# SUPPLY CHAIN SUMMARY

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Dr. Mohammed Farid Fathalbab

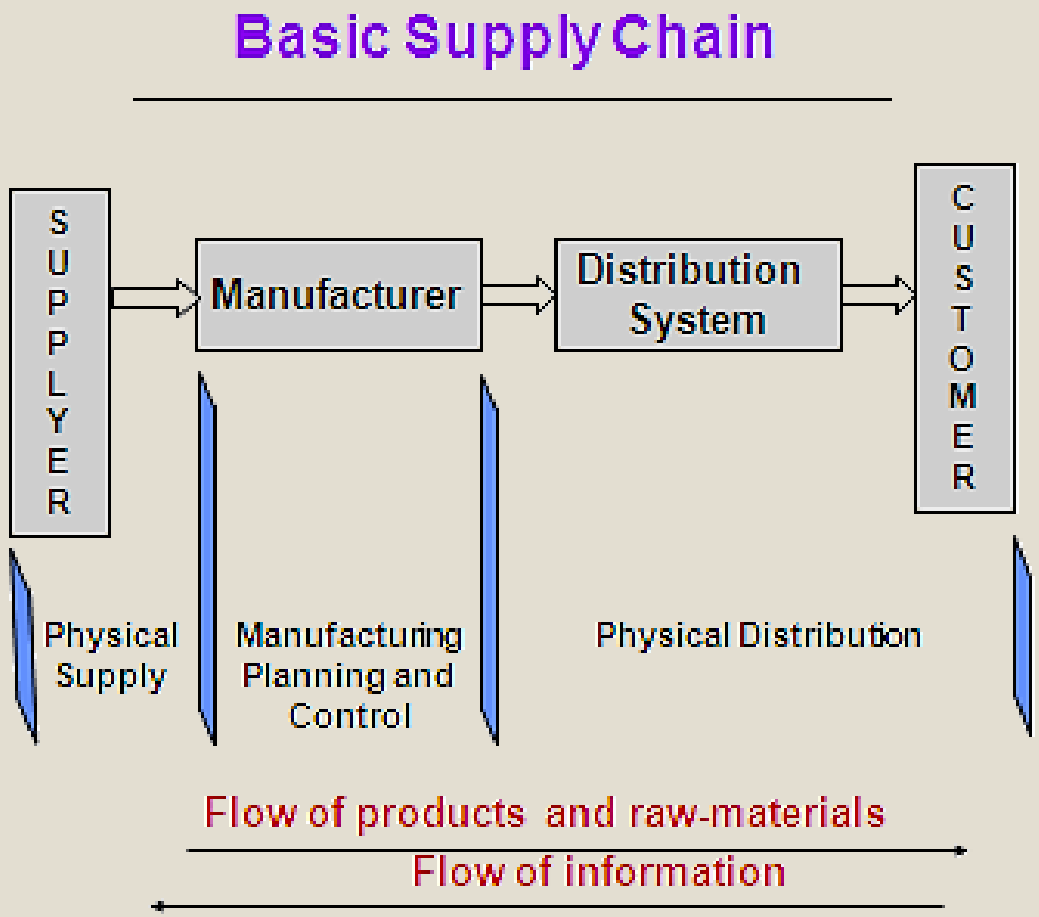

PLAN
SOURCE
EXECUTE
DELIVER
RETURN
Supply Chain
Management Process

# What is a supply chain plan?

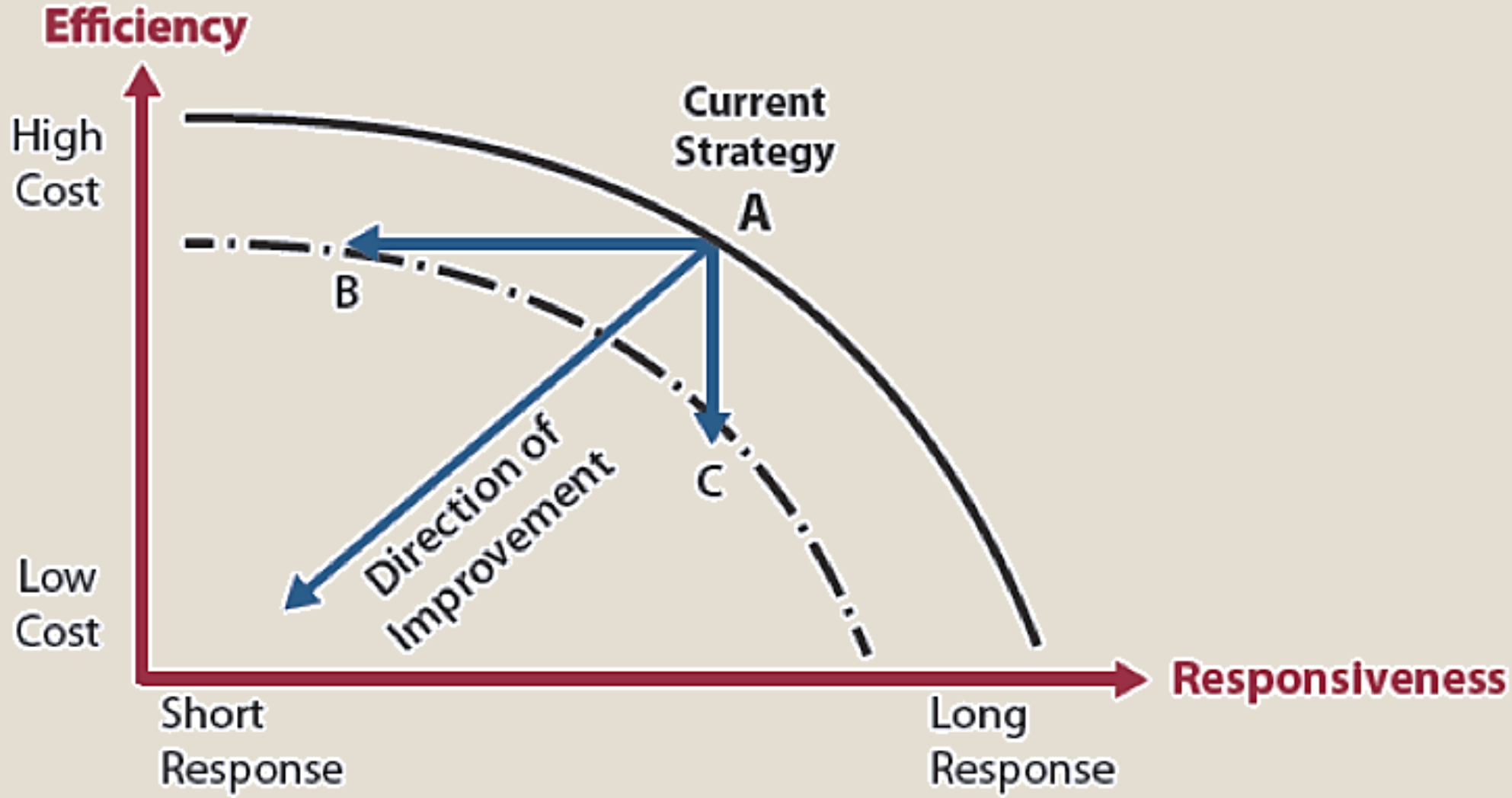
- A supply chain plan **is the process of companies determining the ideal manufacturing and sales volume to achieve profit or revenue-related goals.**
- This plan usually involves specific steps a company can take to achieve profit goals.
- These plans often factor (1) **supplies**, (2) **production**, (3) **market demand** and (4) **sales** into the steps.
- Supply chain plans are typically **long-term plans** that may encompass a year or longer depending on specific company production and revenue goals.

# What is Supply chain?

- Supply chain can be defined as the sequence of activities and organizations that involved in production of goods or delivering of services.
- The supply chain of a company consists of different departments, ranging from procurement of materials to customer service.



# Trade-Offs: Responsiveness vs. Efficiency

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# Organization Objectives & Related Conflicts

| Organization | Marketing | Finance | Production |
|---|---|---|---|
| **Max.** Level of Customer service<br>**Min.** production cost<br>**Min.** the amount of money invested in the inventory<br>**Min.** the Distribution cost | **Max.** revenue<br>**Max.** the level of customer service<br>**Increase** the level of inventory (responsiveness against efficiency)<br>Creating an expensive distribution network | **Keep** investment and cost low<br>**Decrease** the cost of plants and ware houses<br>**Reduce** the level of inventory<br>**Manufacture** only the customer order | **Keep** operating cost low<br>**Make** long production run<br>**Maintain** high inventory of raw-materials |

# Objectives Of supply chain

- Objective of every supply chain: **to maximize the overall value generated.**
- **Supply chain profitability (Value) =**

  **Revenue - Total supply chain costs**

- Supply chain costs are :
  1. Costs of producing parts
  2. Storing costs
  3. Distribution cost
  4. Fund transfer cost

# What is Supply Chain Management?

- **Supply Chain Management:** Management of the flows between and among stages in a supply chain to maximize total supply chain profitability (productivity).
- **Supply Chain Management:** a set of approaches utilized to efficiently integrate supplies, manufacturers, warehouse, and stores so that merchandise is produced and distributed at

**'' (1) The right quantities, to (2) the right locations, and (3) at the right time''**

In order to minimize system wide costs while satisfying service level requirements. This is called efficiency.

# Process View of Supply Chain

- **There are two different views for the supply chain processes as follows:**

1. **Cycle view:** Based on the cycle view Supply chain process can be broken down into the following four process cycles:
   a) Customer order cycle
   b) Replenishment cycle
   c) Manufacturing cycle
   d) Procurement cycle

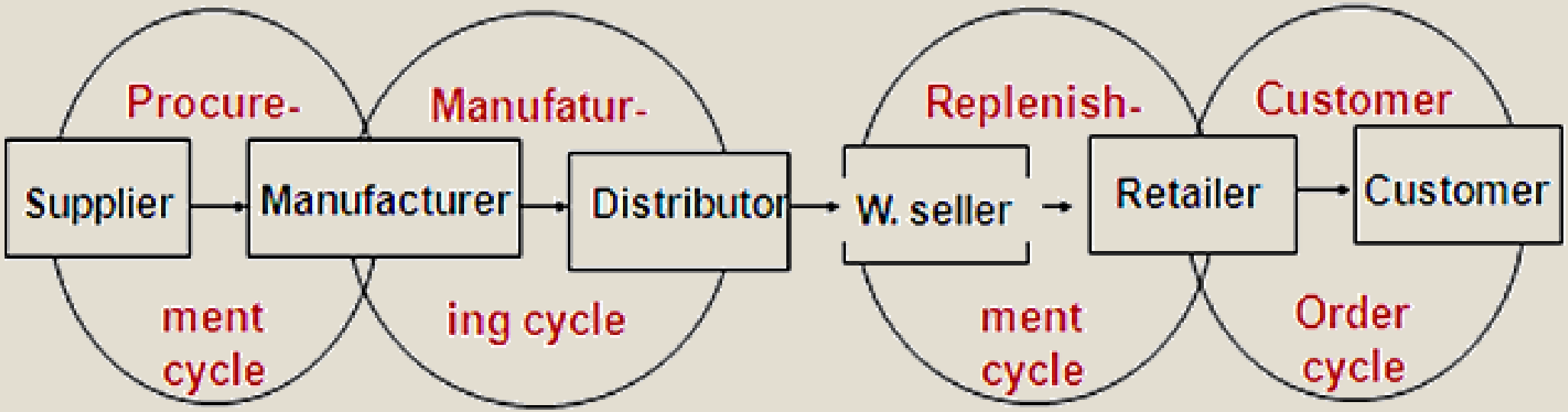
2. **Push/Pull View:** The activities in supply chain can be classified into:
   a) Pull processes.
   b) Push processes

# Process View of Supply Chain - Cycle view

- **Customer Order Cycle:** Occurs at the customer/retailer interface and includes all processes directly involved in receiving and filling the customer's order such as:
  1. Customer arrival
  2. Customer order entry
  3. Customer order fulfillment
  4. Customer order receiving
- **Replenishment Cycle:** Occurs at the retailer/distributor interface and includes all processes involved in replenishing retailer inventory.
  1. Order trigger (stock limit)
  2. Retail order entry
  3. Retail order fulfillment
  4. Retail order receiving
- **Manufacturing Cycle:** Occurs at the distributor/ manufacturer or retailer/manufacturer interface and include all processes involved in replenishing distributor or retailer inventory.

# Process View of Supply Chain - Cycle view

- **Procurement Cycle:** Occurs at the manufacturing/supplier interface and includes all process necessary to ensure that materials are available for manufacturing to occur according to schedule.

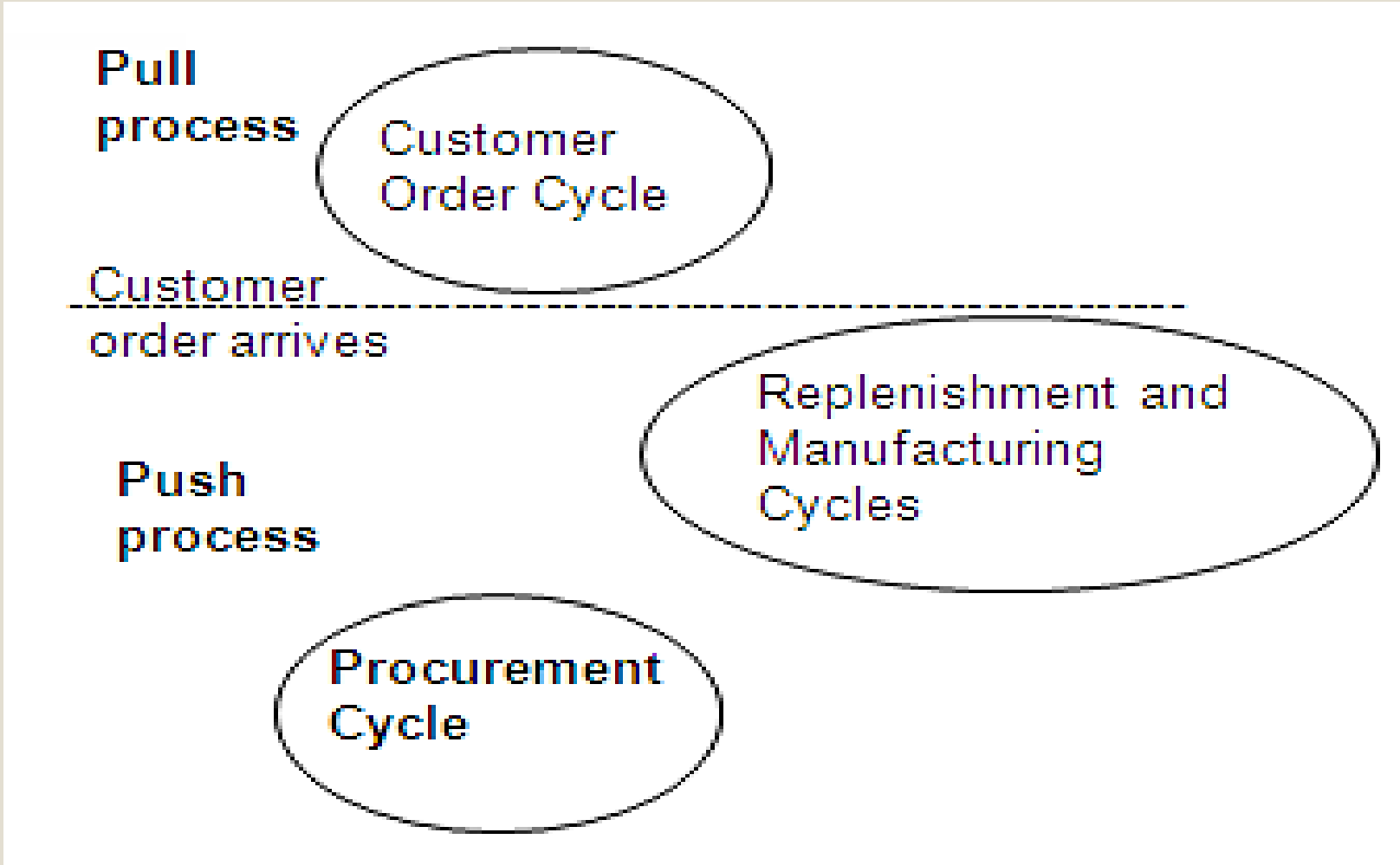


# Process View of Supply Chain - Push/Pull view

- **Pull processes**: This took place after receiving orders from customers. (The customer orders pulled (stimulate) the activities to operate). Uncertainty is very low.
- **Push processes:** This took place before receiving orders from customers. Where uncertainty is high and forecasting is required.
- **Push/Pull Boundary**: The boundary that separates push processes from pull processes.

| |
|---|
| **I.e. Dell JIT** technique started production after receiving the purchasing orders so the pull activities started from the production stage and all the previous stages are push processes. |
| **I.e. (L.L. Bean)** All processes of customer orders are executed after customer arrival. The items are made beforehand in anticipation of the customer demand. |
| Pull: all process related to customer order.<br>Push: all process in Replenishment Cycle/ Manufacturing Cycle. |

# The following diagram can explain Pull & Push Processes



# Supply Chain Performance: Achieving Strategic Fit and Scope

- How can we measure the supply chain performance? Or how can we describe the supply chain?
- How can we create a strategic fit?
- How can we control the supply chain performance?

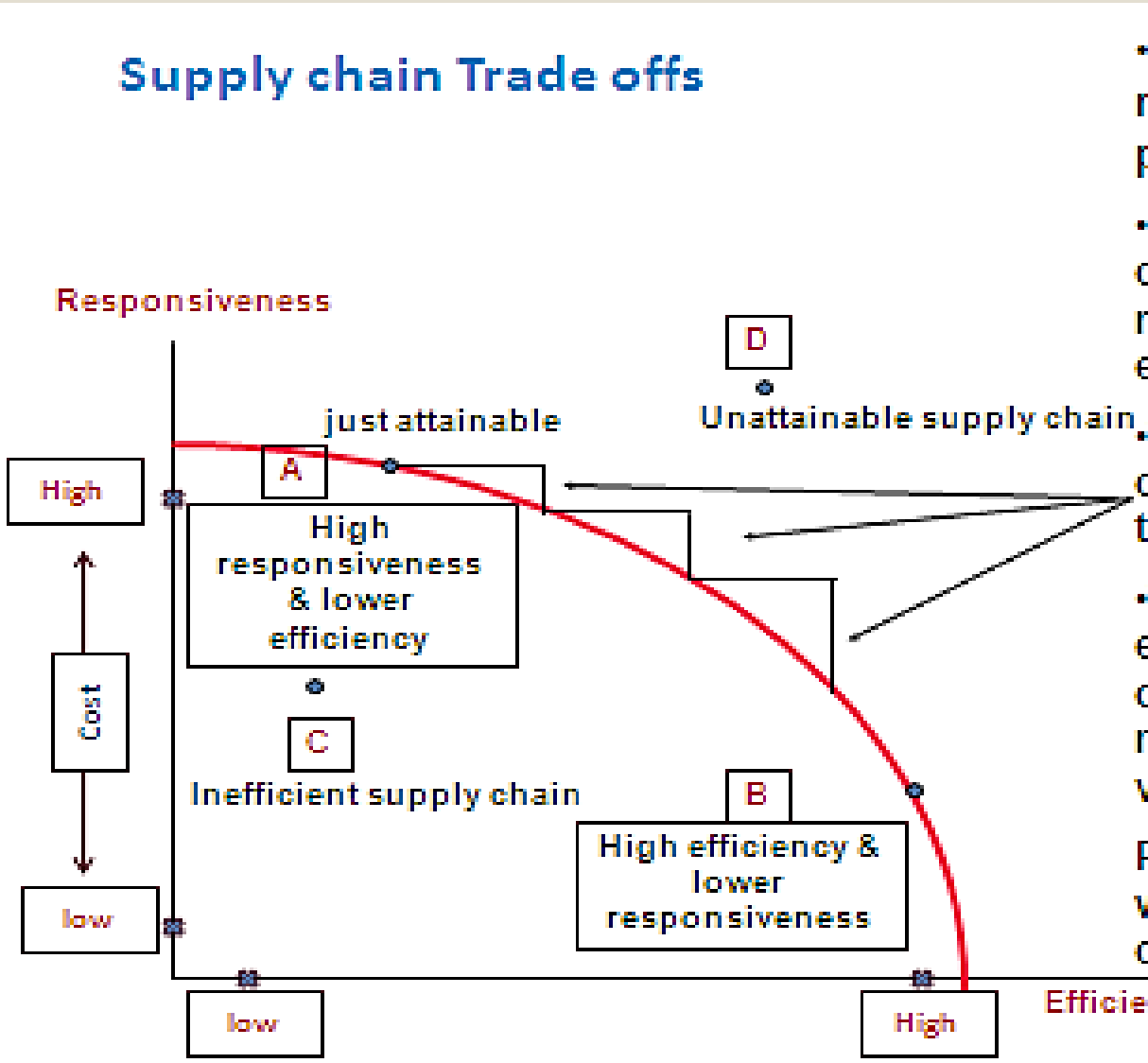
# How can we measure the supply chain performance? Or how can we describe the supply chain?

a) **Responsiveness:** The Supply chain might be high or low responsiveness based on the following:

1. The speed of delivery.
2. Response to wide range of quantity of order.
3. Can meet needs in short time.
4. Can handle large variety of items
5. Can meet a very high service level
6. Handle supply chain uncertainty.
7. Build highly innovative progress.

b) **Efficiency:** Provide the product to customer with least possible cost. It seems that responsiveness and efficiency have an inverse relationship as the increase in responsiveness leads to decrease in efficiency and more cost and vice versa. The selection of the appropriate efficient point on the Frontier (possibility curve) depends on the market and the product type.

# Supply Chain Trade-offs




- The frontier curve represents the best possible supply chains
- Point A & B represents a combinations of level of responsiveness and level of efficiency.
- The marginal opportunity cost of Responsiveness in terms of Efficiency.
- The much we move toward efficiency cost reduces the opportunity cost will be responsiveness and vise versa

Point C is in efficient point while point D is out of capability

# How can we achieve Strategic Fit?

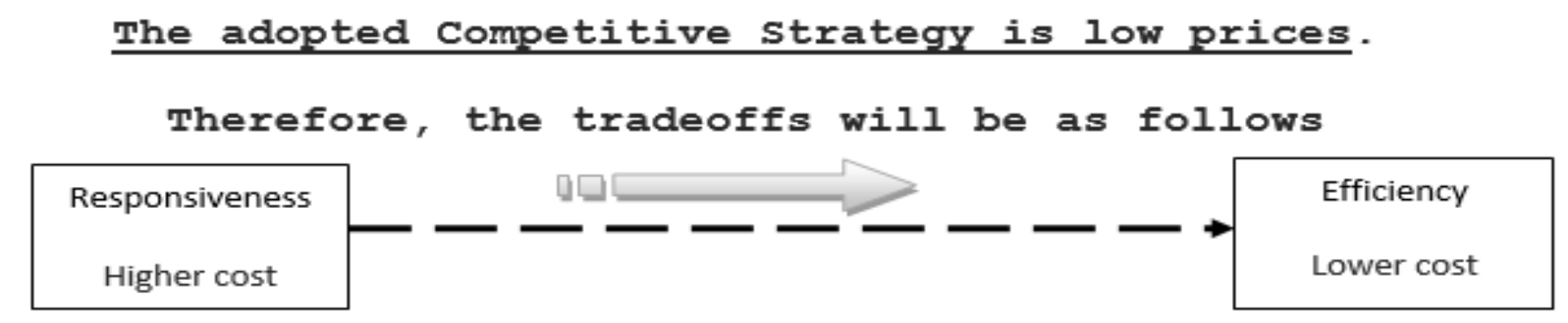
- **Competitive Strategy of any Company:**
  1. It defines the set of customer needs that it seeks to satisfy through its products and services.
  2. The Supply Chain Strategy Includes supplier strategy, operative strategy and logistics strategy should be adjusted to fit the competitive strategy.
- **There for all the Decisions regarding:**

1. inventory
2. transportation
3. Operating facilities
4. Information flow

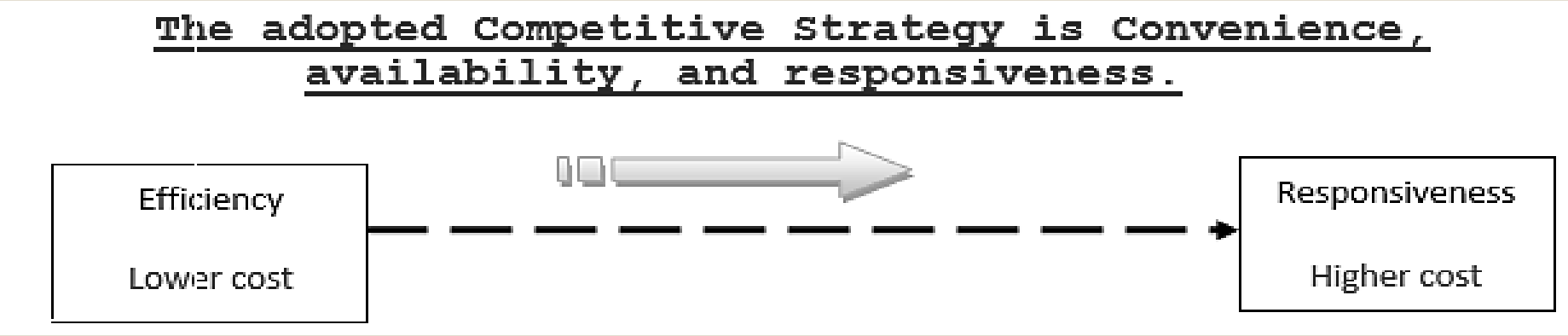
**Will be adopted to suit the competitive strategy. If there is no strategic fit it means that the supply chain implemented system is failure.**

# Supply Chain Strategic fit Examples

**Wal-Mart: aims to provide high availability of a variety of reasonable quality products at low prices.**




**Mc Master : sells maintenance, repair and operations products online and by catalogue.**



# How is Strategic Fit Achieved?

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# Step #1: Understanding the Customer and Supply Chain Uncertainty

- Customer demand from different segments may vary along several attributes as follows:

**1.** Quality of the product needed in each lot.

**2.** Response time customer willing to tolerate.

**3.** Variety of products needed.

**4.** Service level required.

**5.** The price of the product.

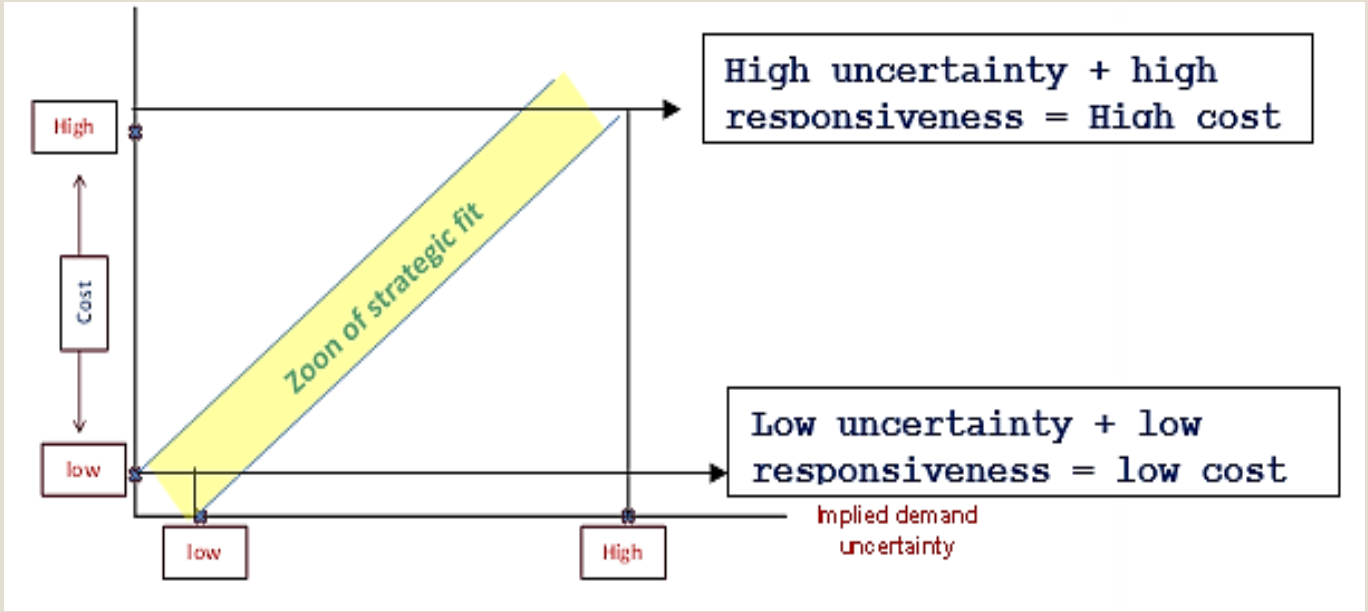
**6.** Deserved rate of innovation.

# Step #2: Understanding the Supply Chain

- After we understand the uncertainty that the company faces. One needs to create a supply chain strategy that best meets demands given the uncertainties it faces.
- The appropriate combination of responsiveness and efficiency (the % of responsiveness % of efficiency) that can maintain and sustain strategic fit.

# Step #3: Creating the strategic fit

- There are a relationship between level of demand and the level of uncertainty.
- We have to keep our self within the zoon of the strategic fit.

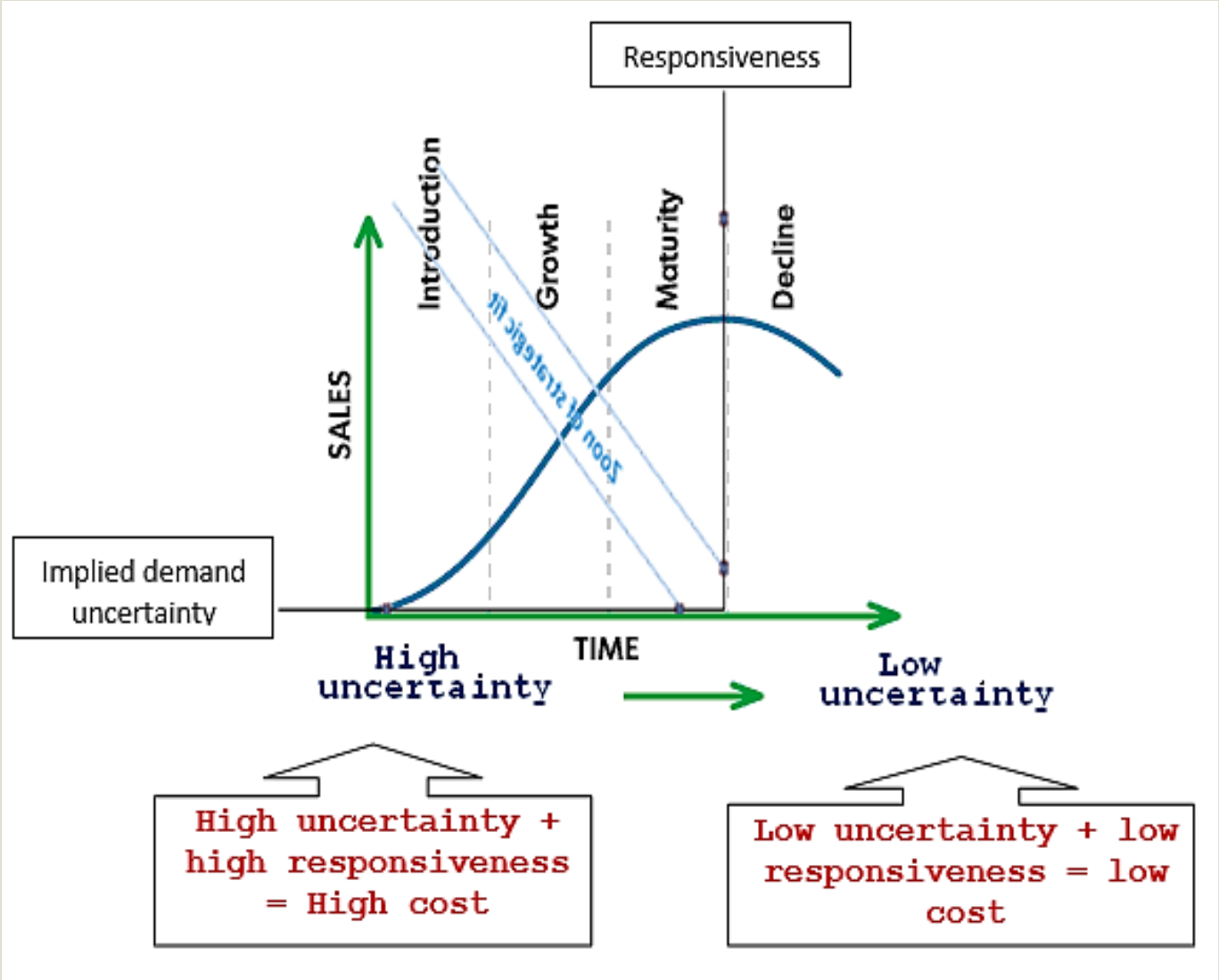



- High uncertainty + high responsiveness = High cost
- low uncertainty + low responsiveness = low cost

# Step #3: Creating the strategic fit

The product life cycle **(PLC)** and levels of uncertainty through the PLC can explain the issue:

- **The introductory stage** in the PLC the uncertainty is high which required high responsiveness and consequently high cost.
- **Moving forward** to next stages the uncertainty level decreases where the demand (Sales) became certain which required no high responsiveness and consequently low cost can be achieved (efficiency).
- The supply chain mangers adopt the strategic fit based on the PLC stages to maintain continuous fit as required.

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# How can we control the supply chain performance?

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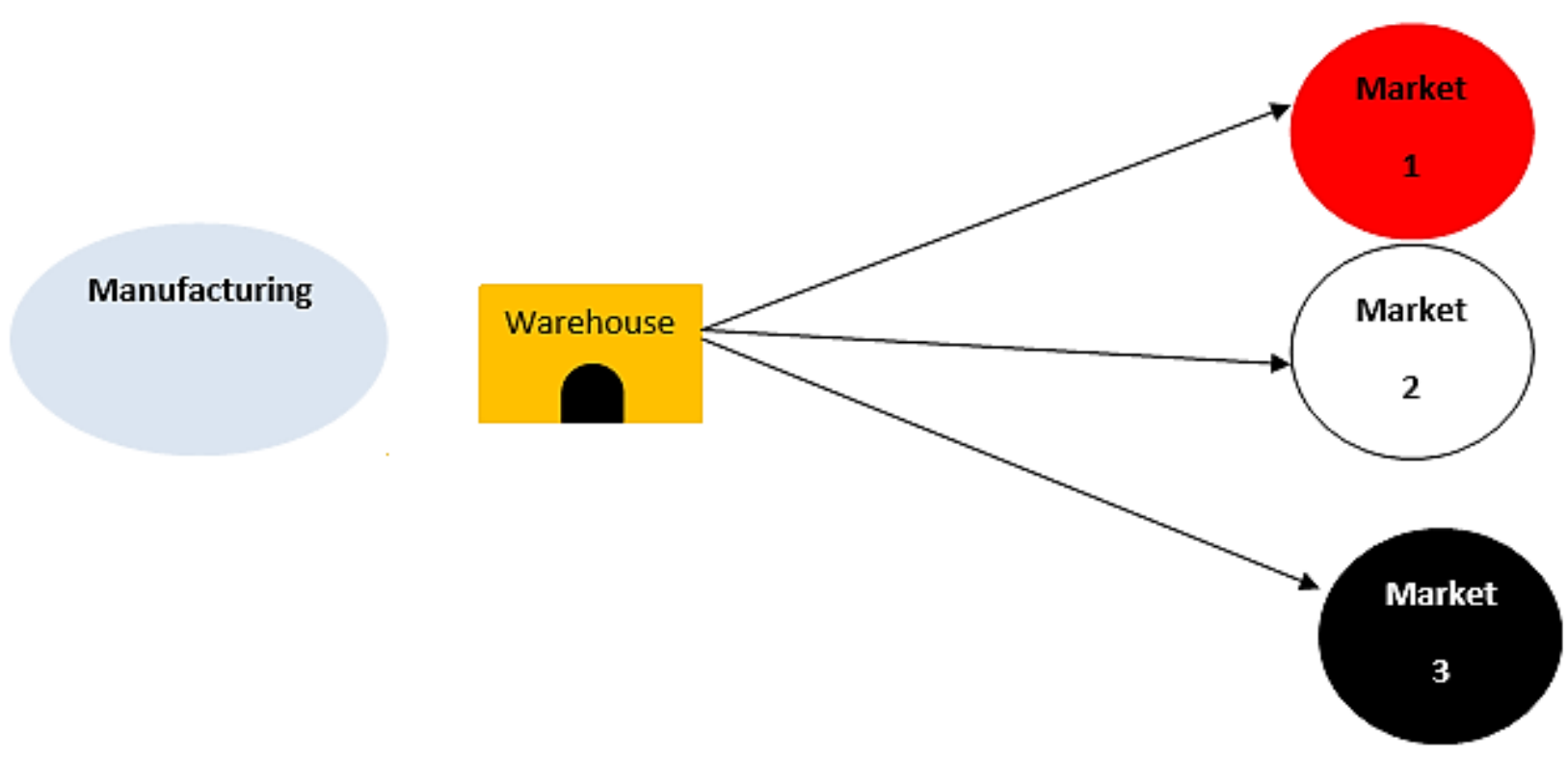
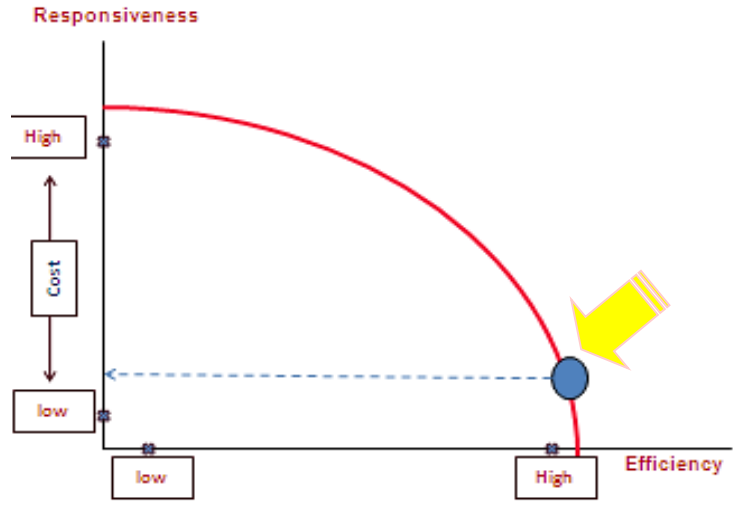
# Supply chain performance 6 drivers

1) **The 1st driver is Facilities:** Location (place) of production facility and location of storage. Felicities can be viewed from three angles as follows:
   a) Facility location.
   b) Facility size.
   c) Number of facilities.

- The following diagrams can explain the issue:

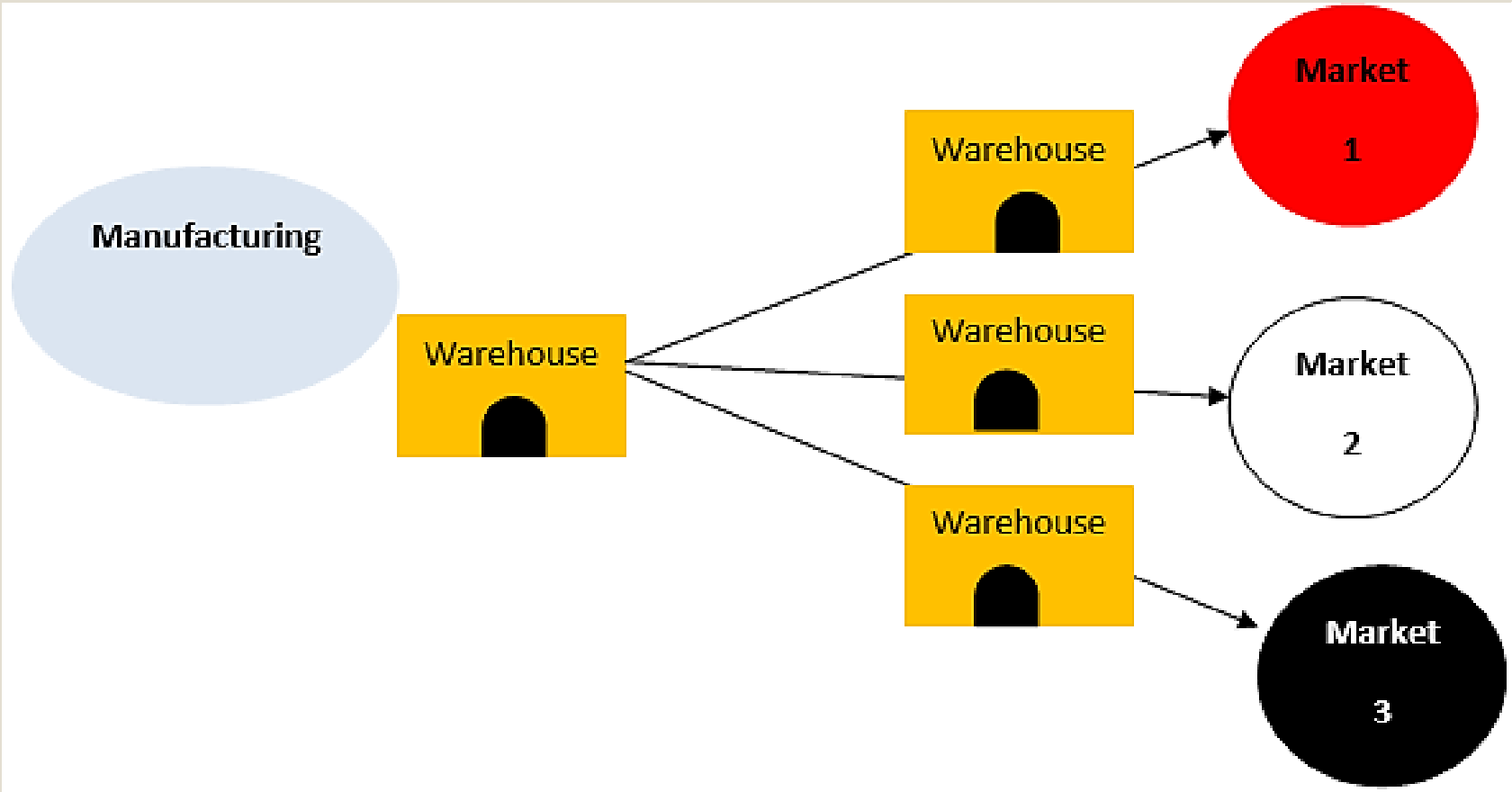
# Manufacturing Facility Location

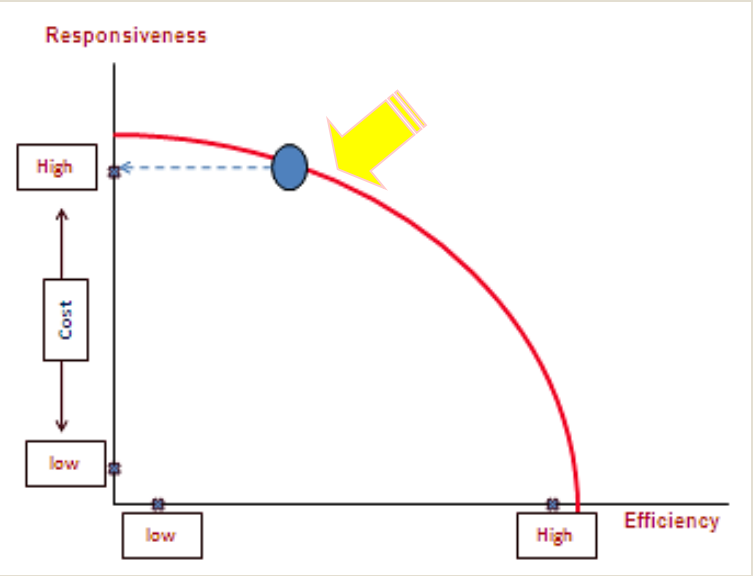



The supply chain is Highly efficient (less cost) but L o w responsiveness

# Manufacturing Facility Location




The supply chain is Less efficient (High cost)
but High responsiveness

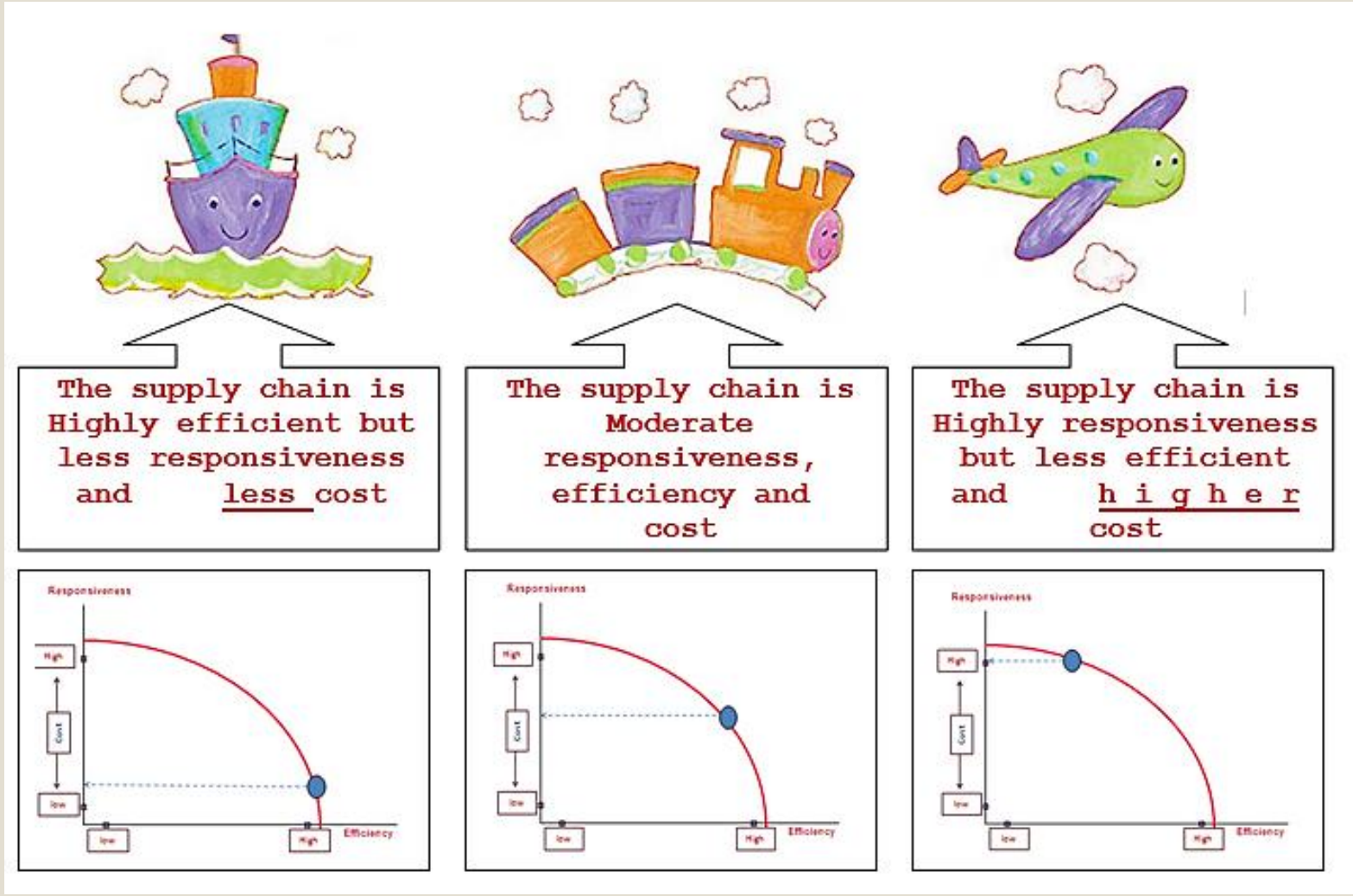
# Manufacturing Facility Location

The fundamental **trade-off** that managers face when making facilities decisions is between the cost of the number, location, and type of facilities (efficiency) and the **level of responsiveness** that these facilities provide the company's customers.

1. **Increasing** the number of facilities increases facility and inventory costs but decreases transportation costs and reduces response time.
2. Increasing the flexibility of a facility increases facility costs but decreases inventory costs and response time.

# Supply chain performance 6 drivers

2) **The 2nd driver is transportation:** The mode of transportation implemented as being high responsive the cost will be high. The following diagram can explain the issue:



# Transportation

The fundamental **trade-off** for transportation is between the cost of transporting a given product (efficiency) and the speed with which that product is transported (responsiveness).

Using fast modes of transport raises responsiveness and transportation cost but lowers the inventory holding cost in both directions whether in the production or distribution stages.

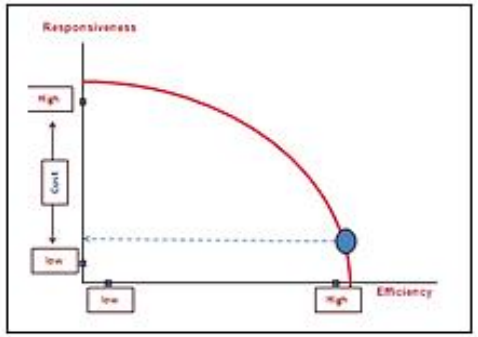
# Supply chain performance 6 drivers

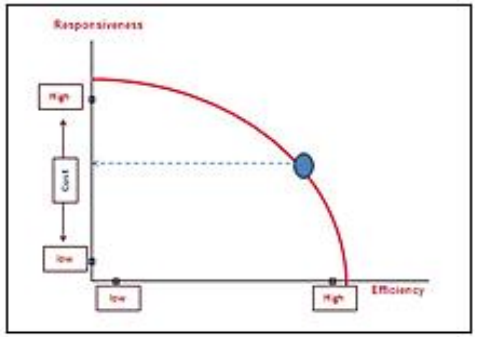
3) **The 3rd driver is inventory:** The level of inventory reflects the level of responsiveness and level of efficiency and cost as well. The following diagram can explain the issue:

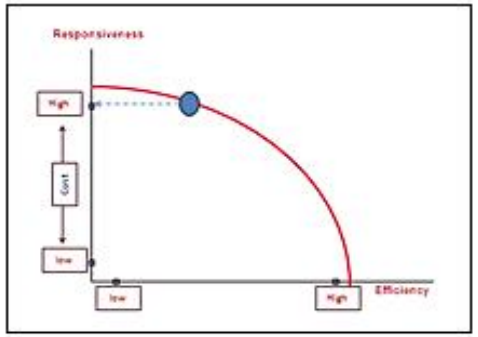
The supply chain is Highly efficient but less responsiveness and less cost

The supply chain is Moderate responsiveness, efficiency and cost

The supply chain is Highly responsiveness but less efficient and higher cost



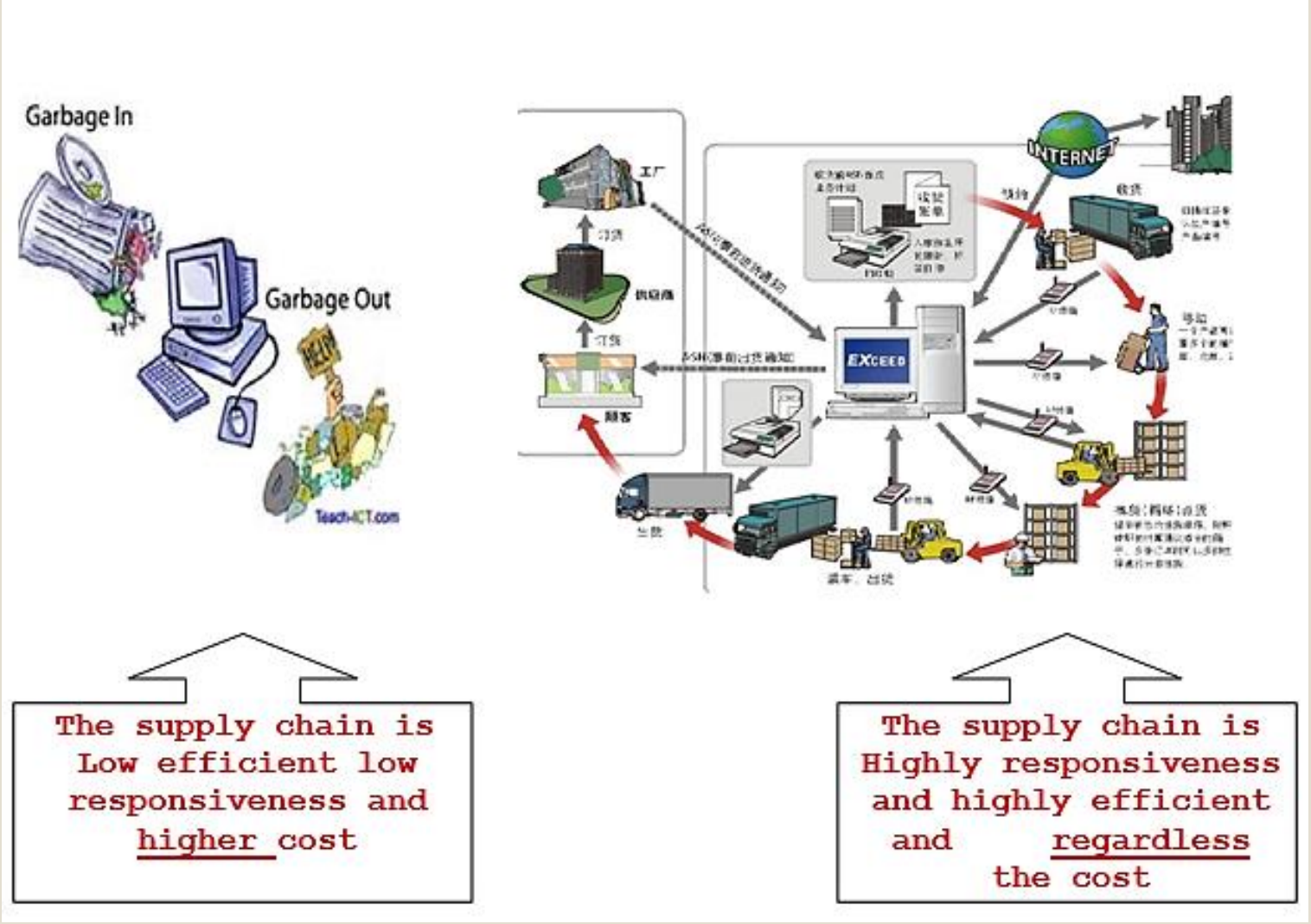
# Inventory

The fundamental trade-off that managers face when making inventory decisions is between responsiveness and efficiency.

1. Increasing inventory generally makes the supply chain more responsive to the customer. i.e. Tabouk branch and its impact on sales
2. A higher level of inventory also facilitates a reduction in production and transportation costs because of improved economies of scale in both functions.
3. This choice, however, increases inventory holding or carrying cost.

# Supply chain performance 6 drivers

4) **4th driver is information systems:** The higher level of communication technology implemented the higher level of responsiveness and the higher level of efficiency as well. The following diagram can explain the issue:



# Information systems

Good information can help a firm improve both its responsiveness and efficiency. The information driver is used to improve the performance of other drivers, and the use of information is based on the strategic position the other drivers support.

1. Accurate information can help a firm improve efficiency by decreasing inventory and transportation costs.
2. Accurate information can improve responsiveness by helping a supply chain better match supply and demand.

# Supply chain performance 6 drivers

5) **The 5th driver is sourcing:**
   - Sourcing decisions should be made to increase the size of the total profit to be shared across the supply chain. The total profits are affected by the impact of sourcing on sales, service, production costs, inventory costs, transportation costs, and information costs.
   - Outsourcing to a third party is meaningful if the third party raises the supply chain profits more than the firm can by its own (more productive). In contrast, a firm should keep a supply chain function in-house if the third party cannot increase the supply chain profits or if the risk associated with outsourcing is significant (**the know how or taking over the business**).

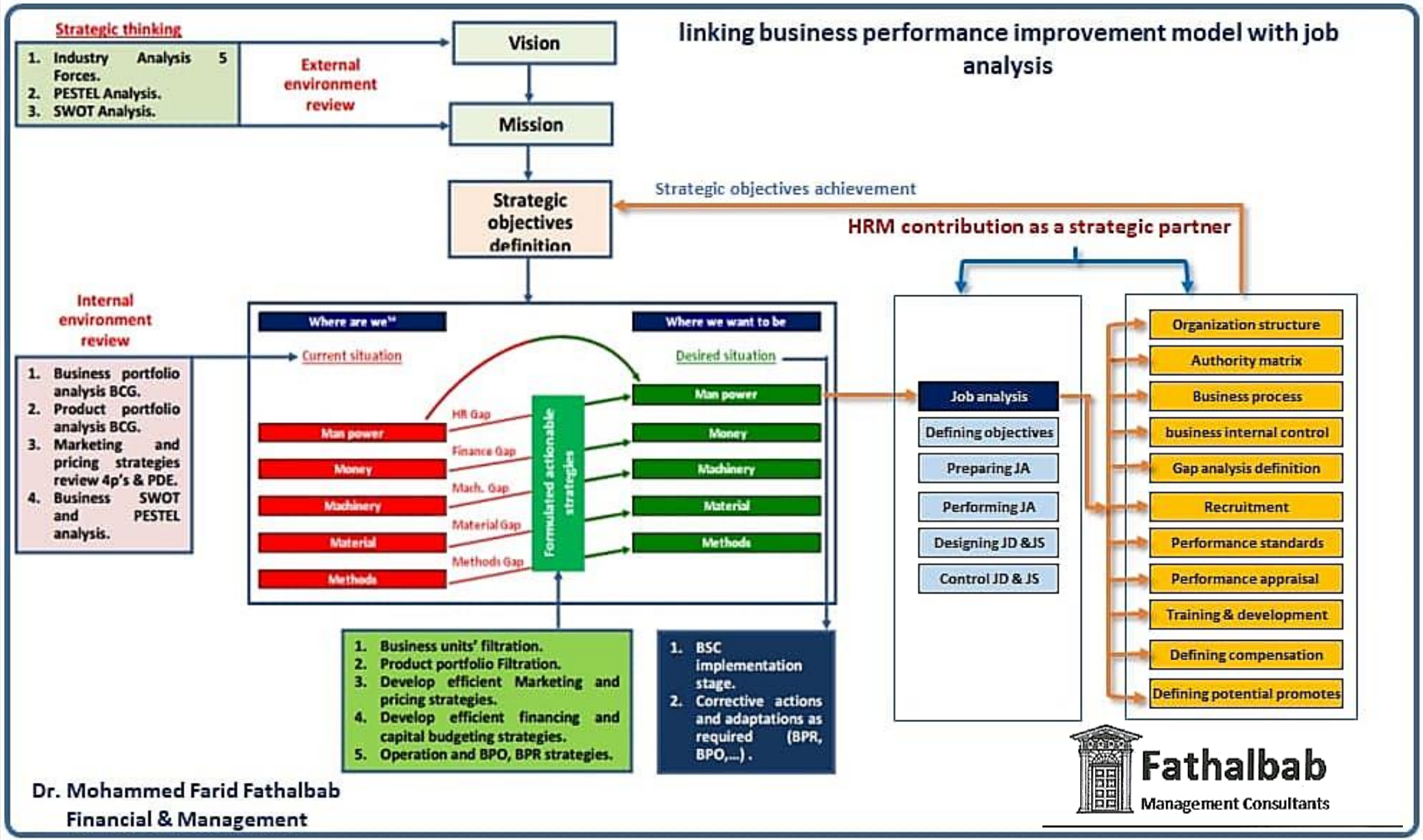
# Supply chain performance 6 drivers

5) **The 6th driver is Pricing:**
   - All pricing decisions should be made with the objective of increasing firm profits. This requires an understanding of the cost structure of performing a supply chain activity and the value this activity brings to the supply chain.
   - Strategies such as everyday **low pricing** may foster stable demand that allows for efficiency in the supply chain.
   - Other pricing strategies may lower supply chain costs, defend market share, or even steal market share.
   - Differential pricing may be used to attract customers with varying needs, as long as this strategy helps either increase revenues or shrink costs, preferably both.

# Supply chain performance 6 drivers

**5) The 6th driver is Pricing:**

- Many obstacles faces pricing , such as
  1. Rising product variety and
  2. shorter life cycles,
  3. demands rapid variation
  4. FRAGMENTATION OF SUPPLY CHAIN OWNERSHIP.
  5. GLOBALIZATION.
  6. DIFFICULTY EXECUTING NEW STRATEGIES.
- Have made it increasingly difficult for supply chains to achieve strategic fit Overcoming these obstacles offers a tremendous opportunity for firms To use supply chain management to gain competitive advantage,


linking business performance improvement model with job analysis
Strategic thinking
1. Industry Analysis 5 Forces.
2. PESTEL Analysis.
3. SWOT Analysis.
External environment review
Vision
Mission
Strategic objectives definition
Strategic objectives achievement
HRM contribution as a strategic partner
Internal environment review
1. Business portfolio analysis BCG.
2. Product portfolio analysis BCG.
3. Marketing and pricing strategies review 4p's & PDE.
4. Business SWOT and PESTEL analysis.
Where are we
Where we want to be
Current situation
Desired situation
Man power
Money
Machinery
Material
Methods
HR Gap
Finance Gap
Mach. Gap
Material Gap
Methods Gap
Formulated actionable strategies
1. Business units' filtration.
2. Product portfolio Filtration.
3. Develop efficient Marketing and pricing strategies.
4. Develop efficient financing and capital budgeting strategies.
5. Operation and BPO, BPR strategies.
1. BSC implementation stage.
2. Corrective actions and adaptations as required (BPR, BPO,...) .
Job analysis
Defining objectives
Preparing JA
Performing JA
Designing JD &JS
Control JD & JS
Organization structure
Authority matrix
Business process
business internal control
Gap analysis definition
Recruitment
Performance standards
Performance appraisal
Training & development
Defining compensation
Defining potential promotes
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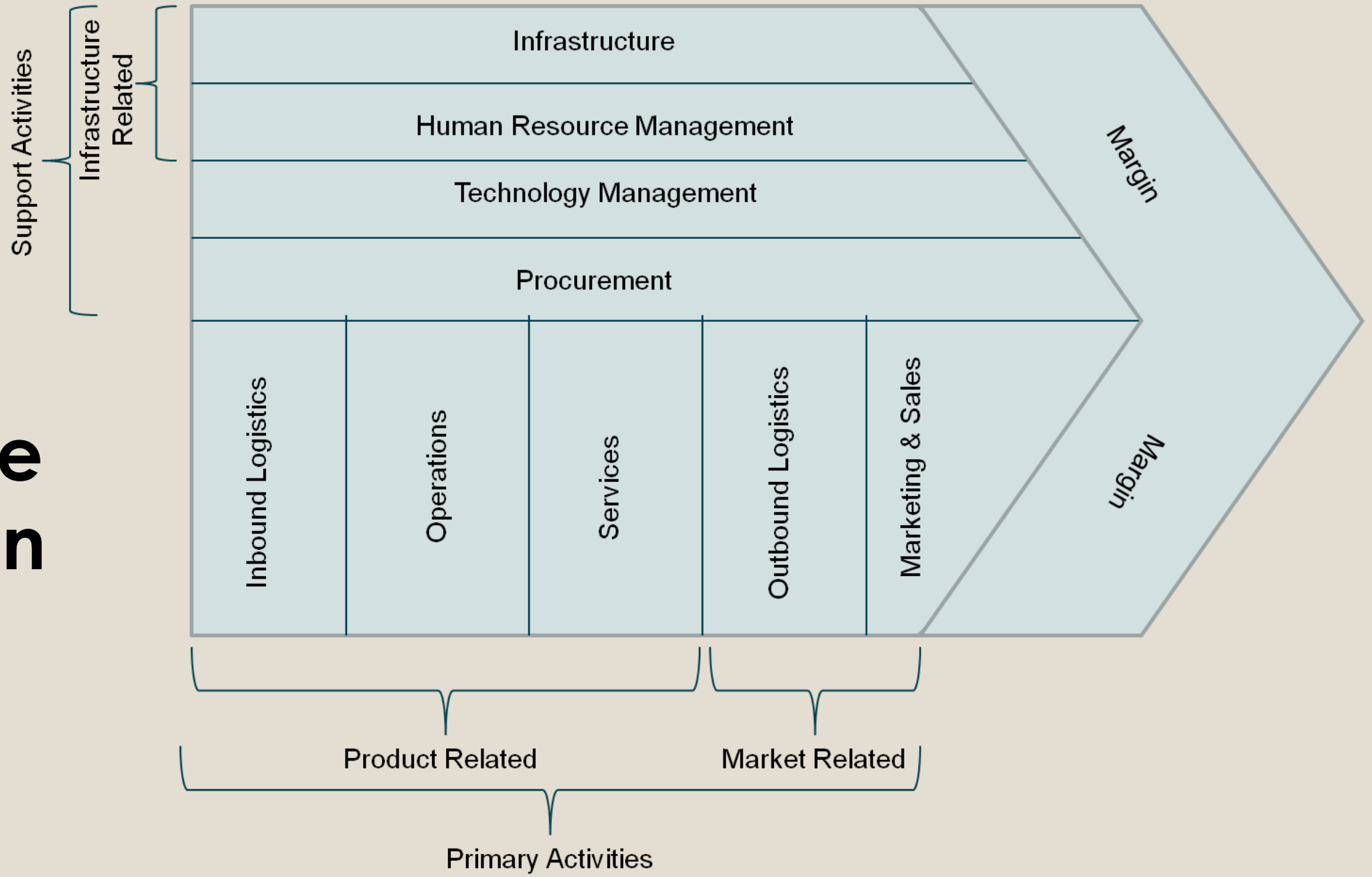
# Value Chain


Support Activities
Infrastructure Related
Infrastructure
Human Resource Management
Technology Management
Procurement
Inbound Logistics
Operations
Services
Outbound Logistics
Marketing & Sales
Margin
Margin
Product Related
Market Related
Primary Activities

# How To Create an Effective Supply Chain Plan ?

# &

# What is the supply chain planning process?

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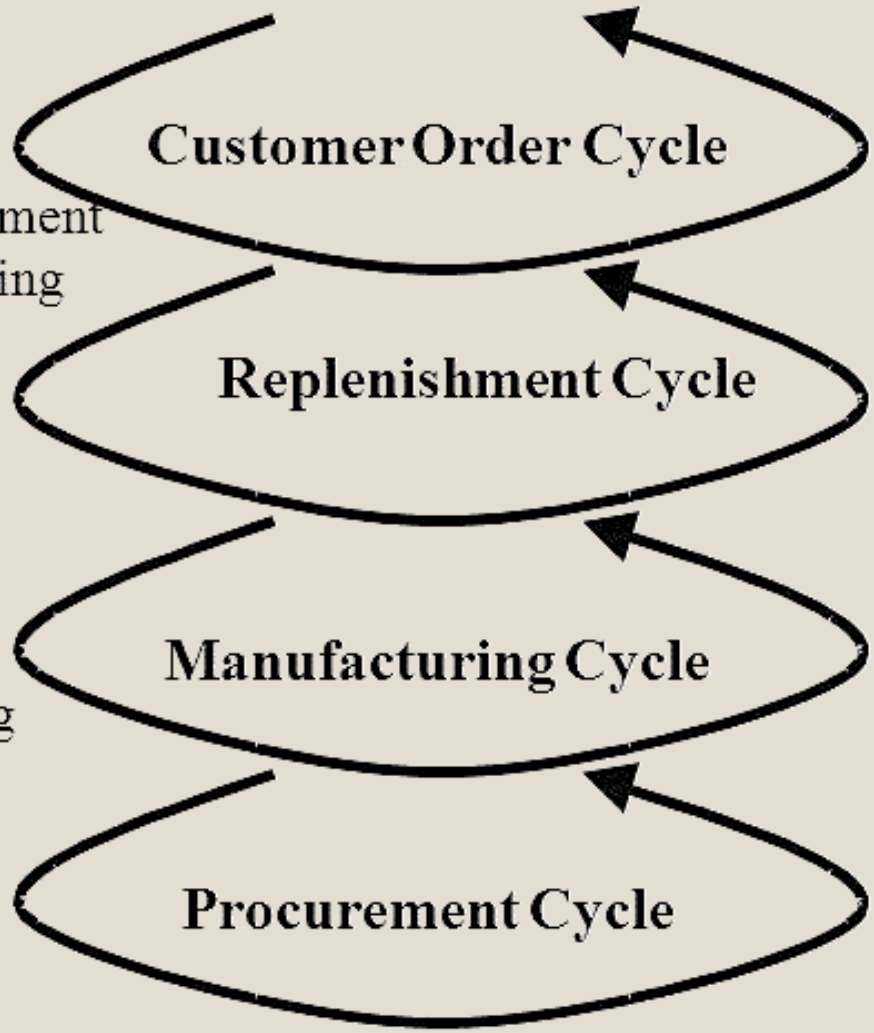
# Cycle View of Supply Chain Processes

**Customer Order Process**
1. Customer Arrival
2. Customer Order Entry
3. Customer Order Fullfillment
4. Customer Order Receiving




**Replenishment Process**
1. Retail Order Trigger
2. Retail Order Entry
3. Retail Order Fullfillment
4. Retail Order Receiving

**Manufacturing Process**
1. Order Arrival
2. Production Scheduling
3. Manufacturing/Shipping
4. Receiving

**Procurement Process**
1. Component Order Arrival
2. Production Scheduling
3. Manufacturing/Shipping
4. Receiving

# How To Create an Effective Supply Chain Plan in 6 Steps

- Well-designed supply chain plans can help companies effectively manage their supply networks to deliver goods and services to their consumer markets.
- Creating an adaptable and detailed plan can improve the company's capability to meet consumer demands while maximizing profits.
- Knowing how to create a supply chain plan can ensure that your organization accounts for production supplies and customer demands for an evolving market.
- In this Presentation, we explore what an effective supply chain plan encompasses and how to create a plan in six steps.

# What is the supply chain planning process?

- Several parts of the planning process help companies convert raw materials to finished products that are then distributed to consumers. The five parts of supply chain planning include:

1. **Supply planning:** The first part of the process is managing the physical supply of goods or services. The objective of this step is to balance material supplies with consumer demands to maximize revenue while meeting market needs.
2. **Production planning:** The next part of the planning process involves the production and manufacturing processes within an organization. This step analyzes the resource allocation of (1) employees, (2) raw materials and (3) production capabilities.

# What is the supply chain planning process?

3. **Demand planning:** Demand planning involves forecasting consumer needs to ensure that the company can meet those requirements. Accurate demand planning can help companies forecast (1) revenue, (2) align inventory requirements and (3) enhance company profits.
4. **Operations planning:** This step helps companies develop specific operational processes to improve their supply chain effectiveness. This step might determine (1) logistics scheduling operations, (2) production timelines and (3) gap analysis requirements.
5. **Sales planning:** This portion of the planning process can help companies determine actual sales goals and other crucial supply chain drivers that influence sales. The goal of this step is to consider sales, marketing, demand management, production, inventory management, new product introduction and how it affects the overall supply chain.

# Supply Chain Planning Process


The objective of this step is to balance: material supplies with consumer demands to maximize revenue while meeting market needs.

The objective of this step is to analyzes the resource allocation of (1) employees, (2) raw materials and (3) production capabilities.

The objective of this step is to maintain Accurate demand planning that can help companies (1) forecast revenue, (2) align inventory requirements and (3) enhance company profits.

The objective of this step is to determine (1) logistics scheduling operations, (2) production timelines and (3) gap analysis requirements.

The goal of this step is to consider sales, marketing, demand management, production, inventory management, new product introduction and how it affects the overall supply chain.

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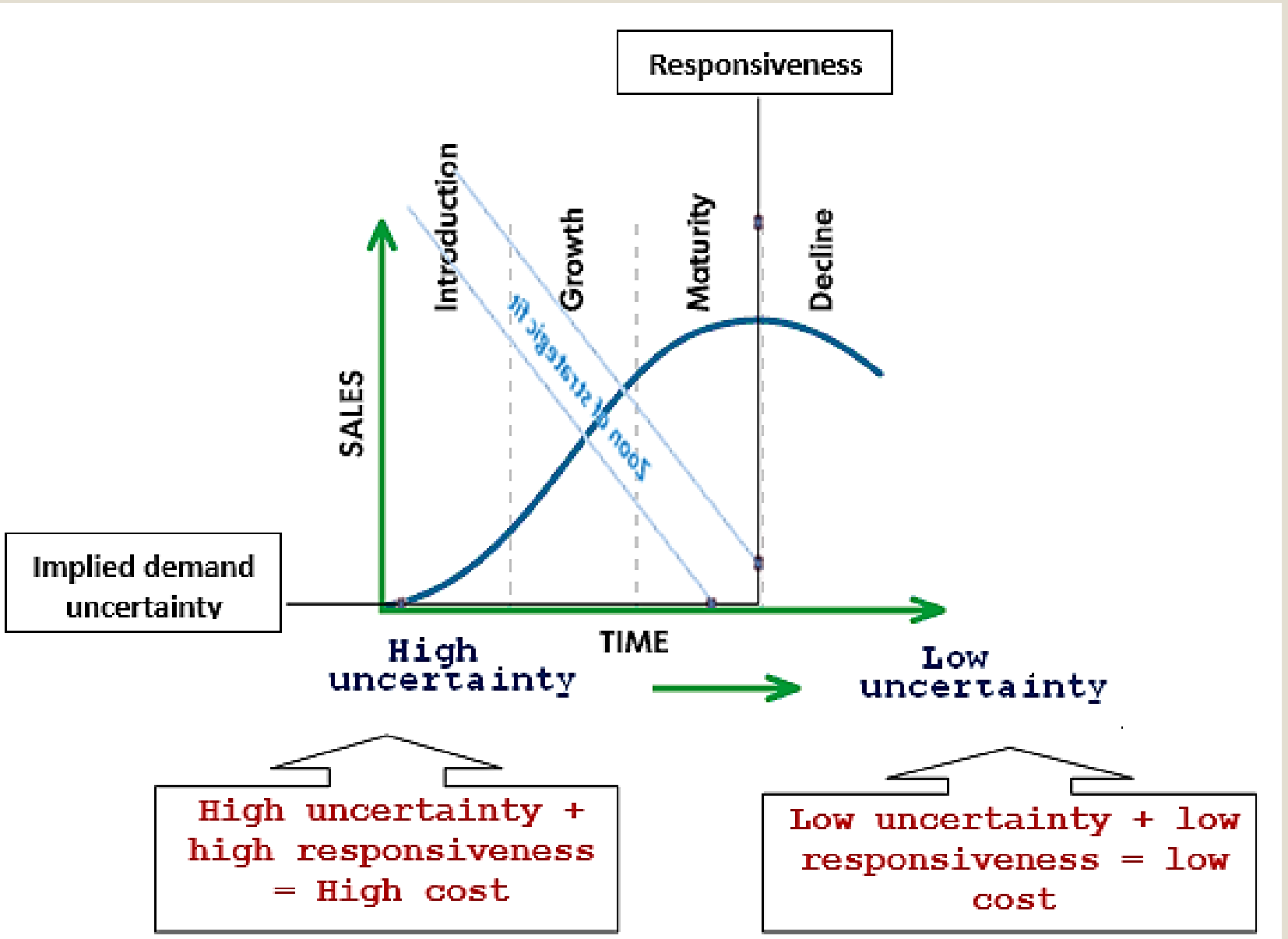


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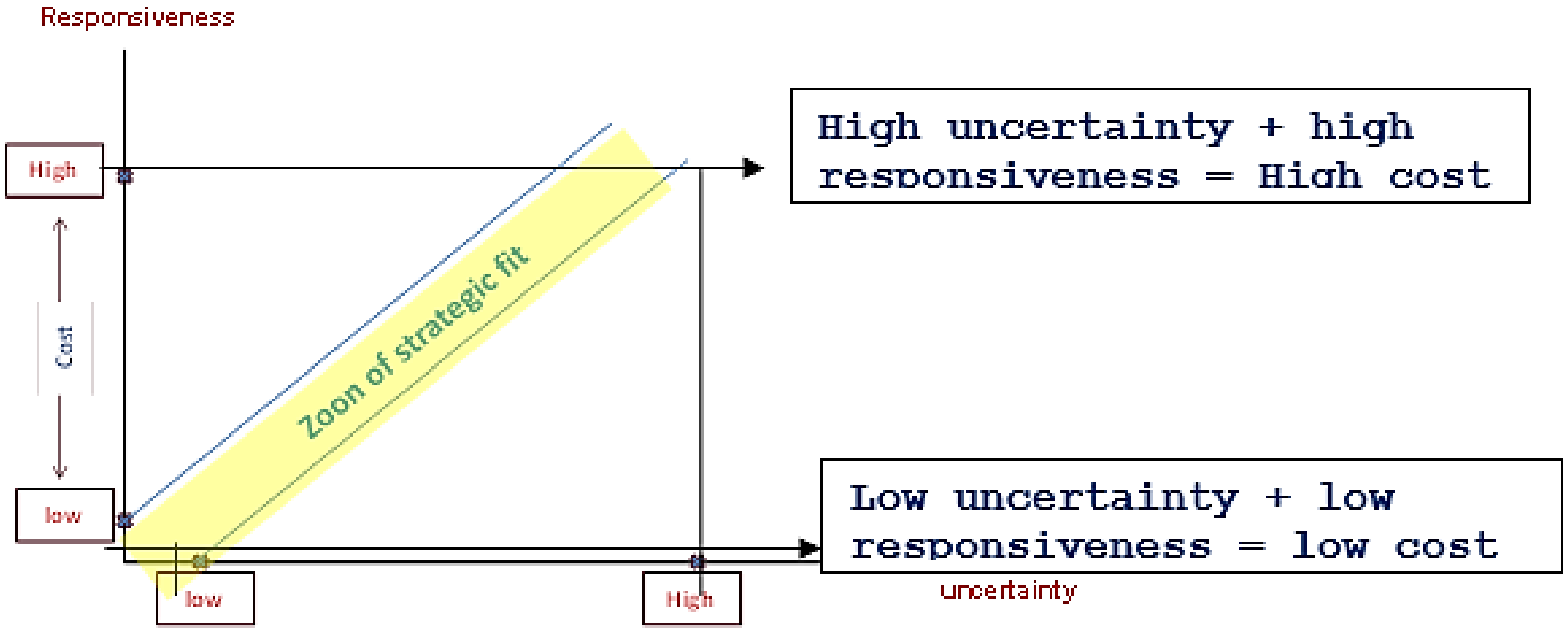
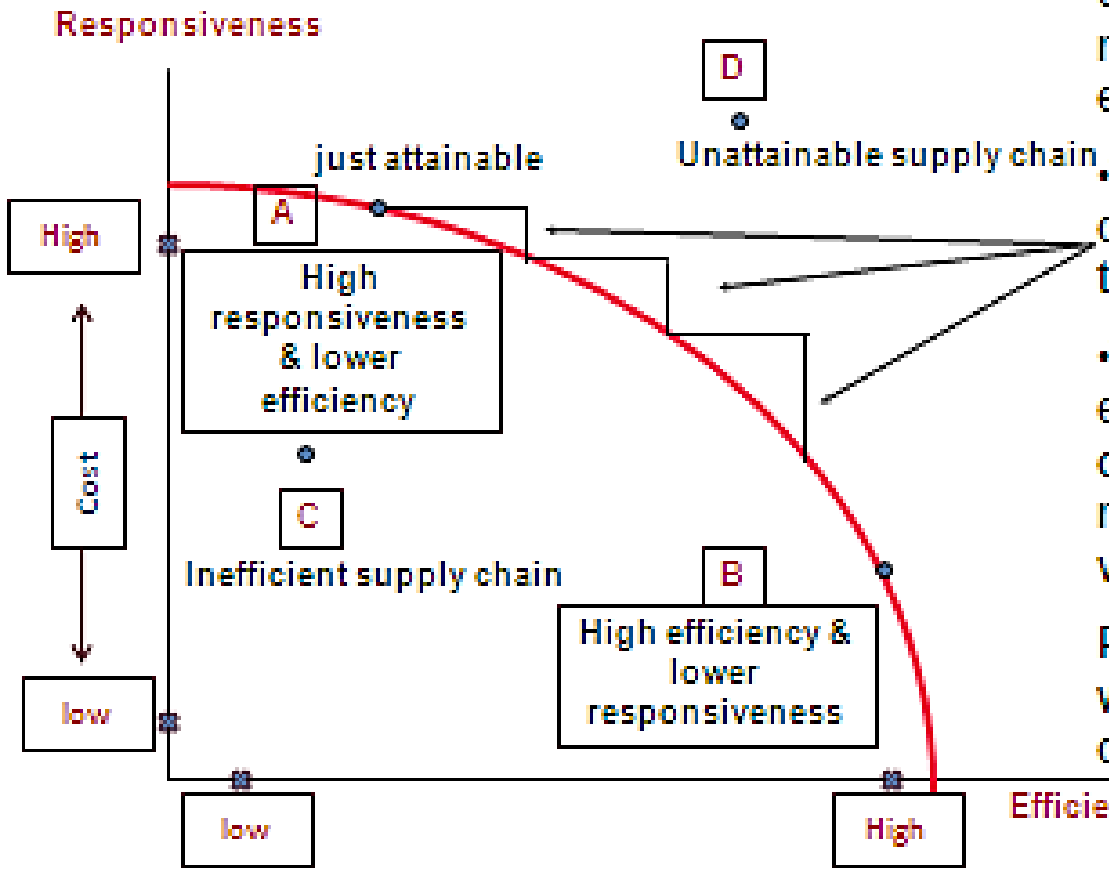



*By Dr. Mohammed Farid Abdelghany*

# Supply chain Trade offs




- The frontier curve represents the best possible supply chains
- Point A & B represents a combinations of level of responsiveness and level of efficiency.
- The marginal opportunity cost of Responsiveness in terms of Efficiency.
- The much we move toward efficiency cost reduces the opportunity cost will be responsiveness and vise versa

Point C is in efficient point while point D is out of capability

*By Dr. Mohammed Farid Abdulghany*

# How to build a supply chain plan

- While the specific steps to build an effective supply chain can differ between industries, companies follow several common steps to build a comprehensive supply chain plan. Here are **six steps** to consider when creating your supply chain plan:

1. **Review company goals:** Reviewing your company's revenue and production goals can help you determine inventory levels and daily production output. It also helps your company create marketing and sales strategies that can aid them in reaching revenue goals. This can also assist you with aligning different departmental operations with the overall supply chain plan.
2. **Perform market research:** Conducting market research surveys or analyzing market trends can help you understand what products or services might be successful. Market research is largely useful if your organization's products or services rely on customer trends or seasonal offerings. This can ensure that the final products you create will still be relevant when they reach consumer markets.

# How to build a supply chain plan

3. **Forecast consumer demand:** The next step is to This can help you determine inventory requirements, storage capacity anticipate future consumer demands to ensure that your organization can meet market needs and logistics needs. Additionally, predicting future needs can help prevent supply or product shortages.
4. **Allocate inventory requirements:** Translating consumer demands to an inventory and replenishment plan can help ensure that your company has enough inventory to consistently meet demands. Determining current and future inventory needs can also help you gather data regarding company expenditures and profits. Another item to consider when creating inventory requirements is how long your inventory can maintain its quality. For example, if your company handles perishable products you should plan to only keep an inventory level that maximizes product quality for final consumers.

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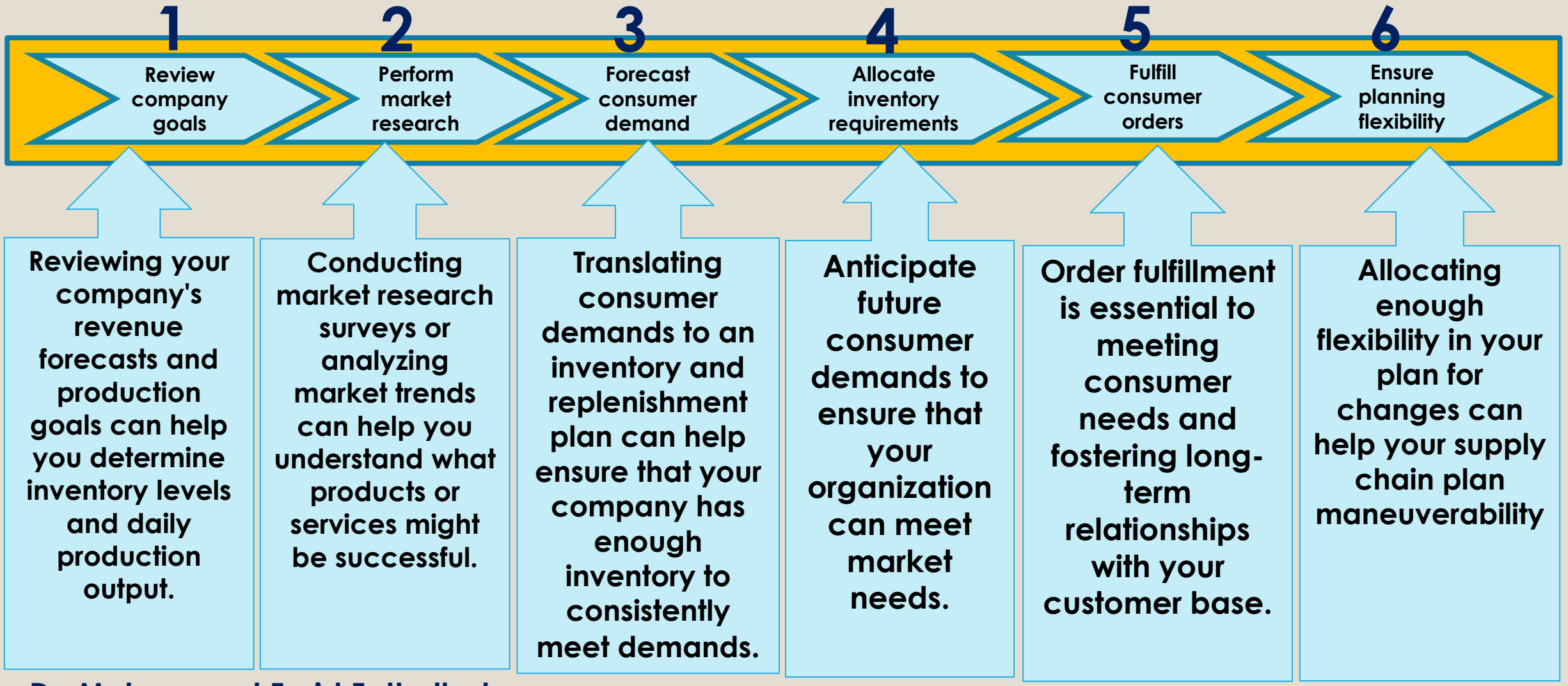
5. **Fulfill consumer orders:** Order fulfillment is essential to meeting consumer needs and fostering long-term relationships with your customer base. Planning the logistics to transport your company's goods to the final customer can help you expedite transportation timelines. Some ways to help plan the logistics of order fulfillment include using a third-party logistics (3PL) company to physically transport their goods to consumer destinations.
6. **Ensure planning flexibility:** Allocating enough flexibility in your plan for changes can help your supply chain plan maneuverability. Some changes that you might consider include supplier, inventory, demand or logistical changes. This can decrease the time taken to re-forecast needs which can result in reducing expenditures that improve overall company profits.

# How to build a supply chain plan




Dr. Mohammed Farid Fathalbab

# Benefits of a supply chain plan

- Creating a well-balanced and organized supply chain plan has several benefits for your organization. Some of those benefits include:

1. **Enhanced throughput:** Creating a well-planned supply chain increases the overall capacity of the supply chain itself. This can allow your organization to (1)increase production capacities, (2) increase production yields and (3) improve finished product output.
2. **Improved operational execution:** Accurate planning allows companies to make proactive decisions to ensure they meet changing consumer needs. This can improve your company's efficiency because you're proactively responding to customer needs rather than reacting to market changes.
3. **Decreased costs:** An adaptable supply chain plan can help decrease company expenditures such as inventory costs, logistics expenditures and production costs. Accounting for change within your plan can also prevent unexpected expenditures such as additional inventory sourcing or new transportation plans.

# Benefits of a supply chain plan

4. **Improved resource allocation:** Once you analyze and determine average resource requirements for your company, you can better forecast future resource needs. This can help ensure that your resource allocations actually match production requirements that can reduce waste or unnecessary expenditures.
5. **Reduced operational delays:** Incorporating communication pathways in your supply chain plan can help reduce operational delays across the entire supply chain process. It can also help prevent late shipments, logistical misunderstandings and delivery impediments.
6. **Clarified responsibilities:** Your plan can also help clarify the role each part of the supply chain holds in the overall performance of the company. This can help prevent functional redundancies and improve chain-wide communication.

# How can technology help build a supply chain plan?

- Incorporating technology into your supply chain plan can help companies create agile, flexible and profitable plans.
- Using technology to help manage inventory tracking, monitor supplier contracts and track logistical requirements can help improve the efficiency of the supply chain.
- It can also prevent processes from overwhelming individual chain components and creating delays.
- This can ultimately improve the availability of goods and services to consumer markets (responsiveness rate) and enhance company profitability.

# GOOD LUCK

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