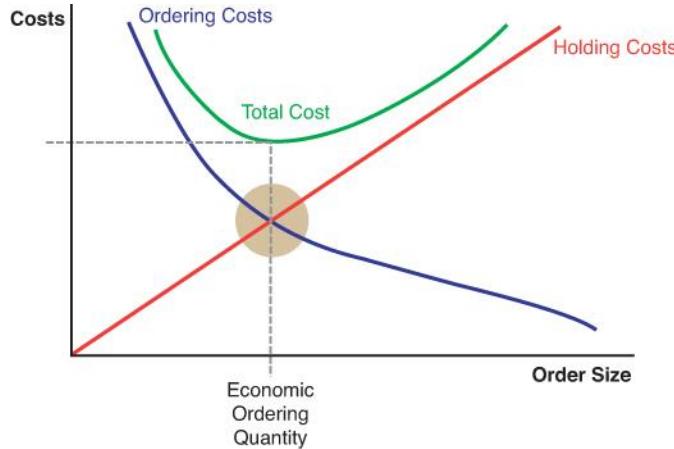


# Biggest Challenges in Supply Chains



# Supply chain management risks and challenges

**1.Cost structure complexity** – Too much can deplete your cash flow and too less can cause stock out



	Products	Annual Number of Items Sold	Costs per unit	Annual Usage Value	Percentage of Annual Units Sold	Percentage of Annual Consumption Value
79%	Beds	5000	\$80	\$400,000	23.80	52.00
	Office Chairs	10,000	\$20	\$200,000	47.61	27.00
13%	Dining Table	700	\$50	\$35,000	3.33	5.06
	Chairs	1500	\$20	\$30,000	7.14	4.15
8%	Desks	700	\$40	\$28,000	3.33	4.03
	Coffee Tables	600	\$40	\$24,000	2.85	2.08
	Wardrobes	600	\$20	\$24,000	2.85	2.08
	Computer Cabinet	700	\$30	\$21,000	3.33	2.02
	Ottomans	500	\$30	\$15,000	2.38	1.05
	Book Cases	600	\$15	\$9,000	2.85	1.01
Total		20,900		\$771,000		

■ A category ■ B category ■ C category

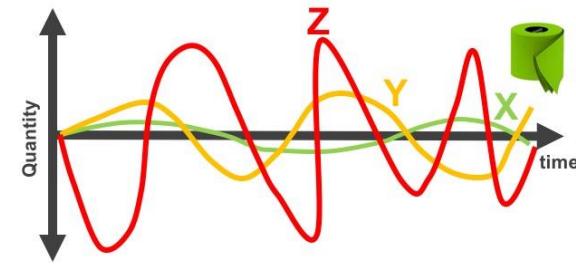
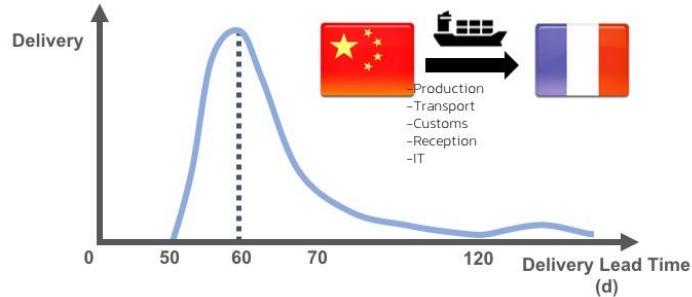
# Supply chain management risks and challenges

There will always be supply-chain related challenges you'll need to deal with over time.

## 2. Overly lengthy lead times - Longer lead times mean more chances for things to go wrong.

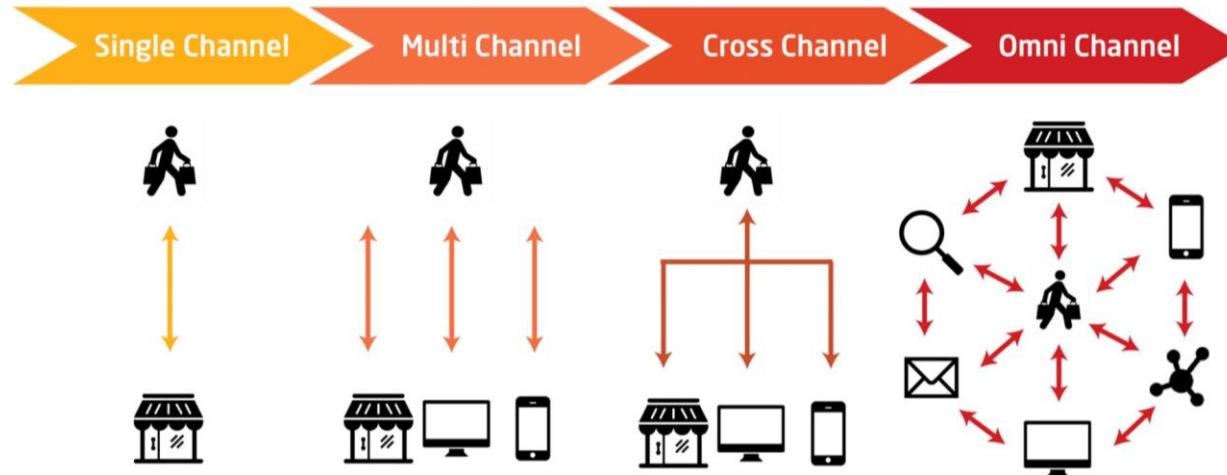
If a supplier's order is delayed by 5 days it can cause many problems

1. Stock out of inventory
2. Bad customer experience



# Supply chain management risks and challenges

**3.Operation complexity:-** Many companies also struggle with multichannel sales and fulfilment due to working capital cycle, theft, damages etc



# Supply chain management risks and challenges

**4.Overall risk management** - Risk is inevitable, but it helps when you have a proactive plan in place.



# Other challenges in Supply Chains

**Order Changes and Cancellations:-** The retailer is stuck with excess product, the wholesaler deals with fewer orders and backing up inventory, and every other supplier feels the waves.



**Workers Unavailable:-** If workers are ill or absent unexpectedly, that can dramatically affect a supplier's capability.



**Production Facility Failure:** Worse in case of Just-in-time production



**Late Delivery of Materials:** Transportation issues, theft and piracy



**Suppliers' Conflicting Obligations:** In case of overcommitment and prioritizing other orders.



# Supply Chain Management Basics

If the vehicles transporting your bread and milk breakdown for an hour

- Long queue in the store
- Your Breakfast timing will get delayed
- Your kid might start crying
- Your office meeting will be affected

Right  
time



In reality, we have multiple stores and backup for this but you got the point

Now Just replace the above example with blood

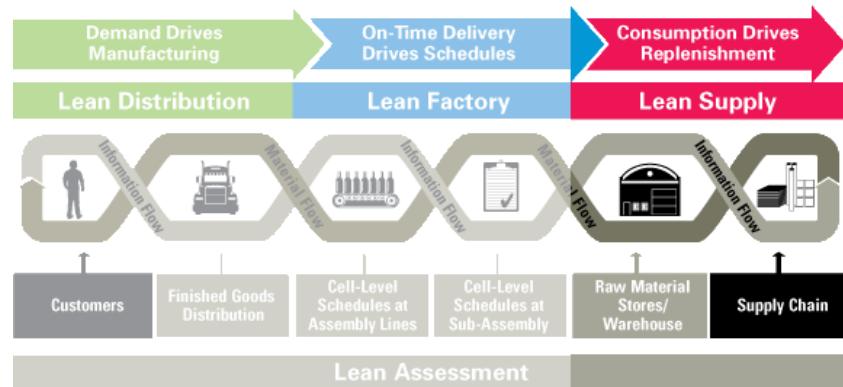
- Blood is a perishable
- Matters of life and death

# Lean Kaizen in Supply Chain



# Lean Kaizen in Supply Chain

For Lean to be truly effective, it must focus not only on the manufacturing process but on the entire supply chain.

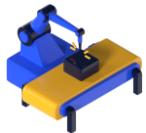


Creating a leaner supply chain



## Procurement

Avoid duplicate procedures in the different departments.



## Manufacturing

Improve quality and precision prevents defects and return goods



## Warehousing

Keep inventory levels as low as is reasonable



## Transportation

Consolidate multiple products into a single shipments

# Lean Kaizen in Supply Chain

This will reduce costs and improve the processes and productivity.

- Reducing process lead time – excessive wait time
- Eliminating unnecessary movement of products
- Minimising excess inventory–raw material, work-in-process or finished goods
- Reducing wastages in packaging
- Reducing damages and spillages
- Optimise space
- Improving On-time delivery
- Eliminating wasteful energy in the supply chain including electricity, gas, utilities etc

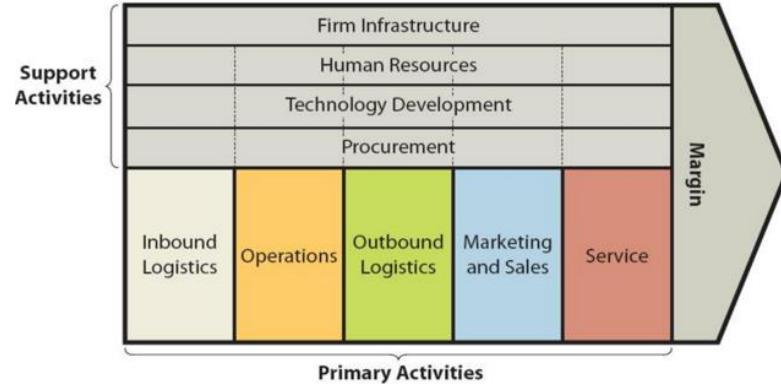
FEATURES	CONVENTIONAL MODEL	LEAN MODEL
<b>Teams</b>	Large	Small
<b>Outsourcing</b>	Cost-based	Strategic
<b>Stakeholder Relationships</b>	Transaction-focused	Mutually beneficial
<b>Contract Length</b>	Short-term	Long-term
<b>Pricing Changes</b>	Upward	Downward
<b>Quality Control</b>	Inspection-intensive	Designed-in
<b>Delivery</b>	Large quantities	Smaller quantities (JIT)
<b>Stock Controls</b>	Sizable	Minimised
<b>Stake Holder Communication</b>	Narrow; task-related	Broad; multi-level
<b>Production Flexibility</b>	Low	High
<b>Mutual Obligation</b>	Reduced; absent	High
<b>Future Planning</b>	No Assurance	Significant

# Value chain analysis (VCA)



# Value chain analysis (VCA)

It identifies business activities that can create value and competitive advantage for the business



<b>Competitive advantage types</b>	
<b>Cost advantage</b>	<b>Differentiation advantage</b>
When you compete on costs and want to understand the sources of their cost advantage. examples: Amazon.com, Wal-Mart, McDonald's, Ford, Toyota)	When you strive to create superior products or services use a differentiation advantage examples: Apple, Google, Samsung Electronics, Starbucks)

# Value chain analysis (VCA)

It identifies business activities that can create value and competitive advantage to the business

## Primary Activities

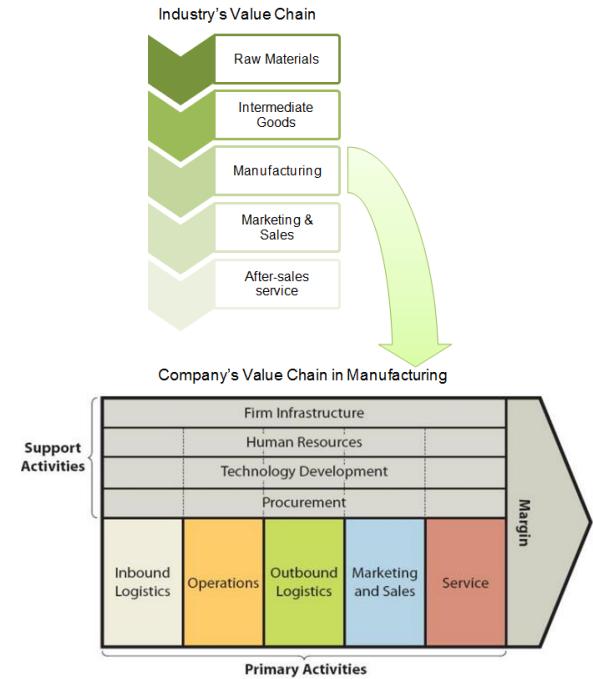
**1. Inbound logistics** – This is how materials and resources are gained from suppliers.

**2. Operations** - how materials and resources are produced, resulting in a final product or service.

**3. Outbound logistics** - Describes the delivery and distribution process.

**4. Marketing and sales** - presented and sold to your ideal target market.

**5. Service** - Support and training for the product, warranties, and guarantees.

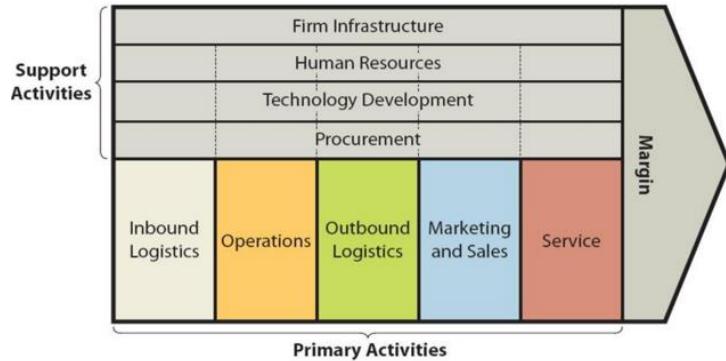


# Value chain analysis (VCA)

Support activities help the primary activities in creating an advantage over competitors.

## Support Activities

- **Firm Infrastructure** This entails all the management, financial, and legal systems
- **Human resource management** encompasses all the processes and systems involved in managing employees
- **Technology development** helps a business innovate.
- **Procurement** This is how the resources and materials for a product are sourced and suppliers are found.



# Impact of supply chain management

## Businesses have several avenues to increase profit.

It could either be

- Boosting marketing efforts to improve sales
- Increase the selling price
- Introduce a product to the new market.

While those strategies are good, their impact on profitability is less.

The best and easy way to increase the margin is to improve your supply chain performance.

Cost of goods sold is 60% of total sales leaving 40% for operating expenses and income.

What if we can reduce the cost of raw materials by 5% to 20%?

<b>Revenue</b>	\$	100,000,000
Cost of Goods Sold (COGS)		60,000,000
<b>Gross profit</b>		40,000,000
<b>Operating expenses</b>		
General & administrative		10,000,000
Advertising & marketing		12,500,000
Amortization & depreciation		5,000,000
Other expenses		5,000,000
<b>Total expenses</b>		32,500,000
<b>Pre-tax income</b>	\$	7,500,000

# Impact of supply chain management

Reducing the cost of materials has a profound impact on the bottom line.

Other expenses are difficult to reduce because they are necessary to run the business

Therefore, supply chain management is a key driver in maximizing a company's financial health.

	Income Statement (Current/Baseline)		Improvement in Supply Chain			
			5%	10%	15%	20%
<b>Revenue</b>	\$ 100,000,000	\$ 100,000,000	\$ 100,000,000	\$ 100,000,000	\$ 100,000,000	\$ 100,000,000
Cost of Goods Sold (COGS)	60,000,000	57,000,000	54,000,000	51,000,000	48,000,000	
<b>Gross profit</b>	40,000,000	43,000,000	46,000,000	49,000,000	52,000,000	
<b>Operating expenses</b>						
General & administrative	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
Advertising & marketing	12,500,000	12,500,000	12,500,000	12,500,000	12,500,000	12,500,000
Amortization & depreciation	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
Other expenses	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
<b>Total expenses</b>	32,500,000	32,500,000	32,500,000	32,500,000	32,500,000	32,500,000
<b>Pre-tax income</b>	\$ 7,500,000	\$ 10,500,000	\$ 13,500,000	\$ 16,500,000	\$ 19,500,000	

# What is bullwhip effect?



# What is bullwhip effect?



# Bullwhip effect Simplified ?

Retailers become highly reactive to demand, and in turn, amplify expectations around it, which causes a domino effect along the supply chain.

Retailer typically keeps 100 six-packs of sanitiser in stock.

Normally Sales - 20 six-packs a day  
One day – 80 six-packs a day

## Retailers Response

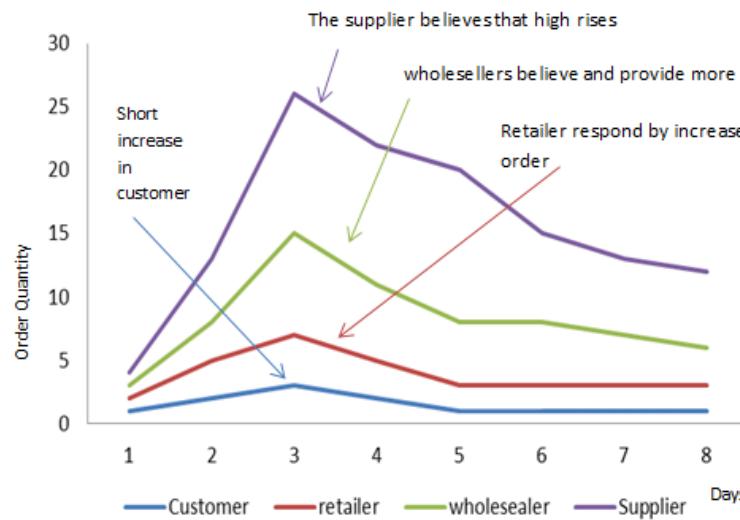
Order 250 instead of 100 this time

## Stockiest response

Stock 350 this time

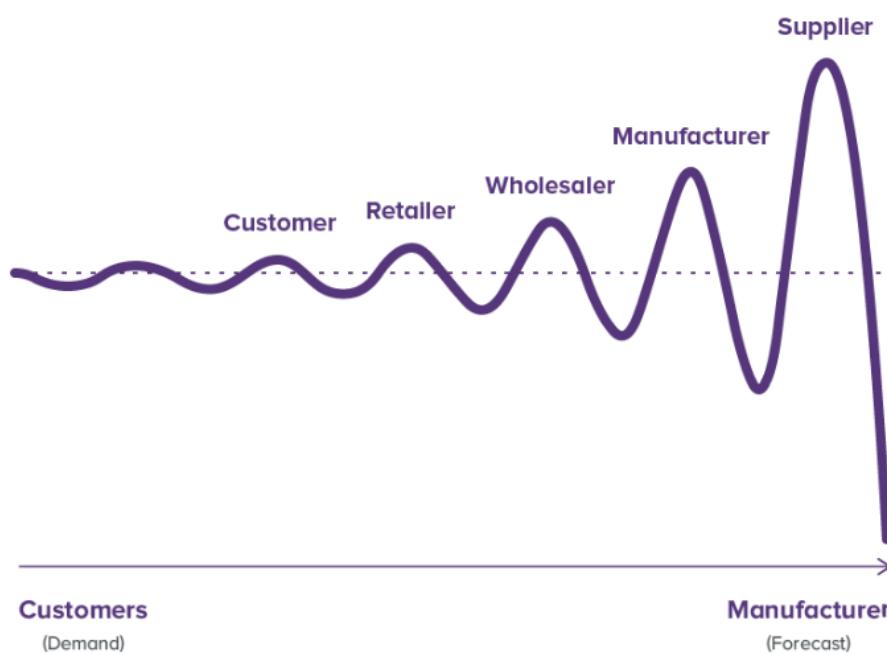
## Manufacturer response

Make 500 this time



# What is bullwhip effect?

How small fluctuations in demand at the retail level can cause progressively larger fluctuations in demand at the wholesale, distributor, manufacturer and raw material supplier levels.



Variance increase up the supply chain

Why does it happen?

- Over- or under-reacting to demand expectations (Decision Separation)
- Lead-time issues such as manufacturing delays (Delays due to lead time)
- Uncertainties & Unreliability
- Inaccurate forecasts

# Controlling the Bullwhip (How to Improve a Supply Chain)

## Avoid Bullwhip Effect

### Technology to reduce delay (ERP)

- More frequent updates
- Reduce response times to orders
- Shorter lead times



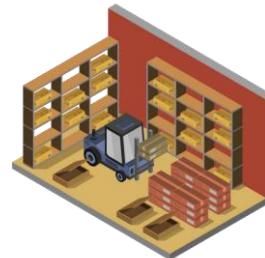
### Improve the inventory planning process

- Stock management
- Lean, Six Sigma, TQM, TPM, FIFO, LIFO
- Point Of Sale (EPOS)



### MOQ and stable pricing

- Demand Forecasting
- Discounts
- Marketing spend



# Efficient Vs Responsive Supply Chain



# Efficient and Responsive Supply Chain

Efficient

Responsive

**Efficiency** requires predictability and stability – often absent now  
**Responsiveness** differentiates products, avoids “race to the bottom” price wars



It depends on the product life cycle

# Hallmarks of an efficient supply chain:

**Optimization** - Shipping routes, warehouse locations and avoiding Half-empty trucks, and unused warehouses are simply a waste of your assets.

**High-quality partners** – Your 3PL should have state-of-the-art technologies, a policy of transparency and a proven track record.

**Inventory management** - Too much inventory is costly to purchase, handle, store and track. Too little inventory can mean lost production time, expensive last minute orders and even angry customers.

**Customer satisfaction** - Gets your products into the hands of the people who need them quickly and at the best price.



# Efficient Supply Chain

An efficient supply chain is tuned to deliver products at the most optimal costs.

This is done with investment in economies of scale and large batches that drive marginal cost down.

Typically these supply chains have long lead times, high set-up costs, and predictably consistent output.



The efficient supply chain is efficient at all the level

- Production (without wasting materials or man-hours)
- Inventory (Less inventory holding cost)
- Transportation and location (speed and cost )

Functional Product

Efficiency saves money and increases profits and can be particularly beneficial to your bottom line.

# Responsive Supply Chain

Responsive supply chains are all about speed.

It is characterized by quick, nimble changes made possible by small batch sizes, excess capacity, and an ear to the market allowing organizations to respond quickly to changes in demand.

Responsive supplies are typically not the most optimized for low cost but are designed to respond to changes.

A responsive supply chain has to be responsive to both your and customers' needs

- **Order-fill accuracy** - Guarantee of quick delivery can be a real selling point.
- **Scalable fulfilment** - Can accommodate changes in sales volume in seasonal and economic variation.
- **Communication** - Open lines of communication for feedback, concerns and customization



Innovative Product

# Efficient Vs Responsive Supply Chain

Supply Chain Drivers	Responsiveness	Efficiency
1. Production	<ul style="list-style-type: none"> <li>- Excess capacity</li> <li>- Flexible manufacturing</li> <li>- Many smaller plants</li> </ul>	<ul style="list-style-type: none"> <li>- Little excess capacity</li> <li>- Narrow focus</li> <li>- Few central plants</li> </ul>
2. Inventory	<ul style="list-style-type: none"> <li>- High inventory levels</li> <li>- Wide range of items</li> </ul>	<ul style="list-style-type: none"> <li>- Low inventory levels</li> <li>- Fewer items</li> </ul>
3. Location	<ul style="list-style-type: none"> <li>- Many locations close to customers</li> </ul>	<ul style="list-style-type: none"> <li>- Few central locations serve wide areas</li> </ul>
4. Transportation	<ul style="list-style-type: none"> <li>- Frequent shipments</li> <li>- Fast &amp; Flexible modes</li> </ul>	<ul style="list-style-type: none"> <li>- Few large shipments</li> <li>- Slower and cheaper modes</li> </ul>
5. Information	<ul style="list-style-type: none"> <li>- Collect &amp; share timely and accurate data</li> </ul>	<ul style="list-style-type: none"> <li>- Cost of information drops while other costs rise</li> </ul>

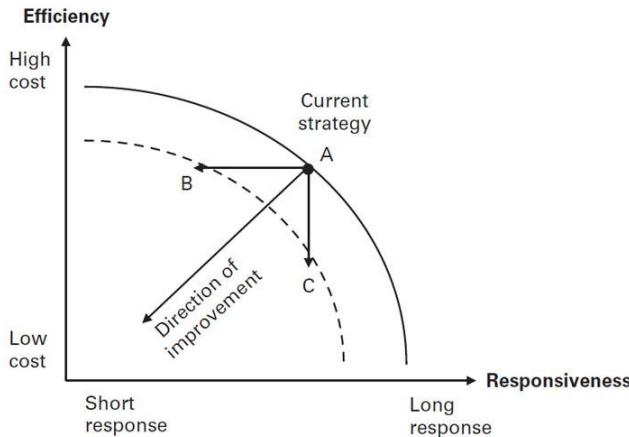
	Efficient	Responsive
Primary goal	Lowest cost	Quick response
Product design strategy	Min product cost	Modularity to allow postponement
Pricing strategy	Lower margins	Higher margins
Mfg strategy	High utilization	Capacity flexibility
Inventory strategy	Minimize inventory	Buffer inventory
Lead time strategy	Reduce but not at expense of greater cost	Aggressively reduce even if costs are significant
Supplier selection strategy	Cost and low quality	Speed, flexibility, quality
Transportation strategy	Greater reliance on low cost modes	Greater reliance on responsive (fast) modes

# Efficient and Responsive Supply Chain

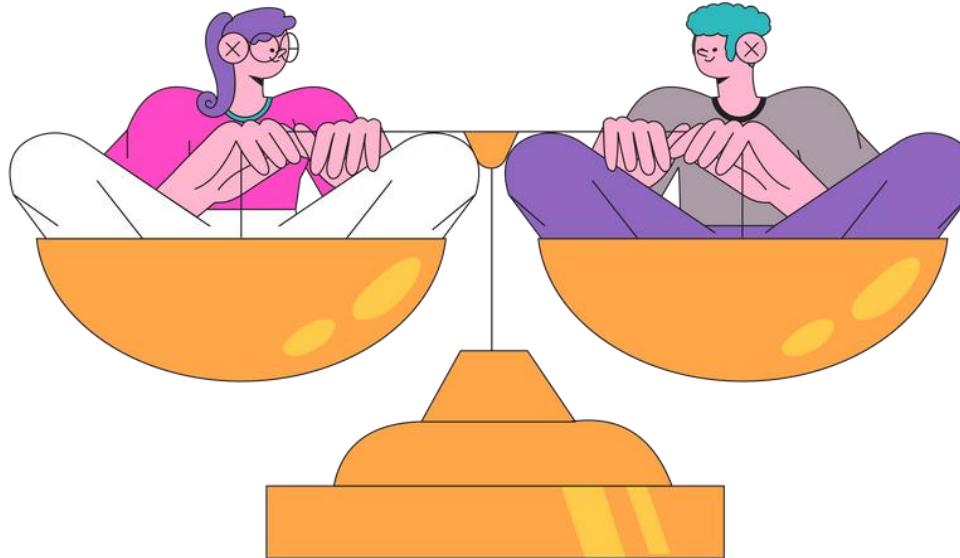
## WHEN TO BE EFFICIENT AND WHEN TO BE RESPONSIVE

In Reality, a supply chain should be  
“As responsive as required, as efficient as possible.”

The truth is, when it comes to Supply chain, no single company or process is the best.



# Finding right balance in Supply Chain



# Finding right balance in Supply Chain

## Functional products

- Staple food products such as breakfast cereals and milk where demand is predictable with the long product life cycle.
- They have low-profit margins because they're considered a commodity with many substitutions (generic products) are available.



VS



## Innovative products

These are new and often revolutionary products that have a demand stream that's not well-known and unpredictable.

These show variable demand with shorter product life cycles, and higher profit margins.

Examples of innovative products include most consumer electronics, computer games, and fashion apparel

The supply chain needs for a product with stable demand (a well-established or mature product) are different from those for a product with less predictable demand (an innovative product).

# Finding right balance in Supply Chain

**Trade-offs:-** We teach that "functional" products should be matched with an efficient supply chain and innovative products with responsive supply chains.

A mismatch will lead to either too many costs or a lack of competitive capabilities.

**Efficient supply chain:** Usually a make-to-stock (MTS) producer that draws from a large finished goods inventory

**Responsive supply chain:** Usually produces make-to-order (MTO) products. With their high demand variability

Matching Supply Chains with Products

Functional Products		Functional Products	
Efficient Supply Chain	match	mismatch	mismatch
	mismatch	match	

# Finding right balance in Supply Chain

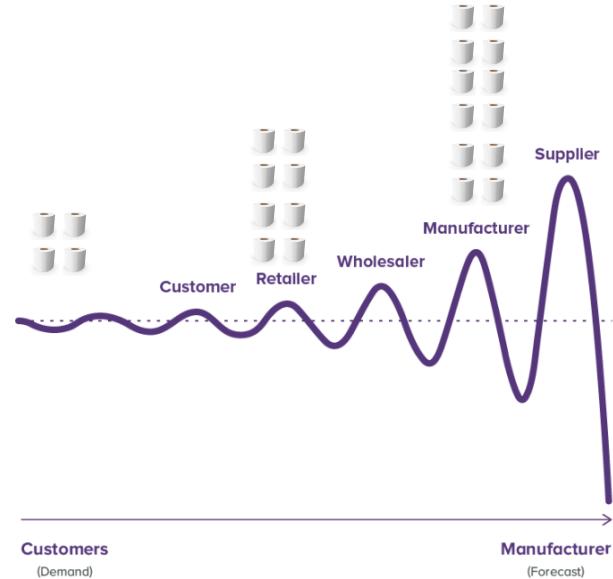
In pandemics most out-of-stock products are the result of efficient supply chain models: think toilet paper.

Ramping up the production and delivery of toilet paper is very hard since it is optimized for long lead times, steady production, very minimal inventory and consistent demand.

The Demand has never increased for TP just the demand for hoarding TP has increased.

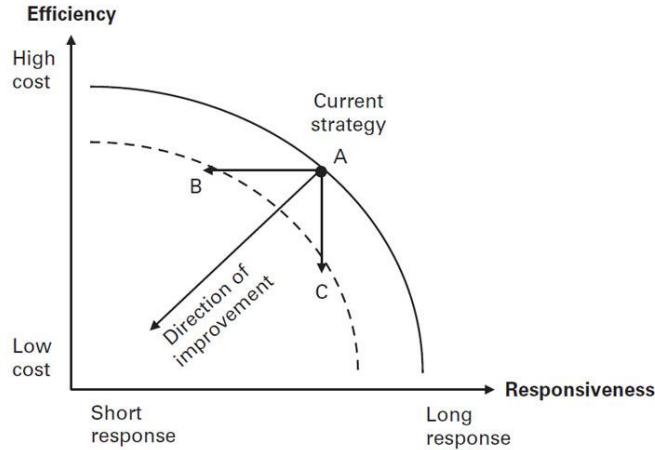
This caused bullwhip effect will cause excess inventory all over the place (including homes, retailers, warehouses, and outhouses) in a manner of a few weeks or months.

The same happened with PPE as well.



# Finding right balance in Supply Chain

The truth is, when it comes to Supply chain, no single company or process is the best.



# Table of Contents



## Supply chain resilience report 2021

Industry trends and supply chain strategy for manufacturing

<https://f.hubs.com/mNiA9G3HiE3esdNPw4QdhT.pdf>

# Supply chain resilience report

**75%**

of companies have experienced externally caused disruptions to their supply chain in the past year

**63%**

of companies have implemented measures in the past year to build supply chain resilience

**98%**

of companies believe measures should be taken to avoid future supply chain disruptions

**57%**

of companies believe diversifying their supply chain is the best way to avoid disruptions in the future

**64%**

of companies consider supply disruptions a serious concern

**56%**

of companies have experienced more supply chain disruptions this year than last year

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<https://f.hubs.com/mNiA9G3HiE3esdNPw4QdhT.pdf>

# Top Rated Business Courses

1

**Complete MBA course:  
Marketing and Business  
Strategy**

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2

**31 Start-up Business  
Model : Best Course for  
Entrepreneurs**

[Click here](#)

**The Lean Start-up:  
Best course on  
Entrepreneurship**

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3

**MBA: Retail business,  
Merchandising, and E-  
commerce**

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4

