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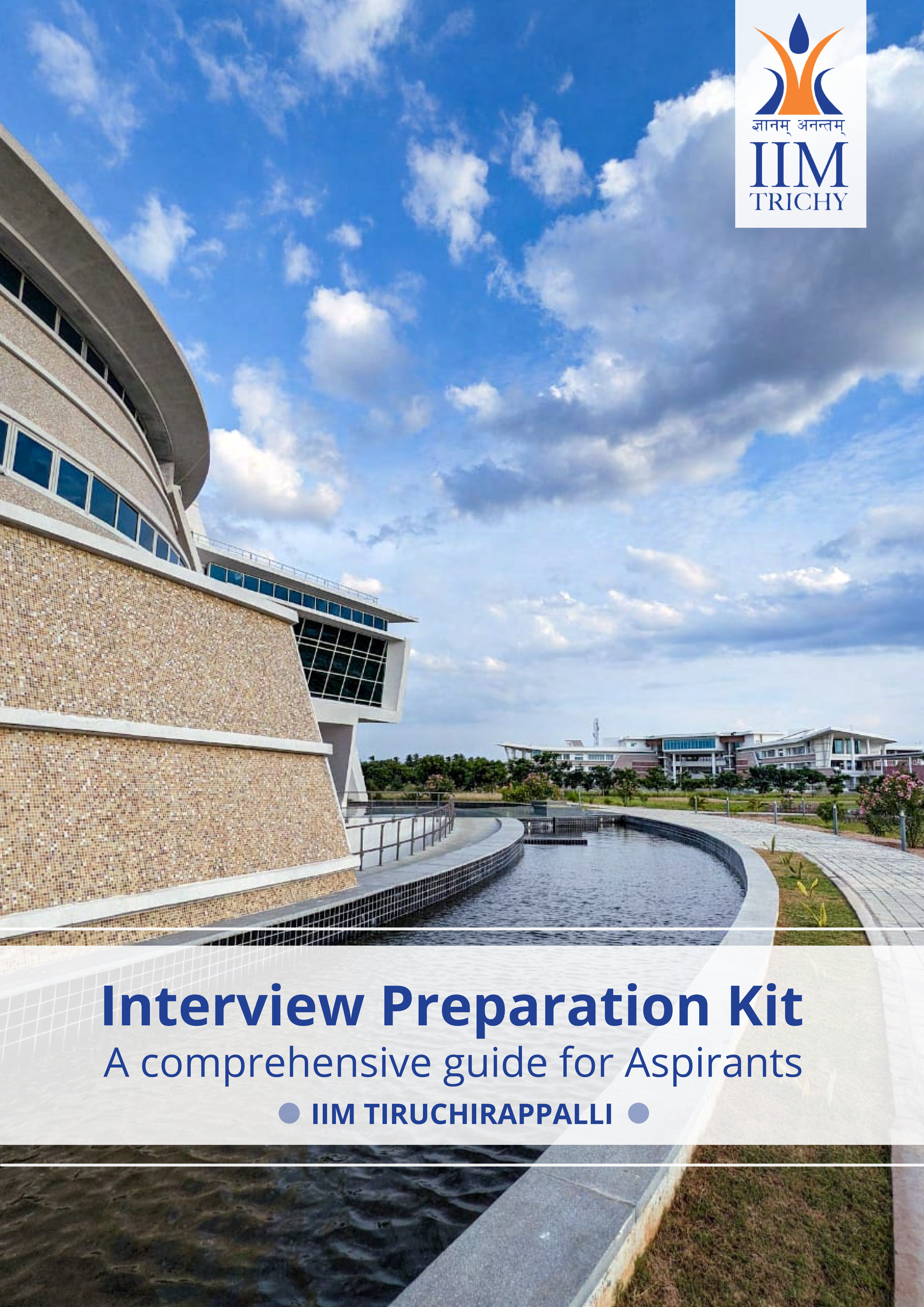

# Interview Preparation Kit

## A comprehensive guide for Aspirants

**IIM TIRUCHIRAPPALLI**

Disclaimer: This document is for reference purposes only and does not represent any endorsement by the IIM Trichy administration. This kit is not exhaustive, and we urge you to use it only to better your preparation to ensure that you give your best shot on D-day.

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# Frequently Asked PI Questions

## Some frequently asked questions for the Personal Interview round:

- Tell me something about yourself? (Introduction)
- Why do you wish to do an MBA?
- What do you expect to learn at the end of this course?
- Why do you wish to join this institute? Why not any other institute?
- What are your strengths and weaknesses?
- Tell us about a failure of yours in college/work and how you've improved since then?
- What is your preferred domain of study in MBA and why?
- Tell us about some recent current affairs you've seen in the news?
- What are your short/long term goals?
- Where do you see yourself 5 years from now?
- Where do you see yourself 20 years from now?
- Are you a team player or team leader? Justify.
- Tell us about your most cherished accomplishment.
- Do you have any hobbies/interests?
- Do you play or follow any sport?
- Where are you from? Tell us something interesting about this place.
- How many districts are there in your state?
- What are your opinions on some of the latest occurrences across the country/globe?
- What are the efforts taken by countries to stimulate economic recovery in this pandemic?
- How has work-life balance disrupted due to Work from the home environment?
- What is the Impact of the pandemic on the global supply chain?
- COVID's impact on the education sector? Are online classes here to stay?

# Economics

by

arthaniti

Economics & Public Policy Club of IIM Trichy

## What is Economics?

Economics is a social science that studies the production, distribution, and consumption of goods and services. It focuses on the behaviour and interactions of economic agents and how economies work.

Economics has been divided into two main branches of study which are Macroeconomics and Microeconomics.

Microeconomics deals with the behaviour of individual economic units in the economy. The individual economic units include consumers, workers, investors, owners of land, business firms, or any individual or entity that contributes to the functioning of the economy. Microeconomics is focused on explaining how and on what basis these individual units make economic decisions.

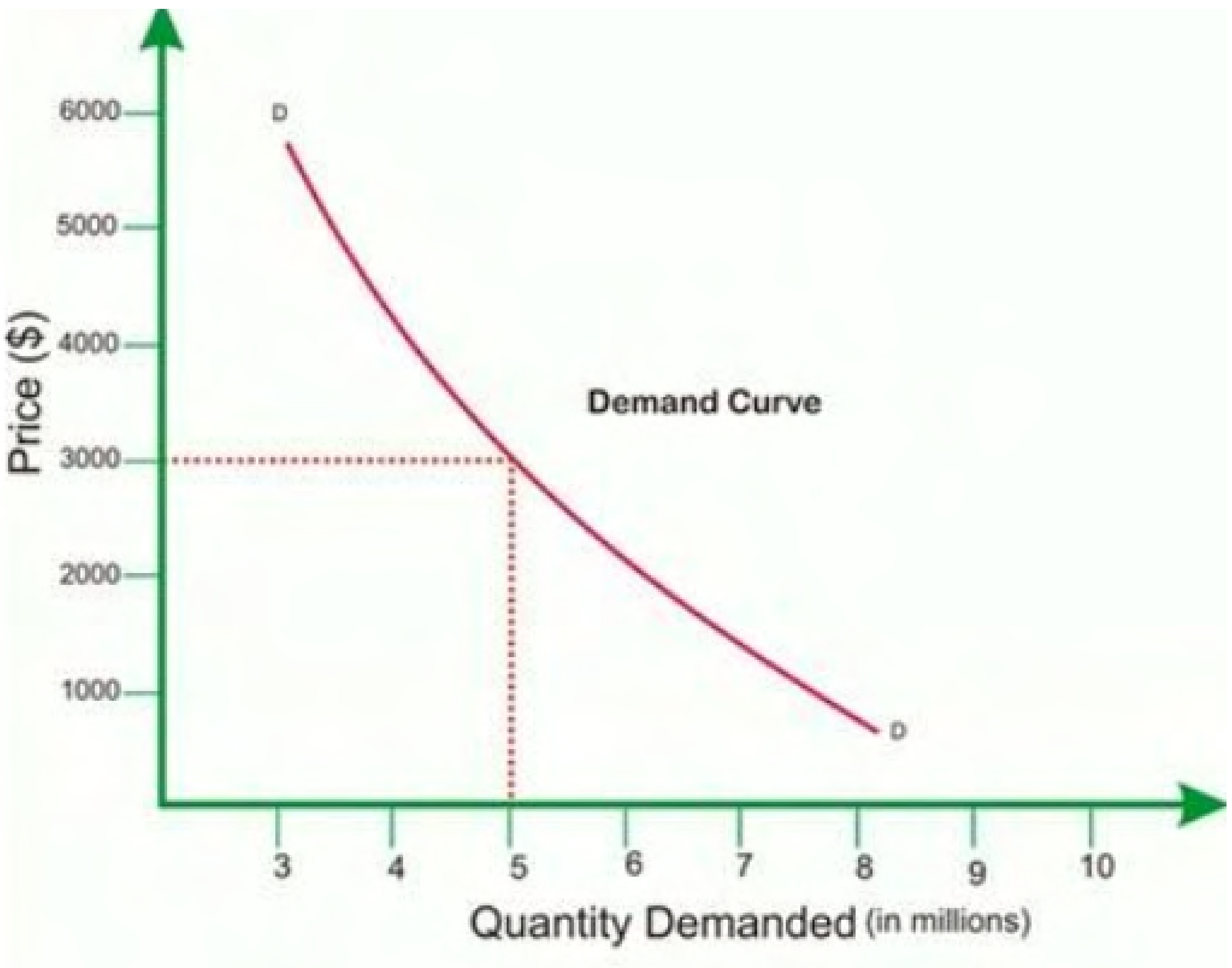
On the other hand, Macroeconomics deals with aggregate economic quantities, such as the level and growth rate of national output, interest rates, unemployment, and inflation. In other words, Microeconomics deals with the demand and supply of an individual and a firm, macroeconomics deals with the aggregate demand and supply of industries and the economy.

- **Demand Curve:**

The demand curve shows the quantity of goods consumers is willing to buy as the price per unit of the good changes.

- **Law of Demand:**

It defines the relationship between the demand and the price of a product. The demand for a product is inversely proportional to its price when other factors like income, price of substitutes, consumer taste, preferences remain the same. When consumers are willing to buy more for a lower price, the price of goods increases, but the quantity demanded decreases and vice versa.



Demand Curve

**It is downward sloped as the price and demand are inversely proportional.**

- **Supply Curve:**

The supply curve shows the quantity of the goods the producers are willing to sell as the price per unit good changes.

- **Law of Supply:**


It defines the relationship between the supply and price of a product. The supply of a product is directly proportional to its price when other factors like income, the price of substitutes, consumer taste and preferences remain the same. When the price of a good increase, the suppliers would want to produce more to capture more profit. As the price of a good decrease, the quantity supplied decreases and vice versa.

**It is upward sloped as supply and price are directly proportional.**

- **Equilibrium**

The point of intersection of the demand curve and supply curve is called the Equilibrium point. It gives the price at which the market supply meets the market demand. Equilibrium is the point at which the price has reached the level where the quantity supplied equals the quantity demanded.

- **Perfect substitutes:**

These are the goods or commodities that consumers view as identical and have no preference in consumption. Here, the product's utility is identical, and the consumer is indifferent if they choose between the two. For instance, a rupee coin is a perfect substitute for a rupee note.

- **Perfect complements:**

Perfect complements are the goods that can be consumed only along with the other and cannot be consumed individually. For instance, the left and right shoes form perfect complements as we cannot use one without the other.

- **Opportunity cost:**

The value or benefit that a person forgoes to pursue the current opportunity (or) the value of the best alternative opportunity an individual would have pursued had it not been the one he/she is working on is called an Opportunity cost.

For example, the benefit associated with the job offer a person has left to start his own company will be his opportunity cost.

- **Sunk Cost:**

The amount of money already spent and cannot be recovered in the future is called the Sunk cost. The cost spent in R&D by a pharmaceutical company to develop a new drug but failed to can be considered a sunk cost, as it cannot be recovered (as we are not selling the drug).

- **Price Ceiling and Price floor:**

Price Ceiling is the price at which a good or service is capped and thus cannot be sold at a higher price. On the other hand, a Price Floor is the minimum purchase cost for a good or service. The government sets these prices based on the situation prevailing in the economy.

- **Fixed Costs:**

Fixed Costs are the costs incurred by a company irrespective of the number of products produced. The company will have to pay the building rent, salaries to its employees, interest payments, etc., irrespective of the output.

- **Variable Costs:**

Costs that vary depending on the number of products produced (output) by the company are called Variable costs. For example, the manufacturing costs of a shoe-making company would vary based on its production units.

**Total cost is the sum of fixed and variable costs.**
**The Average cost is the total cost per number of units produced.**

- **Utility:**

Utility refers to the total satisfaction the consumer experiences by consuming a good or service. Marginal utility is the added satisfaction that a consumer gets from consuming one more unit of a good or service. The law of diminishing marginal utility states, as consumption increases, the marginal utility derived from each additional unit of good declines.

- **Elasticity:**

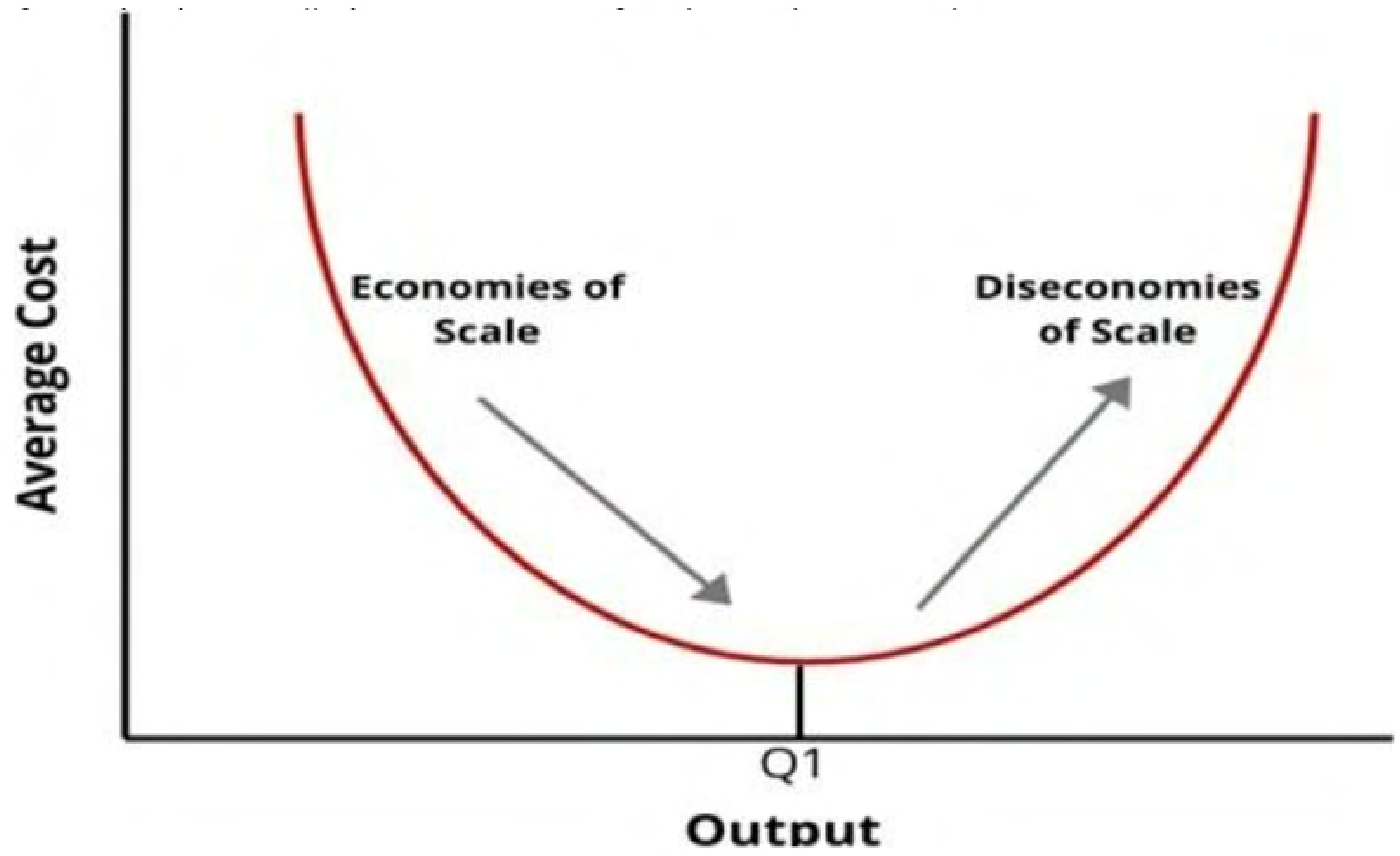
It is the percentage change in a variable resulting from one percentage increase in another variable. The percentage change in demand for a one per cent change in price is called the price elasticity of demand. The measured percentage change in the quantity demanded due to 1 percent change in income is known as income elasticity of demand. The percentage change in quantity supplied for one per cent change in price is called price elasticity of supply.

- **Economies of scale:**

It is the cost advantage that firms enjoy due to their scale of operation. The production becomes efficient and costs less, as the fixed costs can be spread over a more considerable amount of goods when companies scale up production. In this case, the average cost decreases as we scale up the production.

- **Diseconomies of scale:**

After a point of increase in output, the firm can no longer enjoy the cost benefits, and it costs more to increase the production of a single unit (this occurs due to multiple factors). This is called Diseconomies of scale. In this case, the average cost increases as we scale up the production.




Here in the graph, the company is enjoying Economies of scale until point Q1, after which scaling up production can only result in the increased average costs leading to diseconomies of scale.

- **Economies of Scope:**

It occurs when the combined output of two firms producing the same product is greater than the combined output of two enterprises producing different products. This generally happens when a company acquires another, wherein now they will be able to leverage individual synergies and produce better output jointly than when isolated. These advantages can result from the combined use of inputs, production facilities, joint marketing programs, common administration, etc.

- **Learning Curve:**

A learning curve is a graphical representation of the relationship between how proficient an individual is at a task and how it changes with the amount of experience he/she has. Similarly, the firm learns over time as its cumulative output increases.

- **Tariff:**

It is the tax imposed by the government of a country on the goods and services imported from another country. More tariffs discourage consumption of foreign goods as the prices increases, and consumers will be forced to consume domestic goods.

- **Quota:**

The quota is a type of trade restriction wherein the government limits the number of goods or the value of a good that can be imported from another country.

- **What is GDP?**

GDP or Gross Domestic Product refers to the total value of all final goods and services produced in the country within any given period. It is an important economic indicator that gives information about the economy's performance and provides the government with important information about areas of the economy that need Government Assistance. It is a fundamental guide for the various fiscal and monetary policies undertaken by the government.
Simon Kuznets developed the modern GDP concept during the year 1934. When America was suffering due to the Great Depression, the government did not know what policy action to take. They did not have data on the individual performance of industries/sectors despite having data on the financial market performance.

**Methods to Measure GDP: There are three methods to measure the GDP which are as follows:**

1. Expenditure Method: This is the most popular method of the three and is widely used. It calculates the expenditure done by different factors like domestic consumers, private firms, Government. The sum of which gives us the GDP.

$$Y = C + I + G + NX$$

C: Domestic Consumption of goods and services
I: Private Investment in capital goods
G: Government Expenditure
NX: Net Exports = Exports of Goods & Services – Imports of Goods

2. Income Method: The national income is computed using the income technique, which involves adding the pretax earnings of individuals and firms in the economy. It includes income from workers, rent of buildings and land, interest on capital, profits, and so on in a certain accounting year. The income method displays how national revenue is distributed among the economy's main earning groups.

3. Value Added Method: The product approach, also known as the value-added method, is based on the product's net value added at each stage of production

In terms of product technology, the economy is typically divided into several industry sectors, such as fishing, agriculture, and transportation.
To determine the national income, the whole production of the economy's firms is summed together.

- **What is Gross National Product (GNP)?**

Gross Domestic Product calculates the market value of total produced Goods and Services within the country. In contrast, Gross National Product value is the total value of all products and services produced in a year at the means of production owned by citizens of the country.

GNP = GDP +Net Income

Net Income: Income Earned by Citizens from Foreign Investments – Income Earned by the foreigners via own domestically owned means of production.

- **Inflation:** Inflation is the gradual loss of a currency's buying value over time. The increase in the average price level of a basket of selected goods and services in an economy over time can be used to calculate a quantitative estimate of the rate at which buying power declines.
- **Consumer Price Index (CPI):** The Consumer price index (CPI) measures the cost of buying a fixed basket of goods and services representative of the purchases of the urban consumer.
- **Wholesale Price Index (WPI)**: Like CPI, it is also a measure of the cost of a given basket of goods. However, the goods price that they track is at the wholesale level and not at the retail level, and it is more sensitive as compared to CPI.
- **Unemployment Rate:** The unemployment rate signifies the fraction of the workforce out of work that is either looking for a job or expecting a recall from layoff.
- **Inflation vs Unemployment:** The Phillips Curve gives the relation between inflation and unemployment. It shows that both are inversely related, meaning higher the inflation, lower the unemployment observed under normal conditions, and vice versa. Mr A. W. Phillips first studied this relation. This relation creates a policy tradeoff where ideally, the government and the central bank would want both the factors to below in order to ensure long-term stability.
- **Fiscal Policy:** The government takes these policy decisions to influence the behaviour of the economy by changing Taxes, Government Transfers, and Government expenditures all fall under the term of Fiscal Policy.

- **Monetary Policy:** The government takes the Fiscal Policy decisions, whereas The Central bank of the country takes monetary Policy decisions. Ideally, these decisions should be autonomous and free from any influence from the government. The Central bank does this by controlling the money supply in the market and varying it to vary the interest rates, promoting or creating resistance for businesses to take loans and make investments in the economy.
- **REPO Rate:** In the case of a cash shortage, a country's central bank (in India, the Reserve Bank of India) lends money to commercial banks at a repo rate. The repo rate is used by monetary authorities to keep inflation under control. In India, it is 4% as of December 17th, 2021.
- **Reverse REPO Rate**: The reverse repo rate is the rate at which a country's central bank (in this case, the Reserve Bank of India) borrows money from domestic, commercial banks. It is a monetary policy tool that can control a country's money supply. The current Reverse Repo Rate is 3.35%.
- **Statutory Liquidity Ratio:** Minimum percentage of the total deposits that the bank is supposed to keep in the form of gold, cash, and other forms of approved securities. The current SLR rate is 18%, the RBI has the power to increase this rate up to 40%. By varying this, RBI can vary the money supply in the economy.
- **Cash Reserve Ratio (CRR):** Minimum percentage of the total deposits that the bank is supposed to keep in the form of cash with RBI. The lower the CRR, the more money bank will have to lend. RBI varies the CRR in order to vary the liquidity level in the banking system. Currently, the CRR is 4%.
- **Marginal Standing Facility:** In an emergency, when inter-bank liquidity is fully depleted, banks can borrow from the Reserve Bank of India using the marginal standing facility (MSF).
- **Government Budget:** There are three types of scenarios possible in the case of Government Budget, which are as follows:

1. Deficit Budget: When the budget spending plan is more than what the Government will earn in revenues it is called the budget is in deficit and to finance that the Government has to go for deficit financing. This scenario is mostly there as Government has many areas to spend but have limited resources hence budget deficit.

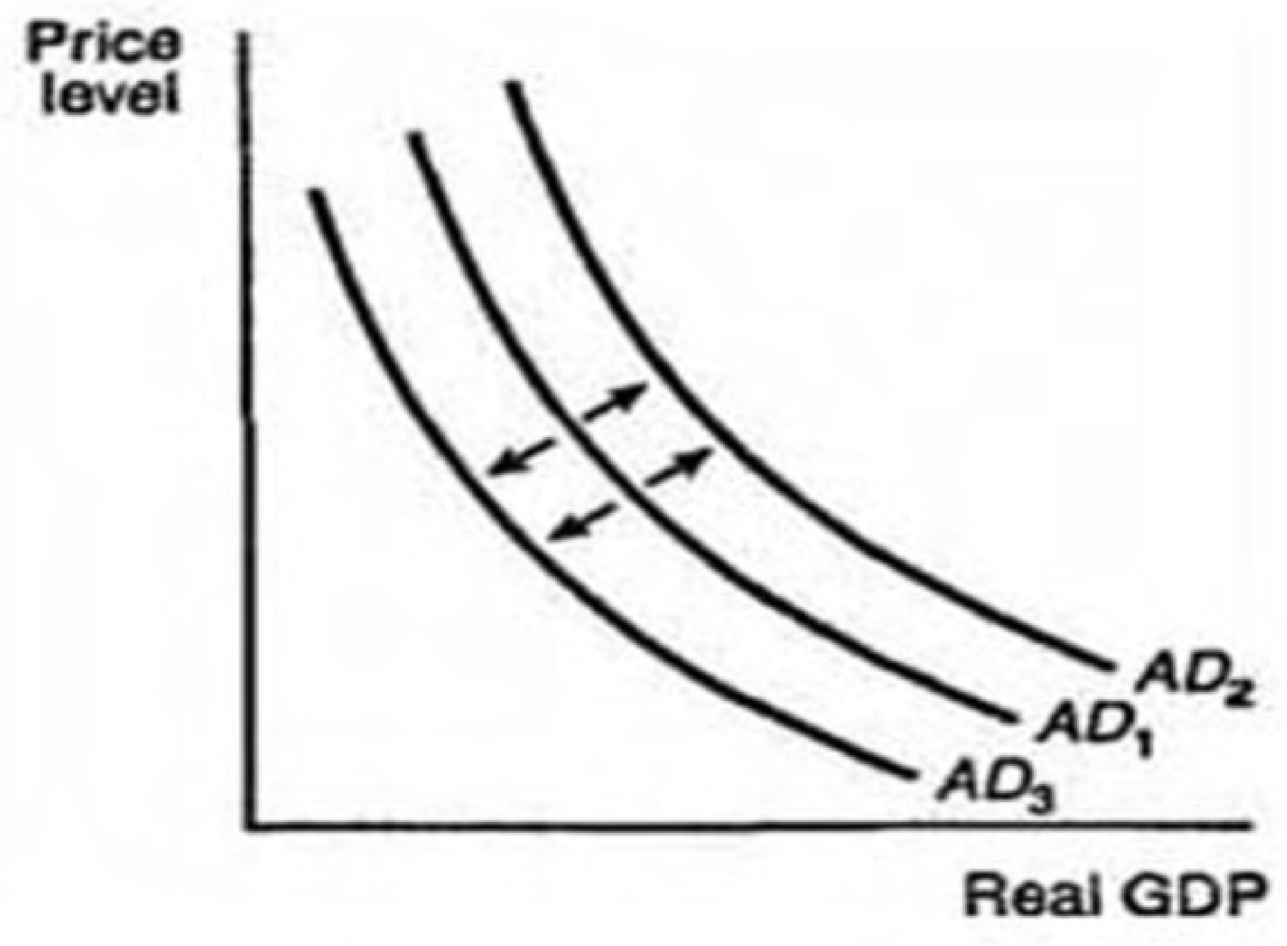
2. Surplus Budget: It is the situation when the planned spending is less than the revenues.

3. Balanced Budget: It is when the spending of the government is equal to the revenues of the government then that budget is called Balanced Budget.

The budget of India is presented every year on 1st February by the finance minister. It summarizes the economic sectors that the government intends to spend on, the tax structure, and other changes. It gives an idea about the fiscal policy taken up by the government.

## Aggregate Demand:

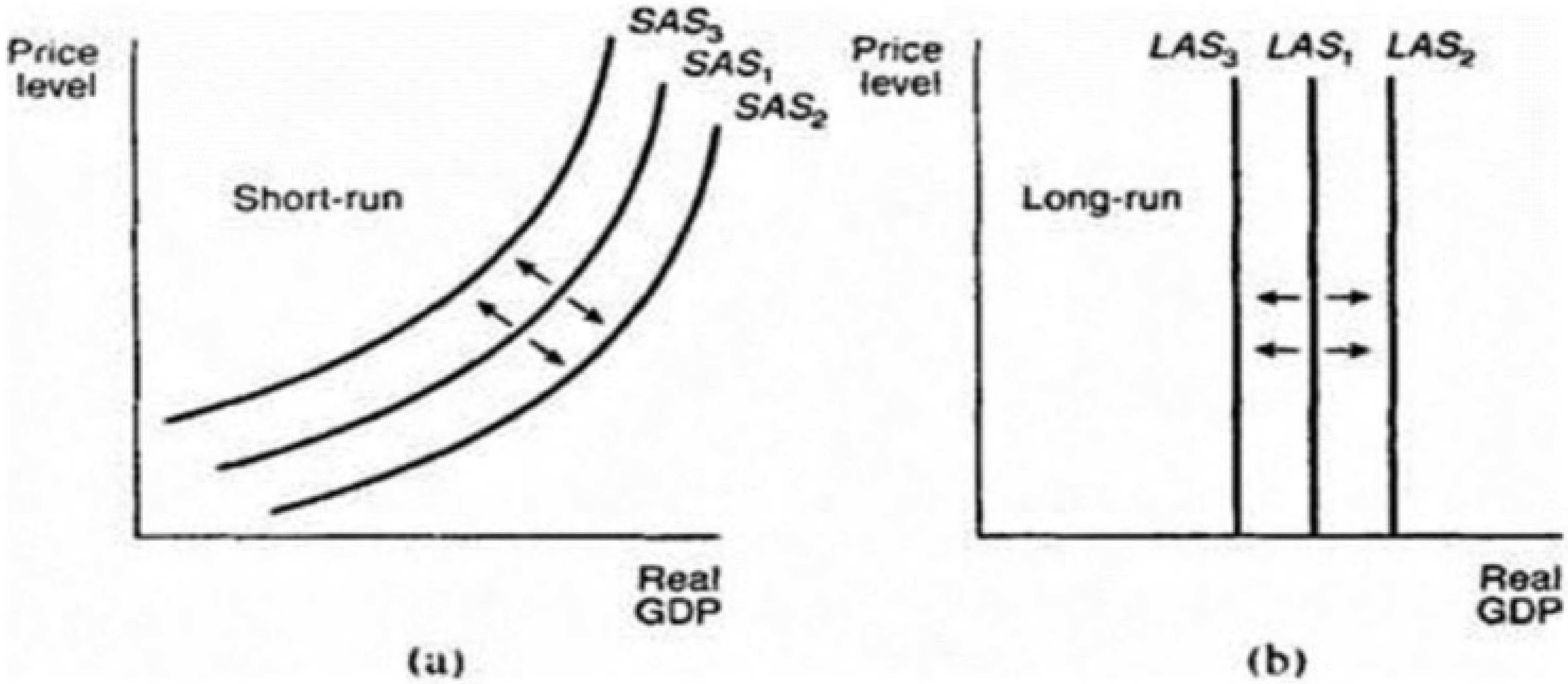
- The total demand at a price level of the finished goods and services produced in the economy is the aggregate demand. It consists of all the demand like consumer demand, Private firm demand, Government Demand, exports, and imports.



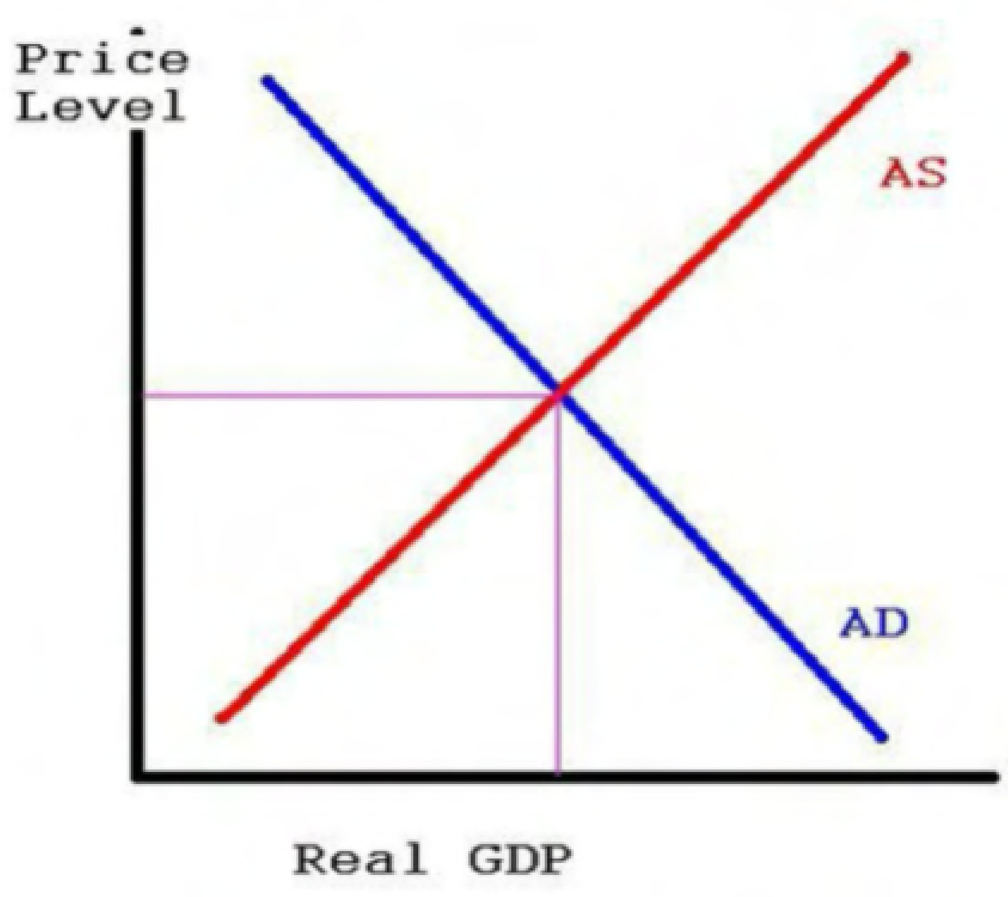

- Over the long-term Aggregate Demand and GDP becomes equal.
- The Aggregate Demand Curve shows the combination of the price level and level of output at which the goods and money markets are simultaneously in equilibrium.
- Expansionary policies such as increased government spending, tax cuts, and increased money supply move the aggregate demand curve to the right.
- The aggregate demand is also dependent on consumer confidence. When consumer confidence is high, the aggregate demand is higher, so the curve shifts right.
- The Aggregate demand is a downward sloping curve that is when Price decreases, the demand increases.

## Aggregate Supply

- The aggregate Supply curve describes the number of output firms are willing to supply for each given price level.
- It is upward sloping because firms are willing to supply more output at higher prices.
- When there are external changes like changes in oil prices, the Supply Curve shifts left or right depending on the change in Oil Price; if it increases, the supply curve will shift left and vice versa.




- When there is a technology upgrade, the cost per unit of supply reduces, and hence suppliers are ready to supply more at the same price, and hence supply curve shifts right.
- Figure-(a) shows the aggregate supply curve, which is in the normal case, and Figure-(b) shows the aggregate supply curve, which is vertical, which is the long-run supply curve, the GDP is at the potential output.
- Potential Output is the GDP when total capacity is utilized to produce Goods and Services.




- The intersection of the Aggregate Demand Curve and Aggregate Supply curve will determine the equilibrium point. It will give the Price Level and the Real GDP value at which the Economy currently is (when at equilibrium)

## Current Status of Indian Economy and Global Economy

India is emerging as the world's fastest-growing major economy, with the potential to become among the world's top three economic powers in the future. It is the world's sixth-largest economy considering the nominal GDP and the third-largest in purchasing power parity (PPP).

The pandemic has affected the global economy to a great extent. The article talks about the current status of the Indian economy and the overall global economy. In 2020, the world faced challenges with the destructive waves of the pandemic and ensuring recovery to date; some economic parameters of emerging economies were studied.

## Market size

According to the provisional estimates of GDP for 2021-22 in the first quarter, the GDP of India is at Rs. 51.23 lakh crore at current prices in the first quarter of FY22. The Indian economy is projected to grow 8.5% in 2022.

As per Hurun Global Unicorn List, with over 21 unicorns, the country is recognized as the fourth-largest unicorn base globally. These unicorns are collectively valued at US$ 73.2 billion.

With the current economic situation, India needs to increase the net employment growth rate by 1.5% per year by 2023. With this, India would attain a GDP growth of 8-8.5% by 2030.

## Recent Developments

Due to the reforms and policies in a few sectors, global investment has been attracted, making India stand firm among the nations, witnessing strong Foreign Direct Investment (FDI), which has continued in 2021.

India's growth aspects are better than most of its peer countries. However, inflation has been a concern throughout the pandemic and will likely remain the same.

The growth in investments across various sectors of the Indian economy has been observed as the economic situation improves. The private equity - venture capital (PE-VC) sector has recorded investments worth US$ 10.7 billion across 137 deals in August 2021, registering a five times YoY growth. There has been an investment of US$ 2.5 billion in August 2021 by Foreign portfolio investors (FPIs).



Capital markets across the world have been severely hit during the pandemic. Among the emerging nations, the capital markets of two countries, Vietnam and India, have seen aggressive growth. It can be inferred that the withdrawn capital here is invested in these two economies in order to alternate investment destinations.

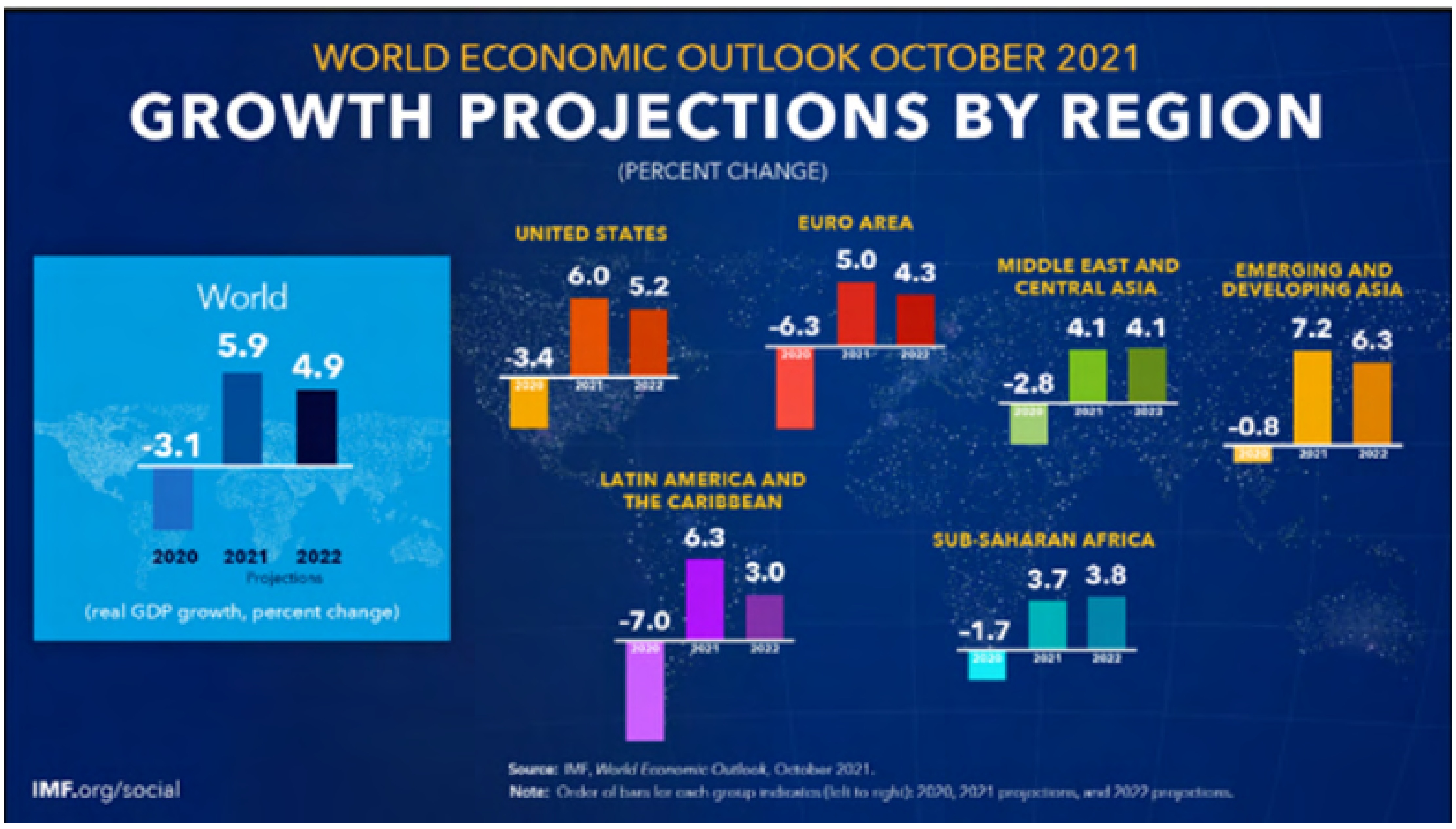
It has been observed that depreciation of the local currencies in all the economies was observed against the US dollar in 2020. However, Indian's currency has been among the better-performing ones, along with China and Vietnam, their currencies appreciated against the US dollar in 2020.



Amid a resurging pandemic, the recovery of the global economy has continued to happen. However, with an unprecedented situation, it must work upon the economic and policy challenges and needs substantial efforts to recover from the damages.

## The forecast

The projections of the growth of the global economy indicate the growth of 5.9 per cent in 2021 and 4.9 per cent in 2022, the downward revision. It indicates the down gradation for advanced economies—probably due to supply disruptions. It is primarily due to worsening pandemic dynamics for low-income developing countries. Comparatively, the forecast of the advanced economies has been revised



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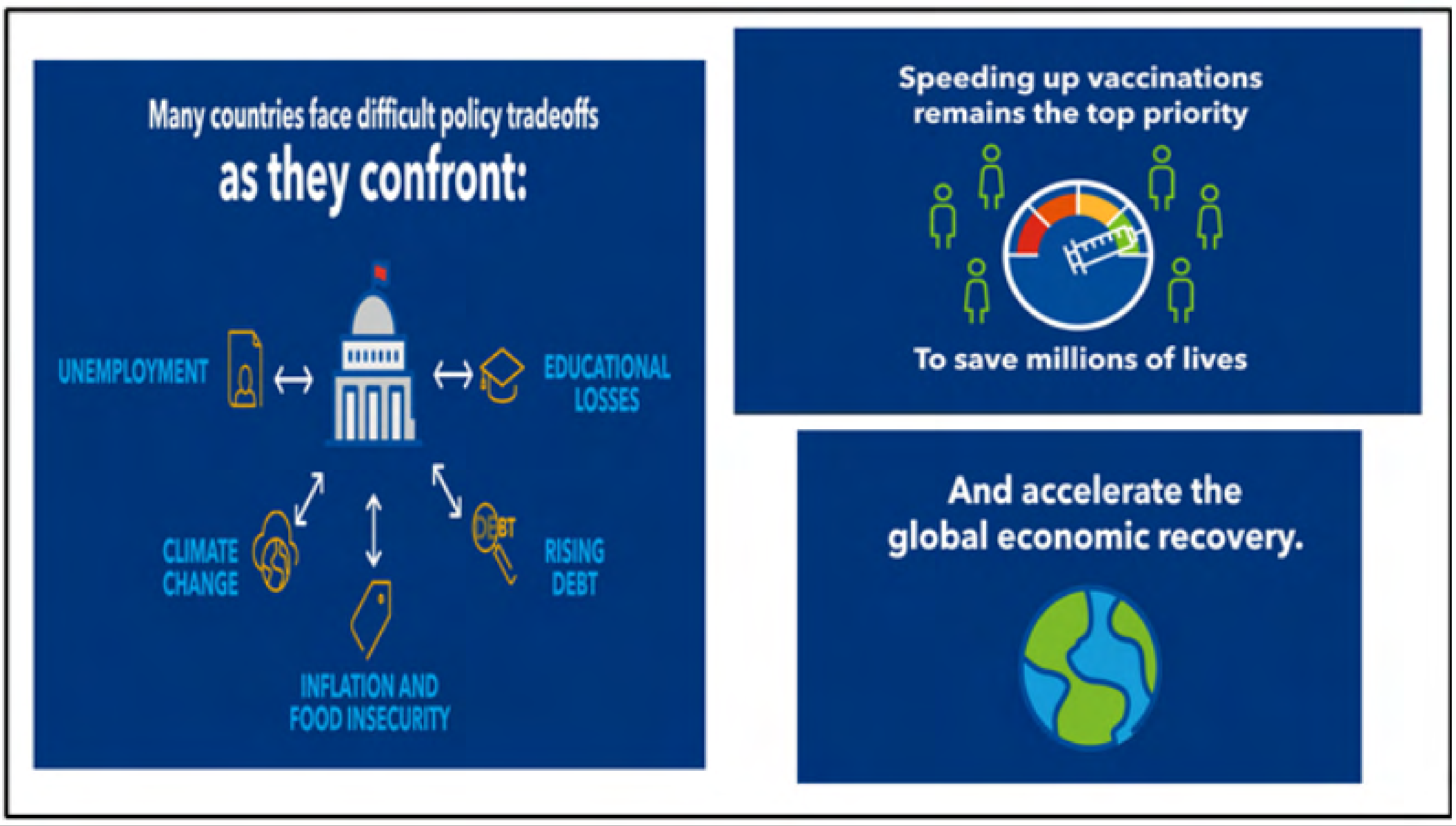

## Fiscal policy

The spending on healthcare-related facilities remains the priority for all the economies across the world.

The coverage target of 70% has been proposed to be achieved by mid-2022. It is driven by the health and economic imperatives of stopping the pandemic as rapidly as possible. Though the initially proposed coverage target was 60%, it is revised to a 79% target with the rise of more infectious variants. The revised target is aligned with the revised global vaccination strategy proposed by World Health Organization (WHO). Also, it is in line with the downside risk scenario envisioned in the original $50 billion IMF staff proposal released in May 2021, which included 1 billion additional doses for low and lower-middle-income countries. Nevertheless, with the arrival of the new Variant Omicron, understanding the demographics, identifying the national challenges, and altering the related policies should be given significant importance.

Though the percentage of the vaccinated population has increased exponentially, the pandemic persists. Furthermore, due to the limitation of fiscal space in some countries with a lower development index, lifelines and transfers to the worst affected sector will remain at the topmost priority. The economies also focus on providing retraining and support for reallocation. In the long term, the economies should prioritize following the measures to secure the recovery and invest in longer-term structural goals.

## Preparing for the post-pandemic economy

In the end, it is essential to deal with the challenges faced by the economy in the post-pandemic period. The challenges would be to reverse the pandemic-induced setback to human capital accumulation, facilitate new growth opportunities, etc. With the advancements of technology, growth can be facilitated in green technology and digitalization. It is equally important to focus on essential research investment for stimulating productivity growth, reducing inequality, and ensuring sustainable public finances.

## MAJOR ECONOMIC EVENTS (2021)

### Supply Chains Falter

In 2021, "supply chains" became a household term. Businesses have assumed for decades that outsourcing production was the key to success. Companies that polished their supply chains saw their costs fall and earnings rise due to this strategy. Then there was COVID-19. It revealed one of the drawbacks of supply chains: shortages and stoppages far away lead to shortages and stoppages closer to home. When the pandemic initially struck, factories shut down, and many businesses reduced inventory to avoid being stuck with unsold items. However, when vaccines became accessible in 2021, customer demand skyrocketed, leaving many enterprises short on parts and supplies. Shortages of shipping containers, as well as delays at ports around the world, exacerbated the situation. It did not help that the container ship Ever Given ran aground in the Suez Canal in March, shutting down one of the world's busiest waterways for a week and costing $9.6 billion per day. Computer chips, particularly those utilized in game consoles and automotive production, were the deficit that drew the most attention. Due to semiconductor shortages, Ford Motor Company predicted that it would lose 1.1 million vehicle sales in 2021. Gasoline, palm oil, chicken, grain, chlorine, and hot dogs were among the other items in low supply in 2021. Even when goods were plentiful, labour was frequently scarce. Since the beginning of the pandemic, the workforce in the United States has shrunk by five million individuals. COVID-19's supply chain disruptions, which have contributed to a worldwide spike in inflation, might last for years.

### The bullwhip effect and its impact on inflation

According to research by BIS economists, the bullwhip effect occurs when "supply chain participants react to perceived shortages by ordering more, ordering earlier, and hoarding inputs.". When examined in isolation, this type of reaction is prudent and rational. However, it can lead to aggregate effects that are ultimately self-defeating.". As a result, such behaviour exacerbates shortages and raises costs. However, a closer look at individual supply-chain breakdowns demonstrates that "bottlenecks" are not just a uniform pressure down the supply chain.

Instead, we have seen commodities demand swing as pressures arose at various places along the supply chain, leading in big price swings." In other words, the bullwhip effect caused some commodity and input prices to skyrocket, only to plummet later. The BIS cites the price of iron ore, lumber, and coal and the cost of shipping containers as examples. Prices skyrocketed and then plummeted in each case as capacity grew faster than demand.

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## What do the results of the BIS analysis mean?

The prevailing thinking recently has been that the bullwhip effect will worsen supply-chain disruption, prolonging inflationary pressures and rising inflation expectations in the future. This issue has been brought to the notice of the OECD. "To what degree will the behavioural responses that caused bottlenecks to operate in reverse to reduce backlogs if supply chain problems start to ease?" the BIS wonders. Depending on the answer, supply bottlenecks may be addressed sooner than previously anticipated, just as they have lasted longer than anticipated." As a result, reversing the bullwhip effect could lead to decreased inflation.

## Chinese trade remains strong

China's year-over-year export growth slowed in November, but import growth increased. Exports increased 22.0 per cent year over year in US dollars, slower than the 27.1 per cent recorded in October. Even yet, 22.0 per cent is a significant figure. Furthermore, exports increased by 8.4% from the previous month, falling from September to October. Export growth comes when the Chinese economy is facing considerable obstacles, particularly as the property sector struggles, electricity rationing persists, and the virus's zero-tolerance policy hampers industries and ports. Exports to ASEAN were up 22.3 per cent year over year, 33.5 per cent to the European Union, but only 5.3 per cent to the US. Exports to the United States could be suffering due to the renminbi's rising value. It could also be due to a drop in US demand.

Meanwhile, imports into China increased by 31.7 per cent in November compared to the previous year's same month. It was an increase from the previous month's gain of 20.6 per cent. Imports were boosted by a 200.3 per cent increase in coal and lignite imports year over year. Imports of coal and lignite increased by 769.9% from the previous month. This was due to a desire to increase power production when rising demand has resulted in shortages, resulting in rationing and factory closures.

Furthermore, the increase in imports mirrored the rapid spike in oil, other commodities, and some manufactured material prices. Imports of integrated circuits, for example, increased by 25.3 per cent in value in November compared to the same month last year, but only by 2.8 per cent in volume. The disparity between these two figures was attributable to a significant price increase. Nonetheless, an increase in integrated circuit volume shows a minor loosening of supply-chain constraints.

### India’s Economy to Rebound as Pandemic Prompts Reforms

After the second wave of COVID-19 infections this year, which further slowed activity and put a toll on the country's people, India's economy is on the mend.

In a recent IMF podcast, Luis Breuer, the IMF's senior resident representative to India, said, "What happens in India has a significant impact, both in the region and in the world." "You are dealing with a significant portion of humanity as well as the global economy."

According to the current annual evaluation by IMF staff, India's broad range of fiscal, monetary, and health responses to the crisis aided its recovery and, along with economic reforms, are helping to offset the crisis's longer-term adverse effects. Even though governmental measures managed to contain the pandemic, it is still likely to increase poverty and inequality. Moreover, the virus's course will be followed by the path of recuperation. Although new infections have decreased dramatically and vaccination rates have climbed to over a billion doses, a resurgence is not improbable, even if it appears unlikely at this time.

## Economic Forecasts

### Global economic growth, inflation will slow in 2022

Global economic growth will continue over the next three years, albeit at a slower pace. The COVID-19 virus continues to cause economic disruption in the region, although its economic impact will reduce as vaccines and treatments improve. As supply conditions improve in the first half of 2022, downstream inflation rates will begin to drop. A gradual tightening of monetary policy will help keep inflation expectations and actual inflation under control.

After a 3.4% decline in 2020, world real GDP is projected to increase 5.5% in 2021 and 4.2% in 2022

Rising vaccination rates, more effective treatments, corporate changes, and shifting consumer spending from commodities to services would alleviate pandemic-related growth limitations. IHS Markit PMI surveys indicate that the service sector is picking up steam, which should continue into 2022 and recovery in travel and tourism. As pent-up demand is met, employment recoveries are completed, and fiscal and monetary policies tighten, global growth will settle to 3.4 per cent in 2023 and 3.2 per cent in 2024.

Asia Pacific economies are rebounding from third-quarter setbacks as factories reopen

Manufacturing production in the Asia Pacific is returning, led by accelerations in Indonesia, Thailand, and India, as the Delta variation wave of COVID-19 fades. The resurgence in industrial output in the United States assists in the gradual alleviation of global supply-chain disruptions. Real GDP in the Asia Pacific, excluding mainland China and Japan, is expected to rise 4.5 per cent in 2021 and 4.7 per cent in 2022, following a 3.8 per cent fall in 2020.

Growth to slow, China will set the pace

By the end of 2021, the global economy will have grown by 5.7 per cent. In 2022, experts predict that growth will decrease to 4.6 per cent. China is the significant uncertainty in the prediction because it is the main engine of economic growth as a region, accounting for roughly 30% of world economic growth in 2021. Unless other key regions vastly beat projections, the global economy will slow significantly if the Chinese economy slows.

Latin America is struggling to recover from a lost decade of economic progress

After a decade of stagnation, GDP growth is expected to pick up through the end of 2021 but then fall in 2022. Higher government expenditure in 2020 due to Covid-19 and higher global commodity prices in 2021 are driving up prices in Latin America, even as unemployment remains high and purchasing power stagnates. Unfortunately, there is a substantial danger of underperformance due to this.

## Public policy

Public policy is as old as government. Oligarchy, Monarchy, nobles, dictatorship, democracy, anytime, wherever Governments were, social policies were developed and implemented. It goes with the variety. Problems and demands of government Due to the large number of guidelines created, these are called standard guidelines. This unit will define the definition and type of social order and ethics and highlight different aspects. It is part of the guide and distinguishes between policy, decision, and policy. Efforts are being made to highlight the relationship between politics and politics. The importance and aspects of social order and ethics are also discussed.
Social order and ethics are a guide that focuses on state administration by the laws

and other cultural and institutional affairs. This step was taken to use more evidence to make policy decisions. Proponents of evidence-based politics believe that policymaking should be directed only at high-quality, accurate scientific evidence, not traditional beliefs, sentiments, or political controversies.

**Policy:**

The term "policy" may refer to the official guideline for a particular government. We also propose guidelines or legislation governing how the law is enacted and applied to political tracts and symbols to form appropriate and viable state organs. These serve as legal guidelines for proper compliance.

In addition, the guidelines may also refer to an internal organization's guidelines developed on a specific topic. For example, suppose a company has a policy of equity. If so, it shows that all employees should be treated equally, regardless of gender, social or economic status, or occupation.

**Types of Community Policy:**

These policies relate to the welfare and development of the public; programs such as the provision of education and employment opportunities, economic stability, law and order, anti-pollution legislation, etc., are the result of solid policy development. These policies have many areas of work that affect the well-being and development of the public. This does not apply to any segment of society. Such policies should be developed with due regard to the constitutional importance of socio-economic issues and the level of requests for good public behaviour.

**Control:** Regulatory policies relating to trade, business, security measures, public services, etc. These kinds of laws are made by private organizations working for the government: Sine Life Insurance Corporation, Reserve Bank of India, Hindustan Steel, State Electricity Boards in India. State Transport Companies, Public Finance Companies, etc., perform regulatory functions. The policies made by the government regarding these services and the organizations that make up these services are known as regulatory policies.

**Distribution:** Distribution policies are designed for specific sections of the community. It could be in grants, social welfare, health services, etc. This includes all social assistance and social programs. Additional examples of policies for the distribution of adult education programs, food aid, social insurance, vaccination camps, etc.

**Redistribution:** Redistribution policies are concerned with reorganizing mechanisms to bring about significant social and economic changes. Certain social assets and social services are equally divided between certain sections of society; redistribution policies facilitate these goods and services.

**Capitalization:** Under capitalist policies, funding is provided by the Union government to provincial and local governments; such support is also offered to the in-country business or another important sector if necessary. Capital expenditure policies differ from existing regulatory, distribution, and redistribution policies as no social services are provided.

**Public Policy Process:**

Public policy involves a process of flexibility and is not a one-time event. In most cases, public policy deals with related laws and regulations. It covers a minor procedure that includes specific details and practical strategies.

Considering the procedures followed in India, such as passing a particular bill, long and complex steps are involved. The bill to be passed by law must pass through two houses, namely Lok Sabha and Rajya Sabha. After going through a series of authoritarian leaders or administrators, the President assists and approves the bill, becoming law.

**Indian Public Policy Stakeholders:**

Individuals and the institutions they represent are central to policymaking in India. The individual stakeholders involved come from inside and outside the government. Stakeholders are individuals or groups that influence or may affect the achievement of a country's overall economic goals.

The list of some notable policy institutes that perform research and advocacy and enable policymakers and the public to make informed decisions about public policy issues are as follows:

- Center for Asian Strategic Studies- India (CASS-India): It is a think tank that looks at strategic problems that influence India, Africa, and Asia. CASS-India is a non-governmental organization based in New Delhi created in 1999. CASS-India conducts research and analysis on India's military, defence, diplomacy, security, strategy, anti-piracy, and nuclear problems.

- Centre for Policy Research: The Centre for Policy Research (CPR) is India's public policy think organization. CPR's goals are to produce substantial policy choices on issues affecting India's politics, economy, and society, provide advisory services to governments, public bodies, and other organizations, and disseminate policy knowledge via various means. CPR's governing board comprises public leaders from India's government, academia, and business.

- Foundation for Democratic Reforms: This is one of India's premier think tanks and scientific research centres for investigating, proposing, and pushing essential changes in the political, electoral, and governance sectors, as well as in crucial areas of state policy.
- Indian Institute of Corporate Affairs: The Indian Institute of Corporate Affairs (IICA) is a central civil service training institute for prominent public officials in the Indian Corporation Law Service cadre. It is under the authority of the Ministry of Corporate Affairs, Government of India. It helps manage and deal with a wide range of themes, matters, and affairs within the realm of corporate affairs regulation, governance, and policy.
- NITI Aayog: The NITI Aayog is the Government of India's premier public policy think tank and the nodal organization tasked with stimulating economic development and building cooperative federalism through the bottom-up involvement of State Governments in the economic policy-making process.

## Major Public Policies since Independence

### Controller of Capital Issue, 1947

In a socialist India, the legislation established who would command capital: the government, through the Controller of Capital Issues (CCI). The government chose which companies might raise how much cash under this Act. The Act declared that "no corporation shall make a two issuance of capital unless with the authorization of the Central Government." The office of CCI was transformed into a zero-risk, high-return lottery-ticket dispenser since the prices of the shares provided to the public through capital markets were vastly discounted, providing a considerable margin to investors and speculators on the listing.

### Minimum wages Act

Even before the country had a hold on industrialization, Parliament passed the Minimum Wages Act on March 15, 1948, declaring that governments (both central and state) would determine the number of wages paid, not economic agents. The minimum wage was enshrined in the Constitution as a concept to provide a reasonable level of living.

### Banking regulation Act

In India, the fundamentals of banking. It provided India's central bank, the Reserve Bank of India (RBI), the authority to license banks, limit shareholder and voting rights, monitor board nominations and management control, regulate banking operations, issue auditing and liquidation directives, and levy fines.

## Nationalization of banks and Insurance companies

The decision was made to keep tabs on the country's large private banks and insurance businesses involved in fraud. The goal was to keep the public from becoming interested in extending these institutions' reach to rural areas of the country.

## Foreign Exchange Regulation Act

"The use or disposal of, or deals in, coin, bullion, securities, or foreign exchange" is prohibited. Likewise, it was a temporary measure that would expire once World War II ended on December 31, 1957. The Act "to govern certain payments, dealings in foreign exchange and securities, and the import and export of cash and bullion" was made permanent since the foreign exchange shortage was expected to persist.

## Consumer Protection Act, 1986

The Consumer 298 Protection Act was enacted on December 24, 1986. It established consumer protection councils and a three-tier structure of dispute redressal through quasi-judicial bodies around the time India began to experiment with the idea of an open economy. It included 629 District Forums and 35 State Consumer Disputes Redressal Commissions, with the National Consumer Disputes Redressal Commission in New Delhi. The legislation covers both commodities and services. It ensures that customers have access to information on the quality, purity, standard, and pricing of goods and services. The Act was revised in 1991, requiring all district and state hearings to be conducted by the presiding officer in the presence of the consumer.

## Foreign Investment Promotion Board

Following the 24 July 1991 Statement on Industrial Policy, the Foreign Investment Promotion Board became India's entry point for processing FDI bids and providing recommendations to the government. The clearances were given in three stages: a committee of senior officials, the finance minister-chaired Empowered Committee on Foreign Investment for investments up to Rs. 300 crores, and the Cabinet Committee on Foreign Investment for larger projects.

## Disinvestment, 1991

India's disinvestment initiative is part of a larger trend of gradually demolishing yet another previous icon: public sector firms, where the government has no business.

## SEBI, 1992

This agency protects the interests of investors in securities and promotes the growth and regulation of the securities market." India's capital market regulator has been the most investor-focused of all the financial regulators.

SEBI has been able to steer the direction of markets and their participants for the past 25 years. It coincides with the opening up of the Indian economy, ensuring price discovery and governance of securities, allowing efficient capital mobilization and allocation, all while keeping investors' interests in mind and staying abreast of global financial evolution.

SEBI has probably made India's capital markets one of the finest regulated in the world. It has also monitored and managed the market's evolution from a stage where government-controlled institutions like LIC and UTI drove shallow markets to one where foreign institutional investors and mutual funds balance each other and give more depth. SEBI has steered the growth of competitive forces in capital markets, pushed for more disclosures and transparency from intermediaries and companies, reduced transaction costs and information asymmetry, strengthened corporate governance, and created a transparent, low-cost, high-disclosure vehicle for investors through mutual funds.

## FDI in Retail, 2012

Although India and FDI have a reciprocal attraction, policies and discussions have been more focused on the level of hurdles than on their removal. FDI in commerce was only authorized for exports under the industrial policy declaration of July 24, 1991. On January 17, 1997, 100 per cent of FDI was allowed for exports and cash-and-carry wholesale business six years later. Small sellers benefited from this since they would queue and buy here, probably due to higher profits. On September 20, 2012, the government approved 100 per cent FDI in single-brand retail, with a mandated 30 per cent sourcing from small Indian businesses.

Pradhan Mantri Jan Dhan Yojana, 2014

The Yojana resulted in a financial records carnival and a deluge of political rhetoric. Unbanked Indians can use the financial inclusion program to create a bank account, receive a RuPay debit card, and enrol in social security programs, including insurance and pensions. In other words, it facilitates India's financialization on a scale that no other country on the planet has witnessed. The plan has taken off at a breakneck pace, with about 310 million participants, three-fifths of whom live in rural regions, and a total balance of Rs. 73,690 crores as of January 17, 2018. In the broader picture, the initiative assures that India's digitalization is not limited to the rich or metropolitan regions but empowers every individual.

AADHAR

UIDAI, which oversees granting an identity through Aadhaar, a one-of-a-kind number, needed statutory support. The government passed the law in 2016. The Aadhaar number became the most trusted form of identification, requiring it to file taxes, obtain and link it to the Permanent Account Number, and serve as a Know Your Customer (KYC) tool for financial products like mutual funds. This, as well as linking direct benefits like the public distribution system, employment guarantee programs, cash transfers to the needy, and the creation of bank accounts, are all important.

Goods and Services Tax, 2017

The law was passed in order to combine many taxes into one. The GST replaces eight federal taxes and nine state levies. However, it excludes five petroleum products (crude, gasoline, diesel, ATF, and natural gas), as well as human-consumed alcohol.

## Major Policies in last 5 years

Atmanirbhar Bharat Abhiyan:

The Atmanirbhan Bharat Abhiyan is a policy that entails a package worth Rs 20 lakh crores to provide an economic stimulus to fulfill the primary objective of promoting "local" products.

The Mission will be carried out in two phases:

Phase 1: It will consider sectors like medical textiles, electronics, plastics, and toys where local manufacturing and exports can be promoted.

Phase 2: It will consider products like gems and jewellery, pharma, steel, etc.

Five Pillars for a self-reliant India:

1. Economic: The state of a country or region in terms of the production and consumption of goods and services and money supply. Focus Area: The government focuses on quantum jumps, not incremental changes.
2. Infrastructure: In the context of a country, it is a set of all facilities and systems that help in the efficient functioning of households, companies, and the economy. Focus Area: One that represents modern India.
3. System: A group of interacting and interrelated elements.
4. Focus Area: Technology-driven efficient, and up-to-date processes. Simple and clear laws to assist growth.
5. Demography: It is the scientific study of human populations with respect to various characteristics such as their size and distribution across the required region.

6. Focus Area: Vibrant demography of the largest democracy. Building a capable workforce.
7. Demand: Refers to the quantity of goods that a consumer is willing and able to purchase at different prices. Focus Area: Full utilization of power, demand, supply, and building a robust financial system.

Farm Bills 2020: (Repealed)

The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020: The first law is an amendment of the existing essential commodities act that does not permit anyone to store commodities. If done, then the stock can be confiscated by the government. About 30% of agricultural products go to waste in India because of a lack of storage.

**Is this wastage not criminal in a country where one-fifth of the population does not get two square meals a day?**

Cold Storage at the village level was not possible due to the non-availability of electricity. Due to a lack of options, the farmers had to suffer the loss due to wastage and were forced to sell perishable items at throwaway prices at the end of the season. Now that electricity is available in every village, the farmers can create Cold Storage facilities through village cooperatives.

**The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Bill, 2020:**

The second Act is about Permitting Contract Farming: Now, the big corporations can enter contract farming with farmers, which is a win-win situation for both. The farmers know the price before they even produce and can sell at an assured contracted price without worrying about price crashes in the market and suffering losses due to that. We have often seen, e.g., onion, farmers being forced to throw their produce in the field whenever there is a bumper crop causing immense suffering. The corporates get their required quantity at a pre-agreed price and can run their business and pricing smoothly. For example, biscuit company Britannia can enter contract farming with the farmers for their wheat requirement.

**The Essential Commodities (Amendment) Bill 2020:**

The third law offers an option to farmers to sell their produce in pan India Agri Commodities Market and free them from the shackles of Mandis and exploitation by the middlemen. The possibility for farmers to sell at Mandis at MSP remains. But there the government procurement has a storage limitation and farmer must have options to explore further better opportunities. For example, a farmer in Gujarat can check onion prices online. If he finds a buyer in West Bengal who requires a few quintals of onion at his desired price, he can sell it online and send it using available transport.

After constant protests by the farmers and the opposition party, all three Laws were scrapped on 19 November 2021 after an announcement by Prime Minister Narendra Modi.

**New Education Policy 2020:**

In a first by modern India, the NEP is the first attempt by India to revamp the education structure that we inherited from the colonial system. After a long gap of 34 years, NEP 2020, in its truest sense, is the first public policy document in education after independence. Its focus on a holistic, learner-centred flexible system aims to develop India into a knowledge powerhouse with a high Gross Enrollment Ratio (GER). It aims to bring approximately two crore students back into the system.

Few changes and improvements that the NEP 2020 aims to bring are:

1. The school-going years have been increased from 3 to 18 years from the earlier age bracket of 6-14 years to encourage the holistic development of students.
2. It stresses the medium of language to be a regional language until at least the fifth standard. The reason being one’s mother tongue can play an integral role in the overall development of a child.
3. The school curriculum of 10+2 has been replaced by a 5+3+3+4 system for age groups 3-8, 8-11,11-14, and 14-18 years, respectively.
4. Development of a circular framework under the name NCPFECCE by NCERT for children of up to 8 years of age.
5. The policy aims to attain universal foundation literacy by 2025, focusing on states to develop an implementation plan of the same.
6. Emphasis has been placed on setting up a Gender Inclusion Fund and Special Education Zones to promote the disadvantaged regions and groups.
7. The National Council for Teachers Education will develop a common National Professional Standards for Teachers by 2022.
8. State/Union Territories will set up independent State School Standards Authorities (SSSA) to develop a school quality assessment and accreditation framework through all stakeholders.
9. The policy emphasizes robust research culture and building research capacity across higher education and the formation of the National Research

Foundation has been proposed for the same.

10. The policy also aims to internationalize education, which will allow top world-Ranked universities to open their campuses in India.

11. Central and state governments aim to increase the public sector investment in education up to 6% of GDP as soon as possible.

With a commendable vision, NEP was long due but will have to integrate itself with the government objectives of Digital India and Skill India, among many others. If implemented well, the policy can play a crucial role in strengthening India's position in terms of education.

**Kashmir: Special Status Repealed**

Article 370 of the Constitution of India was a "temporary provision" that granted a special autonomous status within the Indian union to the state of Jammu and Kashmir.

Article 35A to the Indian Constitution allowed Jammu and Kashmir to define the state's residents and give certain "special rights and privileges" attached to such residency, including the power to restrict settlement to the state and acquire immovable property.

On August 5, 2019, the president of India issued the Constitution (Application to Jammu and Kashmir) Order 2019, pursuant to Article 370(1) of the Constitution of India, removing all the provisions of autonomy granted to the state.

Rajya Sabha also passed a Statutory Resolution on the same day recommending that the president of India revoke most of article 370 pursuant to Article 370(3). On August 6, the President of India implemented the resolution and revoked Jammu and Kashmir's special status. Bypassing the Jammu and Kashmir Reorganization Bill, 2019, the state of Jammu and Kashmir ceased to exist; and was replaced by two new Union Territories: Jammu and Kashmir and Ladakh.

Some Other Policies:

1. PM Housing Scheme 2022
2. Har Ghar Jal
3. Raising Legal Marriage age of Women (Proposed)

# References:


- 2021. [online] Available at: <https://www.imf.org/en/Publications/WEO/Issues/2021/10/12/world- economic-outlook-october-2021> [Accessed 18 December 2021].
- Bank, E., 2021. ECB staff macroeconomic projections for the euro area, September 2021. [online] European Central Bank. Available at:<https://www.ecb.europa.eu/pub/projections/html/ecb.projections202109_ecbstaff~1f59a501e2.en.html> [Accessed 18 December 2021].
- 2021. [online] Available at: <https://www.imf.org/en/Topics/imf-and-covid19/-/media/Files/Topics/COVID/pandemic/pandemic-proposal-update.ashx> [Accessed 18 December 2021].
- The Economist. 2021. Approved | The Economist. [online] Available at: <https://www.economist.com/taxonomy/term/76972/The%20debts%20certainly%20advanced? page=2585> [Accessed 18 December 2021].
- Sustainabledevelopment.un.org. 2021. Strategic Framework 2030 .:. Sustainable Development Knowledge Platform. [online] Available at: <https://sustainabledevelopment.un.org/index.php? page=view&nr=1562&type=504&menu=139> [Accessed 18 December 2021].
- 2021. [online] Available at: <https://www.mckinsey.com/featured-insights/diversity-and-inclusion/for- mothers-in-the-workplace-a-year-and-counting-like-no-other> [Accessed 18 December 2021].
- Deloitte Insights. 2021. What's happening this week in economics?. [online] Available at: <https://www2.deloitte.com/us/en/insights/economy/global-economic-outlook/weekly-update.html> [Accessed 18 December 2021].
- Nepis.epa.gov. 2021. Document Display (PURL) | NSCEP | US EPA. [online] Available at: <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=50000Y7R.TXT> [Accessed 18 December 2021].
- Termpaperwarehouse.com. 2021. Peak Oil - Term Paper. [online] Available at: <https://www.termpaperwarehouse.com/essay-on/Peak-Oil/64447> [Accessed 18 December 2021].
- M.rbi.org.in. 2021. Reserve Bank of India - Reports. [online] Available at: <https://m.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=1185> [Accessed 18December 2021].
- 2021. [online] Available at: <https://quizlet.com/414269587/aggregate-demand-and-supply-flash- cards/> [Accessed 18 December 2021].
- 2021. [online] Available at: <https://quizlet.com/414269587/aggregate-demand-and-supply-flash- cards/> [Accessed 18 December 2021].
- 2021. [online] Available at: <https://www.researchgate.net/publication/344252828_Money_Interest_Rate_Output> [Accessed 18 December 2021].
- 2021. [online] Available at: <https://www.fidelity.lu/articles/analysis-and-research/2021-03-19-global- macro-insights-1616138614324> [Accessed 18 December 2021].
- Deloitte Insights. 2021. The future of manufacturing. [online] Available at: <https://www2.deloitte.com/us/en/insights/industry/manufacturing/future-of-manufacturing- industry.html> [Accessed 18 December 2021].
- Telefonid.com. 2021. Telefonid.com. [online] Available at: <http://telefonid.com/? newscontent=comm&p_id=129> [Accessed 18 December 2021].
- Investopedia. 2021. How do operating income and revenue differ?. [online] Available at: <https://www.investopedia.com/ask/answers/122714/what-difference-between-operating-income- and-revenue.asp> [Accessed 18 December 2021].
- 2021. [online] Available at: <https://www.imf.org/en/News/Articles/2021/11/02/na111121-indias- economy-to-rebound-as-pandemic-prompts-reforms> [Accessed 18 December 2021].
- most, T. and most, T., 2021. These are the 19 countries where people enjoy working the most. [online] Business Insider. Available at: <https://www.businessinsider.in/home/these-are-the-19-countries- where-people-enjoy-working-the-most/slidelist/49950208.cms> [Accessed 18 December 2021].
- 2021. [online] Available at: <https://www.imf.org/en/News/Articles/2021/11/02/na111121-indias- economy-to-rebound-as-pandemic-prompts-reforms> [Accessed 18 December 2021].
- 2021. [online] Available at: <https://www.researchgate.net/publication/322421053_The_19th_Congress_of_the_Communist_Party_of_China_and_Its_Aftermath> [Accessed 18 December 2021].
- MB, F., 2021. Economic outlook 2022: could stagflation reduce the roaring 20s to a whimper? | Metal Bulletin.com. [online] Metalbulletin.com. Available at: <https://www.metalbulletin.com/Article/4011798/Economic-outlook-2022-could-stagflation-reduce- the-roaring-20s-to-a-whimper.html> [Accessed 18 December 2021].
- The Economic Times. 2021. FY22 budget: Latest News & Videos, Photos about FY22 budget | The Economic Times - Page 1. [online] Available at: <https://economictimes.indiatimes.com/topic/FY22- budget> [Accessed 18 December 2021].

- WallStreetMojo. 2021. Law of Supply. [online] Available at: <https://www.wallstreetmojo.com/law-of- supply/> [Accessed 18 December 2021].
- Pindyck, R. and Rubinfeld, D., n.d. Microeconomics.
- The Economic Times. 2021. RBI: RBI News, RBI Announcements, Reserve Bank of India Rates - The Economic Times. [online] Available at: <https://economictimes.indiatimes.com/markets/rbi> [Accessed 18 December 2021].
- 2021. [online] Available at:<https://www.imf.org/en/Publications/WEO/Issues/2019/07/18/WEOupdateJuly2019> [Accessed 18 December 2021].
- Cprindia.org. 2021. Centre for Policy Research. [online] Available at: <https://www.cprindia.org/> [Accessed 18 December 2021].
- Investopedia. 2021. Government Regulations: Do They Help Businesses?. [online] Available at: <https://www.investopedia.com/articles/economics/11/government-regulations.asp> [Accessed 18 December 2021].
- McSweeney's Internet Tendency. 2021. I Think All People Should Be Treated Equally, Regardless of Whether Their Skin is White or Purple or Green or Black or Black or Black or Black or Black. [online] Available at: <https://www.mcsweeneys.net/articles/i-think-all-people-should-be-treated-equally- regardless-of-whether-their-skin-is-white-or-purple-or-green-or-black-or-black-or-black-or-black-or- black> [Accessed 18 December 2021].
- Ludwig.guru. 2021. may refer to | English examples in context | Ludwig. [online] Available at: <https://ludwig.guru/s/may+refer+to> [Accessed 18 December 2021].
- Egyankosh.ac.in. 2021. PUBLIC POLICY. [online] Available at: <https://egyankosh.ac.in/bitstream/123456789/19329/1/Unit-1.pdf> [Accessed 18 December 2021].
- Civilsdaily.com. 2021. Coronavirus – Economic Issues – Civilsdaily. [online] Available at: <https://www.civilsdaily.com/story/coronavirus-economic-issues/> [Accessed 18 December 2021].
- En.wikipedia.org. 2021. Indian Corporate Law Service - Wikipedia. [online] Available at: <https://en.wikipedia.org/wiki/Indian_Corporate_Law_Service> [Accessed 18 December 2021].
- IDRC - International Development Research Centre. 2021. TTI Phase 2 Institutional Support: Centre for Policy Research | IDRC - International Development Research Centre. [online] Available at:<https://www.idrc.ca/en/project/tti-phase-2-institutional-support-centre-policy-research> [Accessed 17 December 2021].

# Strategy & Consulting

by

CONSULATE

STRATEGY AND CONSULTING CLUB

## What is Consulting?

Consulting is the business of offering advice and expertise to an organization with the object of helping them improve their business performance in terms of their overall profitability, operations, and management structure. The demand for consultants by businesses or other organizations has resulted in the emergence of consulting as one major domain and a sought-after career option.

Management consultants help businesses improve their performance and grow by solving problems and finding new and better ways of doing things. If you're interested in how a business works – its strategy, structure, management, and operations – a career in management consultancy might be for you. You will be able to:

- **Rapidly Gain Exposure to Industries:** You'll gain experience by working on projects in a vast range of industries and with different clients and see how your decisions affect them.
- **Help Make Big-Picture Decisions:** You'll help guide your clients in making major decisions that will affect their business.
- **Continuously learn:** You'll be working on projects that require you to continuously learn and adapt to new trends in the industry.
- **Work in a team environment:** You'll have the chance of collaborating with people in your organization and with the clients who have interests and expertise similar to your

Consultants are hired for a variety of reasons. There are three basic reasons why people seek professional advice:

1. They can't figure it out or get to the state they want on their own.
2. They have a rough concept of where they want to go, but they want to get there as soon as possible.
3. They want to save time and effort by using a tried-and-true method. Giving guidance is only one aspect of consulting.

It entails a hierarchy of goals:

- Giving information to a customer.
- Dealing with a client's issues.
- Obtaining a diagnosis, which may necessitate redefining the issue.
- Making suggestions based on the findings.
- Assisting with the implementation of solutions that have been recommended.
- Creating buy-in and commitment to corrective action.
- Assisting clients in their learning—this is a big one.

## What's in for you?


## Skills needed to be a consultant

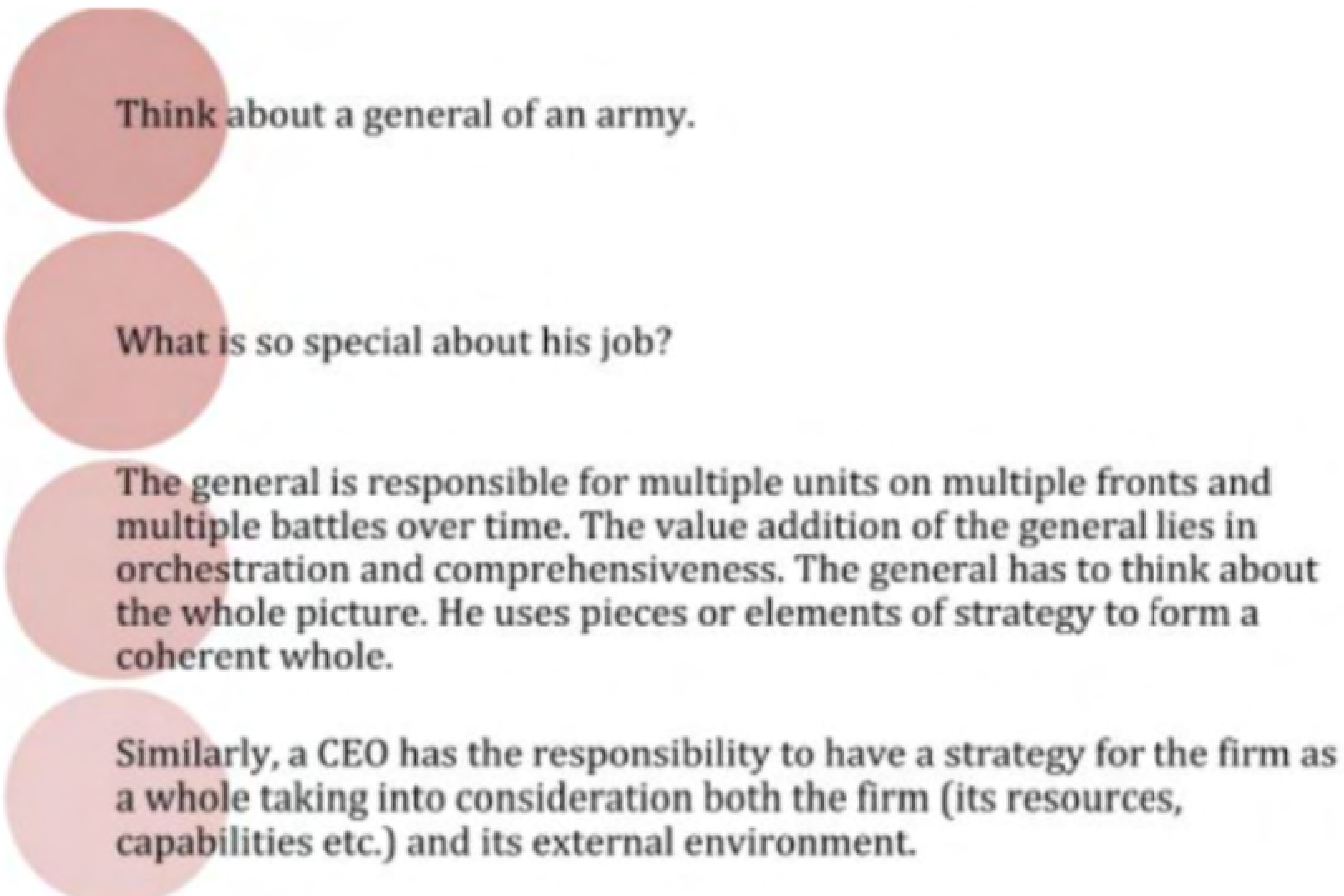
- Ability to multitask
- Ability to work in teams
- Willingness to work long hours
- Travel enthusiast
- Great Academics

## What is Strategy in Consulting?

A strategy is any action that a manager takes to attain a pre-established organizational goal. It focuses on creating a unique value proposition that helps the organization attain a strategic position. It emerges from three distinct sources:

- Serving few needs of many customers
- Serving broad needs of few customers
- Serving broad needs of many customers in a narrow market

## How to understand Strategy?

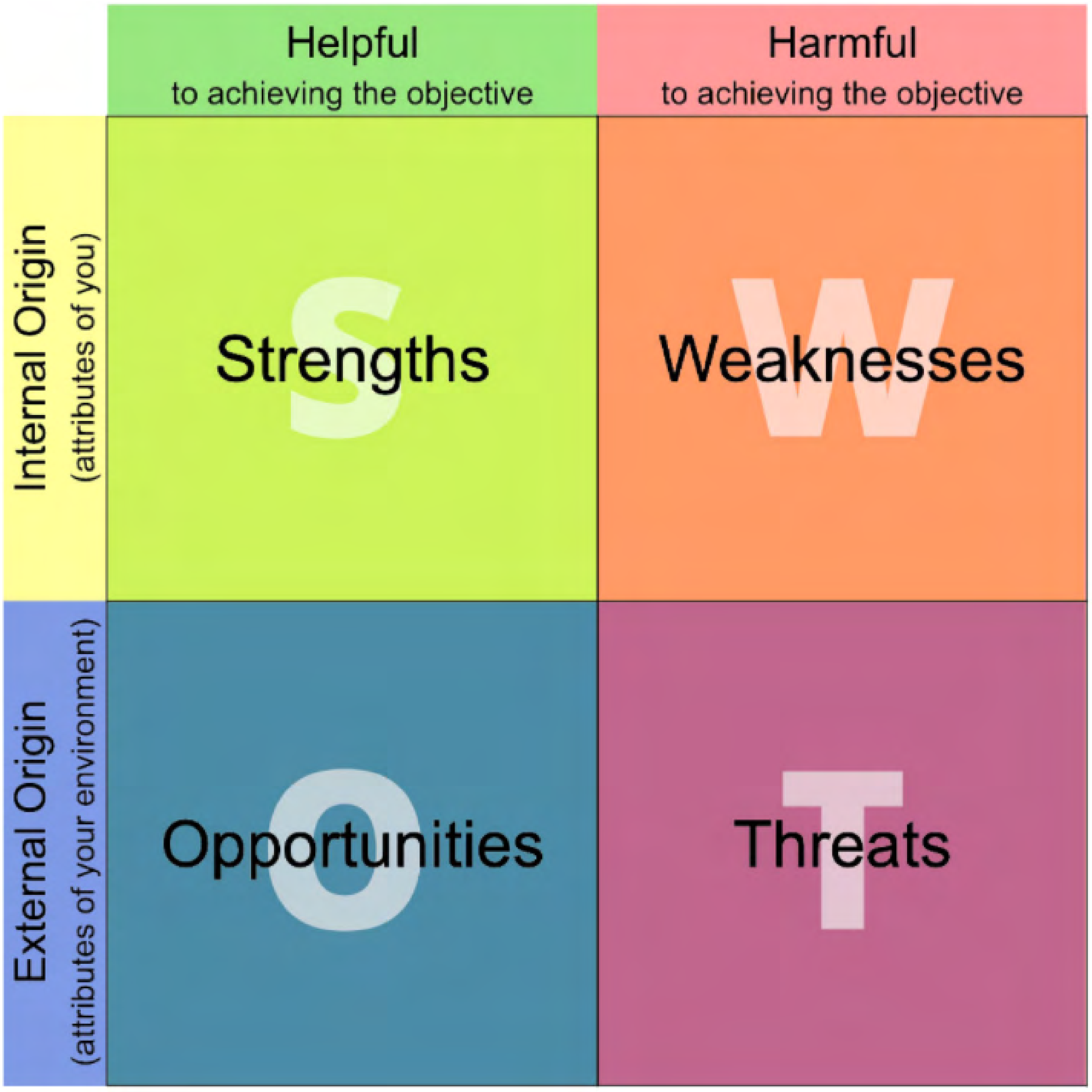


## Core Strategy Tools

### 1. SWOT Analysis

A structured planning method is used to evaluate the strengths, weaknesses, opportunities, and threats involved in a project or in a business venture.

- Strengths: characteristics of the business or project that give it an advantage over others.
- Weaknesses: characteristics that place the business or project at a setback relative to others.
- Opportunities: elements that the business or project could exploit to its advantage.
- Threats: elements in the environment that could cause trouble for the business or project.




### 2. PESTLE analysis

PESTLE Analysis is used for analyzing the environment in which a business operates.

Political: - This factor determines the extent to which a government influences the economy of any industry.

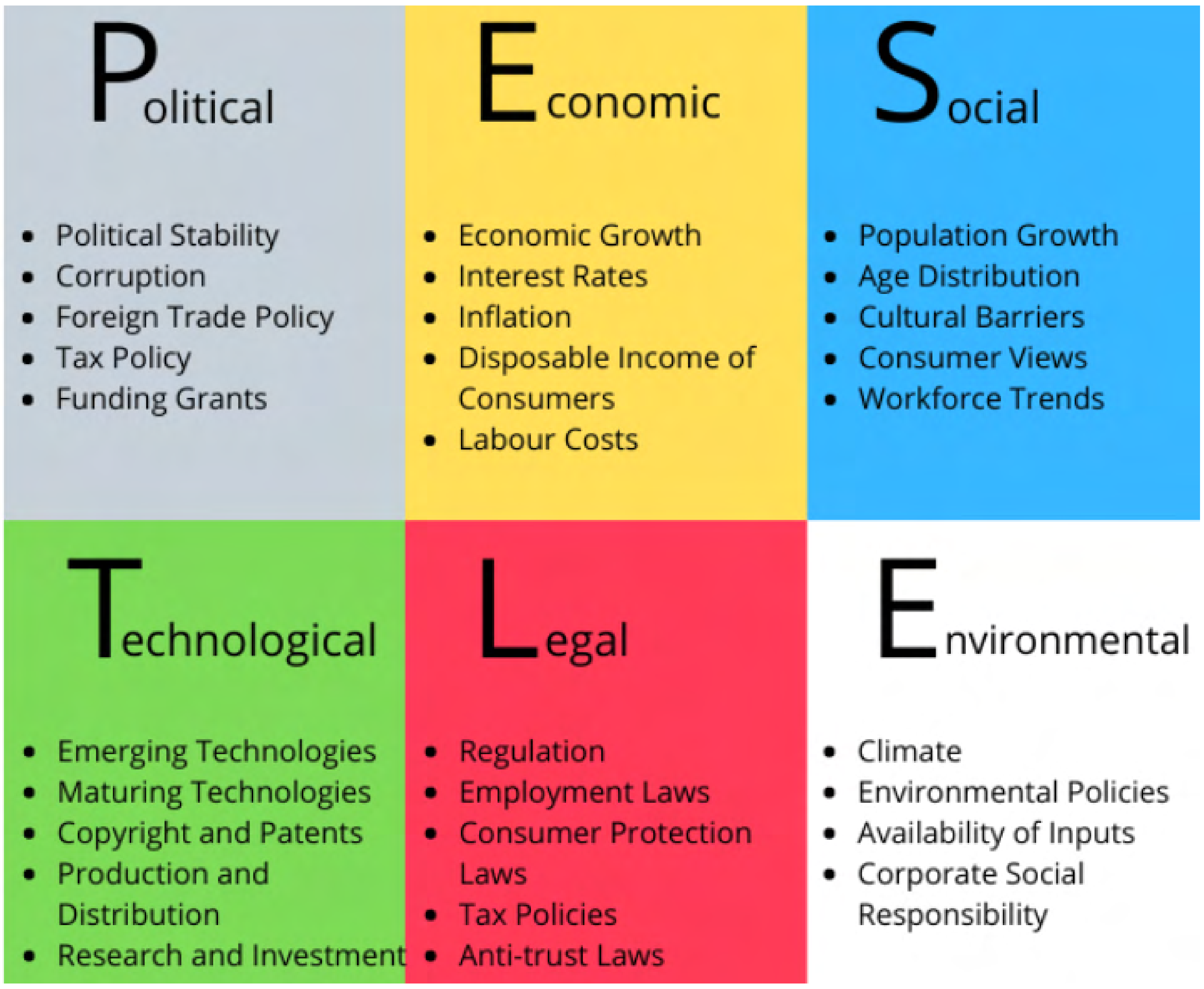
Economic: - Refers to factors in the economy that affect the organization

Social: - These factors scrutinize the social environment of the market, and gauge determinants like cultural trends, demographics, population analytics, etc.

Technological: - These factors pertain to innovations in technology that may affect the operations of the industry and the market favourably or unfavourably

Legal: - There are certain laws that affect the business environment in a certain country.

Environmental: -These factors include all those that influence or are determined by the surrounding environment.




## 3. BCG Matrix

A matrix, developed by Boston Consulting Group in the early 1960s is used to plan market strategies. The growth rate is determined by reference to market research, or it can be estimated. "Competitive position" includes an assessment of the firm's overall market penetration and profitability compared to the other players in that market. Products are then positioned in the four cells as shown in the figure.

- **Cash Cows:** Large Market Share in a mature industry. It requires little investment.
- **Star:** Larger Market Share in a growing industry. It may require investment to maintain a lead.
- **Question Marks:** Small Market Share in a growing market, Requires focus and resources.
- **Dog:** Small Market Share in a Mature industry. There is little prospect for gain.

## 4. McKinsey 7S

The McKinsey 7S Framework is a good tool to help you find and fix internal organizational problems. McKinsey 7S Framework is a strategic planning tool designed to help an organization understand if it is set up in a way that allows it to achieve its objectives. Before the advent of the 7S Model, when managers thought about organizational design, they tended to focus on structure and strategy. They thought about who is responsible for what, who reports to whom, how many layers of management there should be, and how to beat the competition. It is used for:

- Organizational change
- Mergers and acquisitions
- Implementation of a new strategy
- Understanding the weaknesses (blind spots) of an organization

## 5. MECE

MECE is a system of problem-solving that help solve complex problems. It can help streamline activities and focus on critical data that determine success. Benefits of using a business strategy framework. A business framework can be used to analyze and guide decisions for your client and your own business. For example, the 3C Model can help you develop a competitive strategy for your client or can be applied to develop a social media marketing plan for your personal brand. There is no one best framework, and often you may find that you are using multiple frameworks in the course of your client's work. Frameworks save you time by providing a starting point for information gathering and analysis but remember the most powerful framework you have is your expertise and common sense. These tools are time-savers, but ultimately it is your business insight that will deliver value to your client.

## 6. Porter's 5 Forces

Power is a key element in your and your client's success. To sustain profitability and a competitive position, you want to balance the power in your favour. Porter's Five Forces is a useful tool in helping you to understand both the power of your current competitive position and the planned position.

Porter's five forces are:

1. Competition in the industry
2. Potential of new entrants into the industry
3. Power of suppliers
4. Power of customers
5. The threat of substitute products

KEY TAKEAWAYS

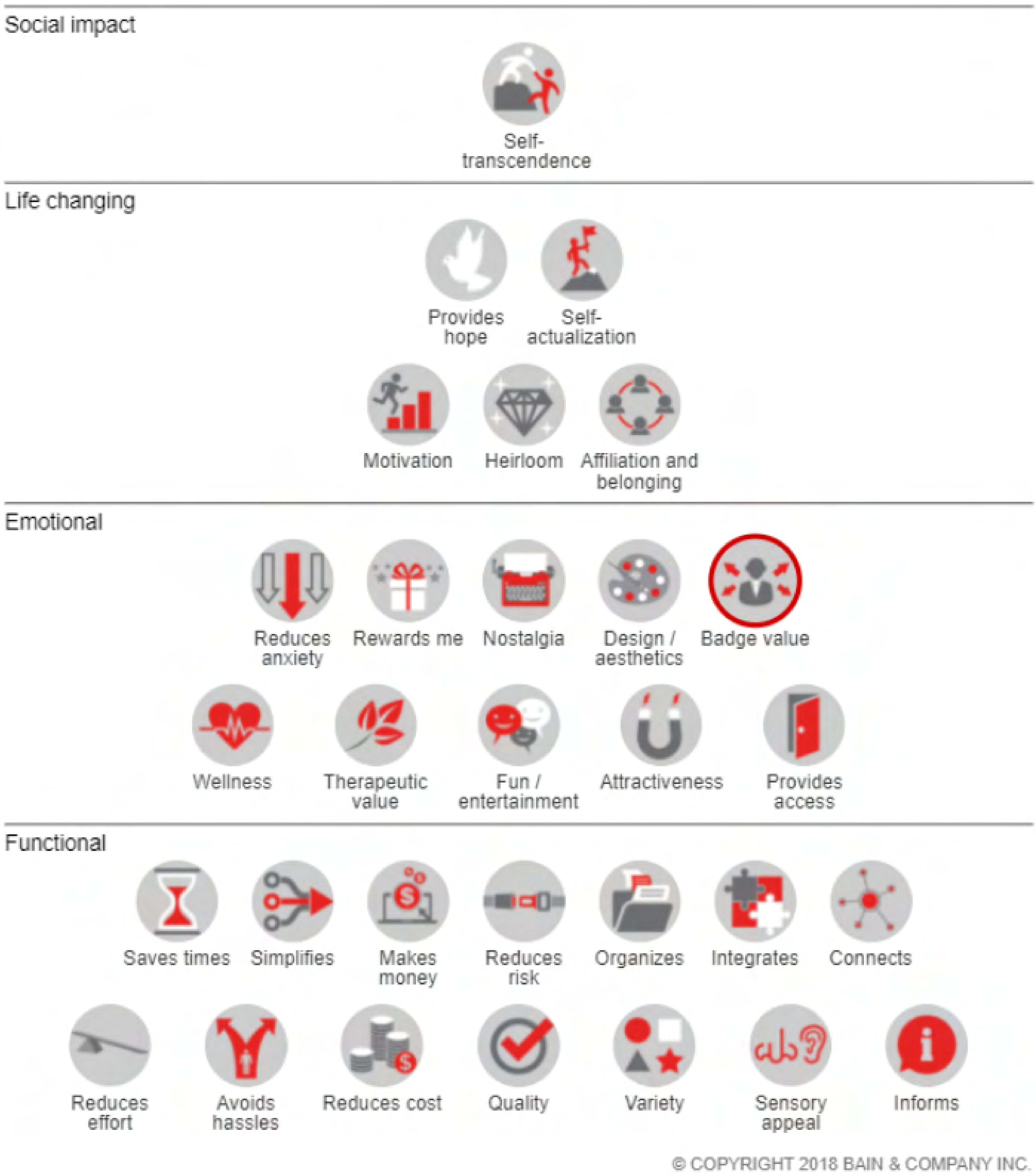
• Porter's Five Forces is a framework for analysing a company's competitive environment.

• The number and power of a company's competitive rivals, potential new market entrants, suppliers, customers, and substitute products influence a company's profitability.

• Five Forces analysis can be used to guide business strategy to increase competitive advantage.

## 7. Bain's elements of value

Product and service value is delivered in four ways: functional, emotional, life-changing, and social impact. In general, the more elements offered, the stronger the client loyalty and the company's long-term revenue development.



## How will IIM Trichy help you in pursuing a career in strategy and consulting?

IIM Trichy offers extensive courses in strategy

**Competition & Strategy (core course)**
–An introduction course to strategy it focuses on formulating and implementing strategies

**Foundations of Strategy Consulting**
–Simulate a real-life Indian strategy formulation exercise in the classroom, along with the challenges a management consultant typically faces.

**Entrepreneurship**
–To sow the seeds of entrepreneurial thinking amongst the uninitiated while bolstering the entrepreneurial intentions of those who have already begun planning and dreaming to start their own ventures in this lifetime.

**Dynamics of Framing & Executing Strategy**
–Involving a simulation game. " Learning by doing". Strategy Formulation and execution and impact of decisions over a long term horizon

**Strategic Leadership**
–For those who aspire leadership roles in an organization. Aims to cultivate a capacity of judgement and critical analysis of strategic choices.

**Competing in Global markets**
–Apply conceptual skills to design and adaptively configure a firm's international strategy in a dynamic global environment.

## About Consulate club

Consulate club is an entirely student-driven initiative that has a core community of passionate management students having diverse experience and who work to offer the students a platform to develop an interest and inclination towards the fields of strategy and consulting at IIM Trichy.

## How can we help you?

- We offer live projects that provide you with the chance to work as a pro-bono consultant
- We conduct workshops on how to approach case study competitions.
- We provide industry exposure through guest lectures.
- We provide industry updates to keep up to date.
- We conduct various competitions throughout the academic year to help you hone various skills like thinking strategically, research, analysis of data, presentation, etc.

# Finance

by

FINVEST

Finance and Investment Club
of IIM Trichy

## Finance

Finance is the heart and soul of any enterprise and financial management helps determine what, when, and where to expend. Not only that, it helps the business manage its financial assets and generate more income. It also involves keeping in check the financial health and status of the business, helping to determine business strategy and direction as well as contributing to the objectives of the organization.

Finance professionals are accountable for carrying out this financial management of the organization i.e., knowing from where to source it, deciding how to spend it to get the maximum returns at the lowest possible risk. They seek to find ways to ensure the flow of capital, increasing profitability and decreasing expenses.

## Basic Concepts in Finance

### 1. Financial Statements

Financial statements are a collection of documents and reports of the transactions of an organization. It helps determine an organization's financial health, profitability, and performance. It is useful as it helps:

- To determine the ability of a business to generate cash and the sources and uses of that cash.
- To determine whether a business can pay back its debts.
- To track financial results on a trend line to spot any looming profitability issues.
- To derive financial ratios from the statements that can indicate the condition of the business.
- To investigate the details of certain business transactions, as outlined in the disclosures that accompany the statements.

There are 3 major financial statements:

| | | |
|---|---|---|
| 1. Balance Sheet | 2. Income Statement/ Profit and Loss Statement | 3. Cash Flow statement |

**1. Balance Sheet**

The balance sheet summarizes a company's liabilities, assets, and equity at a given point of time. It summarizes the financial position of a company. It is based on:

**Assets = Liabilities + Shareholders' Equity**

Assets are of the following types:

- Fixed assets - Assets that are purchased for the long term and can not be easily converted into cash. It includes building, land, machinery etc.
- Current assets - Assets that can be quickly converted into cash. It includes money market instruments, debtors etc.

Liabilities define what the company owes to other entities. It is usually taken upon to fund the activities of the business. It is classified as a current liability if due within the next 12 months.

Shareholder’s equity represents the number of business holdings that weren't purchased using debt (loans).

**2. Income Statement**

Income Statement reports the revenue generated, expenses incurred and the profits or losses generated during a period of time. It is defined as:

**Revenue – Expenses = Income**

Revenue is the amount of money the is received by the company during a particular period. It is also known as "TopLine".
Expenses are deductions from the income. It is done before assessing taxes.
Income is the net inflow of cash or other assets during any given accounting period.

**3. Cash Flow Statement**

Cash flow statements map the cash inflows and outflows of the firm. It has three major elements:

-Cash flow from operating activities: It includes cash created through day-to-day operations of the company, primarily buying and selling goods & services.
-Cash flow from investing activities: It includes buying and selling of investments such as property, plant, and equipment.
-Cash flow from financing activities: It includes the sale of stocks, the repurchase of stocks, and the issuance of shares.

## Shares

In simple words, Share is a unit of the company owned by you. Suppose the company X is divided into 10000 shares. Thus, 1 share = 0.01% corporate ownership.
In the case of a Public limited company, the shares are registered and traded on the stock exchange. In the case of Private limited shares are not traded freely. They can be bought or sold between existing owners or a company Thus, the companies we see being traded (bought/sold) on various exchanges such as the NSE and BSE are public companies.

Shares of companies can be traded in two ways:

- Primary Offer or PrimaryMarket (IPO/FPO)

IPO or Initial Public Offer is a primary offer in which a company offers to sell its shares to the general public for the first time. FPO or Further Public Offer is a primary offer in which a company offers for sale its shares to the general public after the first offer is made. In such situations, the shares are already being traded. New shares are issued to the market.

- Secondary Market

Different offerings to the public: In a primary offer, the company sells the shares of a company to the general public through IPO or FPO. Once the IPO is done and the stock is listed, they are traded in the secondary market.

The main difference between the two is that in the primary market, an investor gets securities directly from the company through IPOs, while in the secondary market, one purchases securities from other investors willing to sell the same. Equity shares, bonds, preference shares, treasury bills, debentures, etc. are some of the key products available in a secondary market. SEBI is the regulator of the same.

### SENSEX

Sensex, otherwise known as the S&P BSE Sensex index, is the benchmark index of the Bombay StockExchange (BSE) in India. Sensexcomprises 30 of the largest and most actively traded stocks on the BSE, providing an accurate gauge of India'seconomy. The index's composition is reviewed in June and December each year. Initially compiled in 1986, the Sensex is the oldest stock index in India. Analysts and investors use the Sensex to observe the overall growth, development of particular industries, and booms and busts of the Indian economy.

## NIFTY

The NIFTY 50 index is the National Stock Exchange of India's benchmark broad-based stock market index for the Indian equity market. The full form of NIFTY is National Stock

Exchange Fifty. It represents the weighted average of 50 Indian company stocks in 12 sectors and is one of the two main stock indices used in India. Nifty is owned and managed by India IndexServices and Products (IISL), which is a wholly-owned subsidiary of the NSE Strategic Investment Corporation Limited.

## SEBI

Securities and Exchange Board of India (SEBI) is a statutory regulatory body entrusted with the responsibility to regulate the Indian capital markets. It monitors and regulates the securities market and protects the interests of the investors by enforcing certain rules and regulations. The objective of SEBI is to ensure that the Indian capital market works systematically and provide investors with a transparent environment for their investment.

## Important Rates

**Repo Rate (4% as of 6 January 2021):**

Repo rate is the rate at which the central bank of a country (reserve bank of India in the case of India) lends money to commercial banks in the event of any shortfall of funds. Repo rates can be used by monetary authorities to control inflation.

**Reverse Repo Rate (3.35% as of 6 January 2021):**

Reverse repo rate is the rate at which the central bank of a country (Reserve Bank of India in the case of India) borrows money from commercial banks within the country. It is a monetary policy instrument that can be used to control the money supply in the country.

**Cash Reserve Ratio(3% as of 6 January 2021):**

Cash Reserve Ratio (CRR) is the share of a commercial bank’s total deposit that is mandated by the central bank of a country (reserve bank of India in case of India)to be maintained with the latter in the form of liquid cash.

**Statutory Liquidity Ratio(18.5% as of 6 January2021):**

The ratio of liquid assets to net demand and time liabilities (NDTL) that is mandated by the central bank of a country (Reserve Bank of India in case of India) to be maintained with the latter is called statutory liquidity ratio (SLR).

**Call Rate**

Call money rate is the rate at which short term funds are borrowed and lent in the money market. The duration of the call money loan is 1 day to 14 days. Banks resort to these types of loans to fill the asset-liability mismatch, comply with the statutory CRR and SLR requirements, and meet the sudden demand of funds.

### Non-Performing Assets

A non-performing asset (NPA) is a loan or advance for which the principal or interest payment remained overdue for a period of 90 days. Banks are required to classify NPAs further into Substandard, Doubtful, and Loss assets.

### Substandard assets

Substandard assets are the assets that have remained NPA for a period less than or equal to 12 months.

### Doubtful assets

If an asset has stayed in the substandard category for a period of 12 months, it is categorised as a questionable asset.

### Loss assets

As per RBI, “Loss asset is considered uncollectible and of such little value that its continuance as a bankable asset is not warranted, although there may be some salvage or recovery value.”

### CIBIL Score

The Credit Information Bureau (India) Ltd, popularly known as CIBIL is a Reserve Bank of India (RBI) authorized credit agency. It offers CIBIL scores and CIBIL reports for individuals. A CIBIL score is generated by the bureau after considering an individual's detailed credit information. The agency also offers credit report services to the banks and other NBFC (Non-banking financial companies). A CIBIL score is a three-digit number between 300-900, 300 being the lowest, that represents an individual's creditworthiness. A higher CIBIL score suggests good credit history and responsible repayment behaviour. CIBIL scores are calculated on the basis of at least 6 months of historical financial data of an individual.

### Security Analysis and Portfolio Management

<u>WACC</u>

In long term capital structure,

**Wd*Kd*(1-t) + We*Ke + Wp*Kp**

where:

Wd - Weight of debt
Kd - Cost of debt
We - Weight of Equity
Ke - Cost of Equity
Wp - Weight of Preferred SharesKp - Cost of preferred Debt

**Cost of equity – CAPM – Rf + Beta*(Rm-Rf)**

**The Capital Asset Pricing Model (CAPM)** is a model that describes the relationship between the expected return and the risk of investing in security. It shows that the expected return on security (equity) is equal to the risk-free return plus a risk premium, which is based on the beta of that security.

**ERi = Rf + βi(ERm−Rf)**

where,

ERi =expected return of investment
Rf =risk-freerate
βi =beta of the investment (ERm−Rf) market risk premium

**The risk-free rate** is the return that can be earned by investing in risk-free security, e.g., U.S. Treasury bonds.

**The market risk premium** is the difference between the expected return on a market portfolio and the risk-free rate. The market risk premium is equal to the slope of the security market line (SML), a graphical representation of the capital asset pricing model (CAPM).

**The beta (β)** of an investment security is a measurement of its volatility of returns relative to either benchmark or broader market index. It is used as a measure of risk and is an integral part of the Capital Asset Pricing Model (CAPM). A company with a higher beta has greater risk and also greater expected returns. The beta of the overall market portfolio is one. The beta coefficient can be interpreted as follows:

- $\beta = 1$ exactly as volatile as the market
- $\beta > 1$ more volatile than the market
- $\beta < 1 > 0$ less volatile than the market
- $\beta = 0$ uncorrelated to the market
- $\beta < 0$ negatively correlated to the market

Levered beta, also known as equity beta or stock beta, is the volatility of returns for a stock, taking into account the impact of the company's leverage in its capital structure. It compares the volatility (risk) of a levered company to the risk of the market.
Asset beta, or unlevered beta, on the other hand, only shows the risk of an unlevered company relative to the market. It includes business risk but does not include leverage risk.
Security MarketLine (SML) is a visual representation of the capital asset pricing model (CAPM). SML is a theoretical representation of the expected returns of assets based on systematic, non-diversifiable risk. It specifies a linear relationship between the risk premium of a security and its beta with the market portfolio.

i. Risk-free rate (Rf) – Rate on government securities, which of Indian 10-year bonds is ~7.8%.

ii. Beta – A measure of systematic risk, shows the variability with respect to the Benchmark

**Cost of debt (after-tax) = interest rate**

### Weighted Marginal Cost of Capital

The marginal cost of capital is the weighted average cost of the last dollar of new capital raised by a company. It is the composite rate of return required by shareholders and debt-holders for financing new investments of the company. It is different from the average cost of capital which is based on the cost of equity and debt already issued.

### Portfolio Management

i. Risk – Portfolio risk is the possibility that an investment portfolio may not achieve its objectives
ii. Systematic risk – The risk which can't be diversified. investors are compensated for it by getting a higher return
iii. Unsystematic risk – The risk that is company/industry-specific, can be diversified and investors should theoretically not be compensated for this.

iv. Portfolio return - It is the sum of the weighted average of the return on investment of individual stocks in a portfolio:

**Wa Ra + Wb Rb +..+ WnRn**

where,

Wa - Weight of stock A
Ra - Return on Investment of stock A
Wb - Weight of stock B
Rb - Return on Investment of stock B
Wn - Weight of stock N
Rn - Return on Investment of stock N

**Portfolio Theory (Harry Markowitz Model)**– shows that an investor can create a portfolio of multiple assets that will increase the returns on a certain level of risk. Similarly, given the desired level of expected return, an investor can create a very low risk portfolio.

**Capital Market Line/Capital Allocation Line** – It represents different combinations of Risk-free assets and portfolios of risky assets which provide a maximum return for any given level of risk. All investors, based on their risk & return preferences, would lie somewhere on the CML.

**Security Market Line –** graphical version of CAPM, depicting the relationship between beta and required rate of return (positive). At 0 beta, the rate is the risk-free rate

**Financial Management:**

1. Goal – The goal of Financial Management is to maximize shareholder wealth (dividends, share price). This goal is superior to the maximization of firm profit (ignores risk). The assumption is that the shares are traded in an efficient market where the effect of decisions are reflected in share prices

2. Finance – This means the sourcing of funds. The souring can be from the public, private or corporate entities.

3. Role of FinanceManager – The role of a finance manager is to make investment decisions (Capital budgeting, WC management), financing decisions (capital/debt), and dividend decisions (reinvest/distribute). Financial management is useful in almost every aspect of the business since all decisions have financial implications.

4. Economic Value/Capitalized Value – It is the present value of future cash flows discounted at an appropriate discount rate.

5. Treasury Management – Treasury management means managing the liquidity & foreign exchange requirements and risks

6. Time Value of Money - It simply means that money's worth increases over time. It is based on the fact that money can earn interest if invested today, hence it will be worth more than receiving the same amount of money tomorrow

7. Capital Budgeting – investments in fixed assets etc, i.e., where returns are expected over multiple periods. Based on incremental after-tax CFs, not accounting profits(due to ignorance of TVM, discrepancies in accounting treatment of depreciation, valuation etc). Sunk costs are ignored and opportunity costs (including cannibalization) are included. Financial CFs (debt, equity, interest etc) are ignored raising funds results in an immediate cash outflow for the project, thus, there is no net cash inflow. The cost of interest and dividends is reflected in the WACC

8. Capital Budgeting Evaluation Techniques - The different capital budgeting evaluation techniques are - Payback Period (Cumulative cash inflow/cash outflow), Discounted Payback Period, Net Present Value, Internal Rate of Return, Modified Internal Rate of Return (takes care of the problem of IRR method of assumption of reinvestment at IRR by assuming it at a discount rate by finding future values of all cash flows up to a terminal year and discounting that value), Profitability Index (Total PV of all cash inflows/total PV of all cash outflows, ie, in a way better than NPV for capital rationing as it standardizes profitability for comparability)

9. Dividend Policy – Investors are expected to prefer current cash dividends to future capital gains (arising from reinvestment). According to Walter, if ROI on reinvestment>cost of equity capital, firms should retain entire profits and distribute entire profits if not.

10. Net Present Value (NPV) is the value of all future cash flows (positive and negative) over the entire life of an investment discounted to the present.
11. NPV analysis is a form of intrinsic valuation and is used extensively across finance and accounting for determining the value of a business, investment security, capital project, new venture, cost reduction program, and anything that involves cash flow.

$$\text{NPV}=\sum t=1(1+i)tR\text{t}$$

where,
R t =Net cash inflow-outflows during a given period
i=Discount rate of return that could be earned from alternative investments
t=Number of periods

12. The net present value indicates that the projected income generated by the project or investment is in the current dollar - it exceeds the expected costs, and in current dollars. It is thought that investing in good NPV will be profitable, and investing in bad NPV will result in total losses.
13. Discount rate is the rate of return used to discount future cash flows back to their present value.

14. A hurdle rate is the minimum required rate of return or target rate that investors are expecting to receive on an investment.

15. **The Internal Rate of Return (IRR)** is the discount rate that makes the net present value (NPV) of a project zero. The higher an internal rate of return, the more desirable an investment is to undertake. IRR is uniform for investments of varying types and, as such, IRR can be used to rank multiple prospective investments or projects on a relatively even basis.

16. Most IRR analyses will be done in conjunction with a view of a company's weighted average cost of capital (WACC) and net present value calculations.

17. The net present value rule is that the company managers and investors should only invest in projects or engage in transactions that have a positive net present value (NPV).

## Important Financial Ratios

| ACTIVITY RATIO | FORMULA | INTERPRETATION |
|---|---|---|
| **Inventory Turnover** | **COGS/Avg. Inventory** | **Activity ratios are used to evaluate operational capabilities of the firm. How quickly can inventory be sold, cash collected and paid are some of the points that can be evaluated.** |
| **Receivables Turnover** | **Revenue/Avg Receivables** | |
| **Payables Turnover** | **Purchase/Avg. trade payables** | |
| **Fixed assets Turnover** | **Revenue/Avg. Fixed assets** | |
| **Working Capital Turnover** | **Revenue/Avg. Working Capital** | |

| LIQUIDITY RATIO | FORMULA | INTERPRETATION |
|---|---|---|
| **Current Ratio** | **Current Assets/Current Liabilities** | **Used to evaluate the short-term liquidity position of the country. If it is low then short-term assets are not able to meet short-term obligations. If it is very high, then there are unnecessary investments.** |
| **Quick Ratio** | **(Current Assets-Inventories)/Current Liabilities** | |
| **Cash Ratio** | **Cash and Cash Equivalents/Current Liabilities** | |

| SOLVENCY RATIO | FORMULA | INTERPRETATION |
|---|---|---|
| **Debt to Equity Ratio** | **Total Debt/Total Shareholders' Funds** | **Evaluates the long-term liquidity of the firm. Generally, these ratios are used to assess the financial health of the country.** |
| **Financial Leverage Ratios** | **Average Total Assets/Average Total Equity** | |
| **Interest Coverage Ratio** | **EBIT/Net Interests** | |

| PROFITABILITY RATIO | FORMULA | INTERPRETATION |
|---|---|---|
| **Gross Profit Margin** | **Gross Profit/Revenue** | **Assess the profitability of the company. For a stable company, constant ratios over years is most preferred.** |
| **Operating Profit Margin** | **Operating Income/Revenue** | |
| **Net Profit Margin** | **Net Profit/Revenue** | |

**An NPV profile** is a graph that maps the relationship between a company's cost pf capital and the project's NPV.

**The IRR rule** states that if the internal rate of return on a project or investment is greater than the minimum required rate of return, typically the cost of capital, then the project or investment can be pursued.

**The payback period** refers to the amount of time it takes to recover the cost of an investment

# Marketing

by

MAC

The Marketing and Advertising Club
of IIM Trichy

## What is Marketing?

Marketing is a process through which companies create value for their customers. It involves building strong customer relationships to gain returns from customers in future. In other words, "Marketing is a social and managerial process by which individuals and groups obtain what they need and want through creating and exchanging products and value with others" - Philip Kotler. The aim of marketing is to know and understand the customers well so that the product/service sells itself.

## Difference between Sales and Marketing

Sales are selling products, and it is the responsibility of salespeople to convert a potential lead into a sale. Sales focus on smaller groups, whereas Marketing helps create interest in the product and focuses on larger groups. Marketing is based on a marketing mix - 4Ps, whereas Sales is based on a sales plan. The main objective of marketing is to promote the company and its product or service and create a brand. Sales goals are often measured periodically and sale targets are pre-defined.


## Need, Want & Demand

Need: Needs are the basic requirements for human beings like food, air, water, shelter, etc. Demands are backed by the ability to pay for a given want. Marketers do not create needs: Needs pre-exist marketers.

- Stated needs – A person wants to buy a bike.
- Real needs – A person wants a bike that has less operational costs.
- Unstated needs – The customer expects good service from the dealer.
- Delight needs – A person would like the dealer to include an onboard GPS navigation system.
- Secret needs – The customer wants friends to see him or her as a savvy consumer.

Wants: Needs become wants when they are directed to specific objects that satisfy the need. Example: Eating rice when you are hungry is a need but waiting for biryani is a want.

Demand: When backed by buying power, wants to become demands. The basic difference between wants and demands is desire. A customer may desire something, but he may not be able to fulfil his desire. Example: Every car lover desires to buy an Audi/ BMW/ similar luxury car, which requires huge investment.

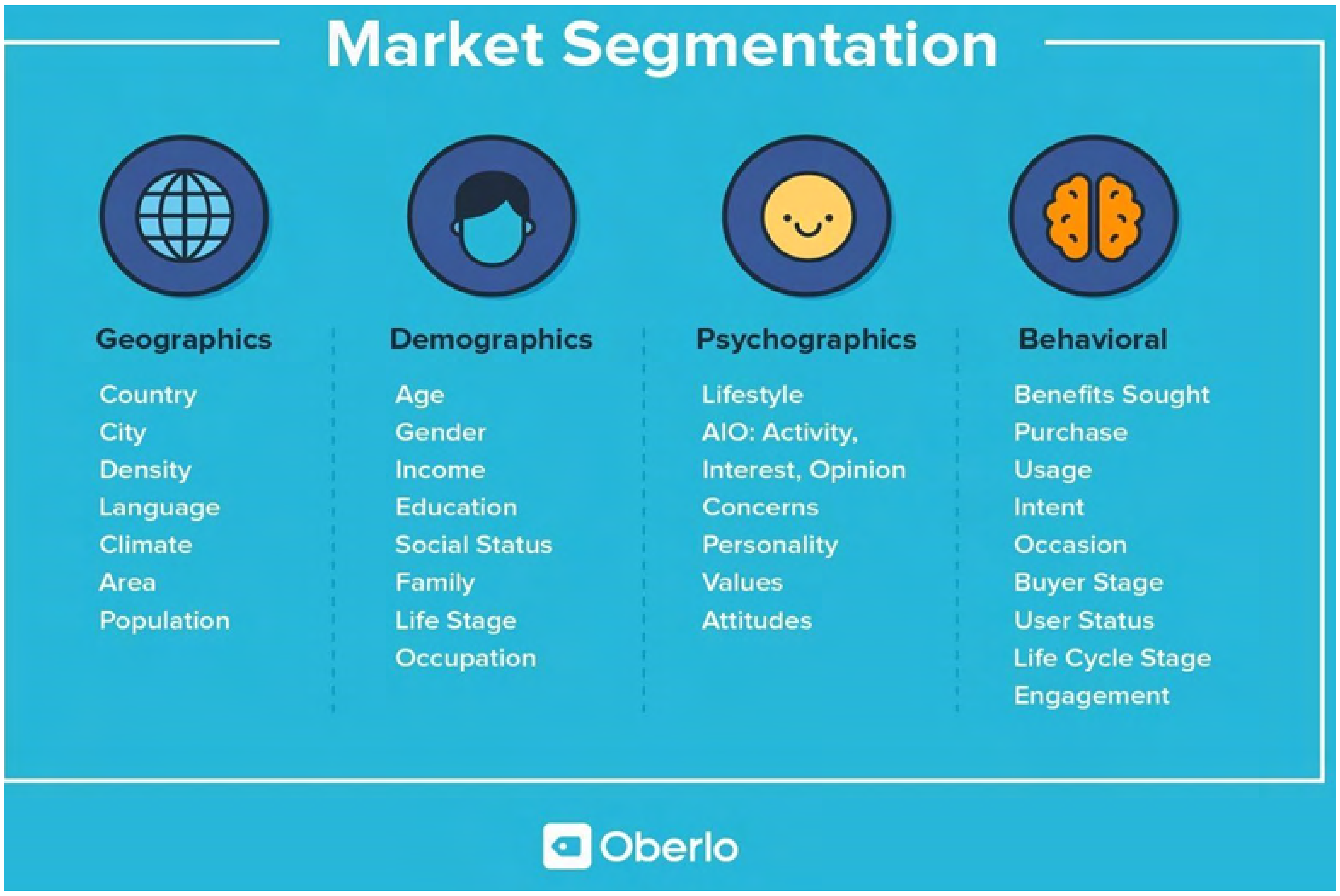
Customer vs. Consumer: The consumer is the one who uses the product, whereas the customer is the one who buys the product. Example: Diapers are a product bought by parents who are the customers and used by infants or babies who are the consumers.

## Segmentation, Targeting, and Positioning(STP)

Segmentation:

The process of defining and dividing the a large homogeneous market into clearly definable parts with similar needs, or desired features. Its purpose is to design a marketing mix that fits exactly the expectations of customers in a specific category.

Few companies are large enough to provide the needs of the entire market; the majority should divide the total amount into categories and select the ones that are best equipped to handle them.



Targeting:

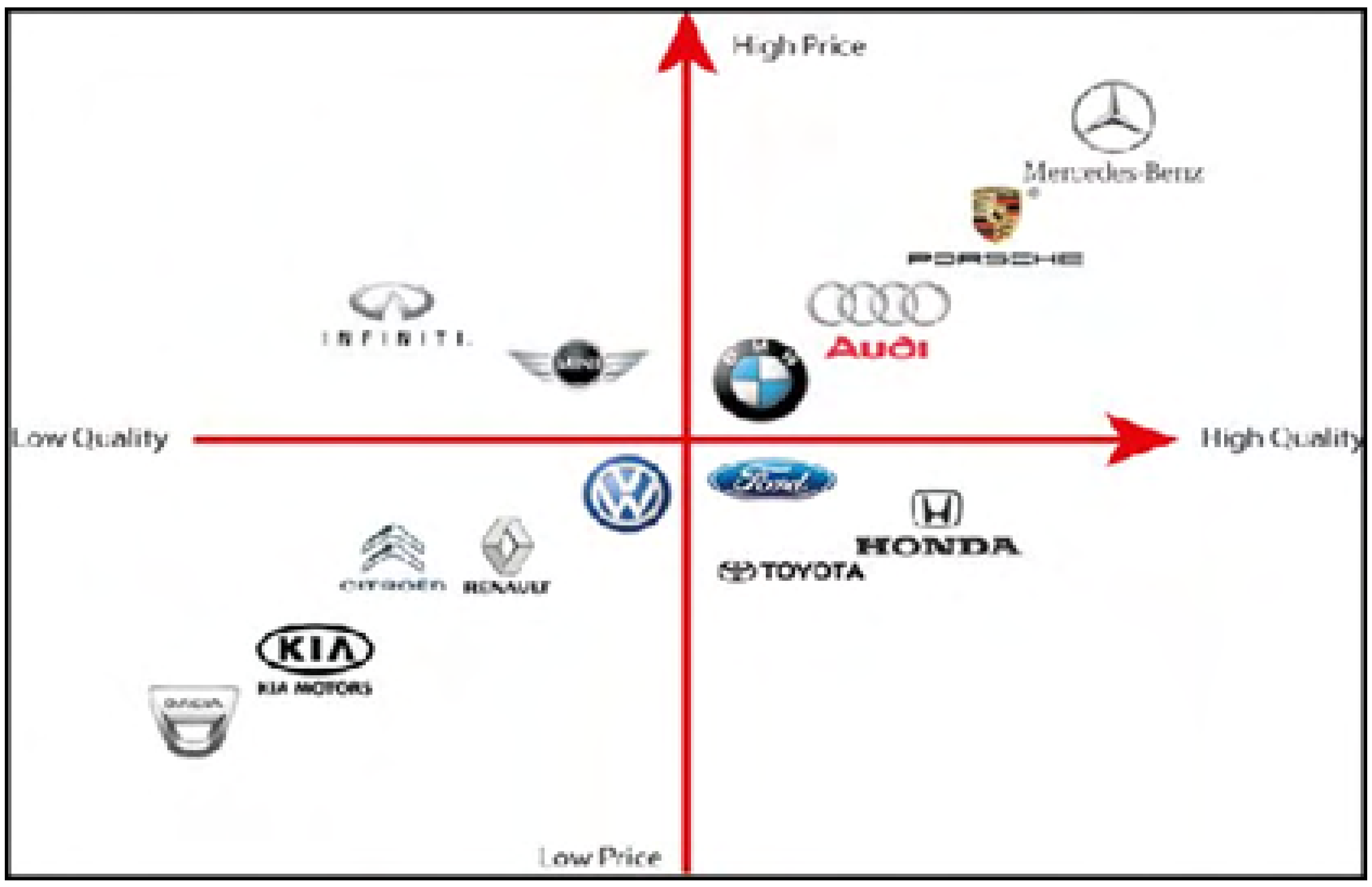
Categories relevant to the company's intention that may be serviced are identified and targeted. When you have multiple, distinct market segments, you typically need to customize marketing campaigns that appeal to each. As you go through the STP process, you will select which segment to target with your upcoming campaign.


Benefits of having a clear and defined Target Market:

- It builds brand awareness and deeper customer loyalty, which helps build better products and services.
- It makes it easier for brands to reach audiences in a better and meaningful way.
- It improves marketing strategies and audience experiences.
- The companies can implement targeting methods in the following ways:
- Undifferentiated Marketing or Mass Marketing(Very Broad Targeting).
- Differentiated or Segmented Marketing (between Broad and Narrow Targeting).
- Micromarketing (Narrow Targeting).

Positioning:

Positioning is developing a product and brand image in the minds of consumers. It can also include improving a customer's perception of their experience if they choose to purchase your product or service. The business can positively influence the perceptions of its chosen customer base through strategic promotional activities and by carefully defining your business' marketing mix. Effective positioning involves a good understanding of competing products and the benefits that are sought by your target market. It also requires you to identify a differential advantage with which it will deliver the required benefits to the market effectively against the competition.

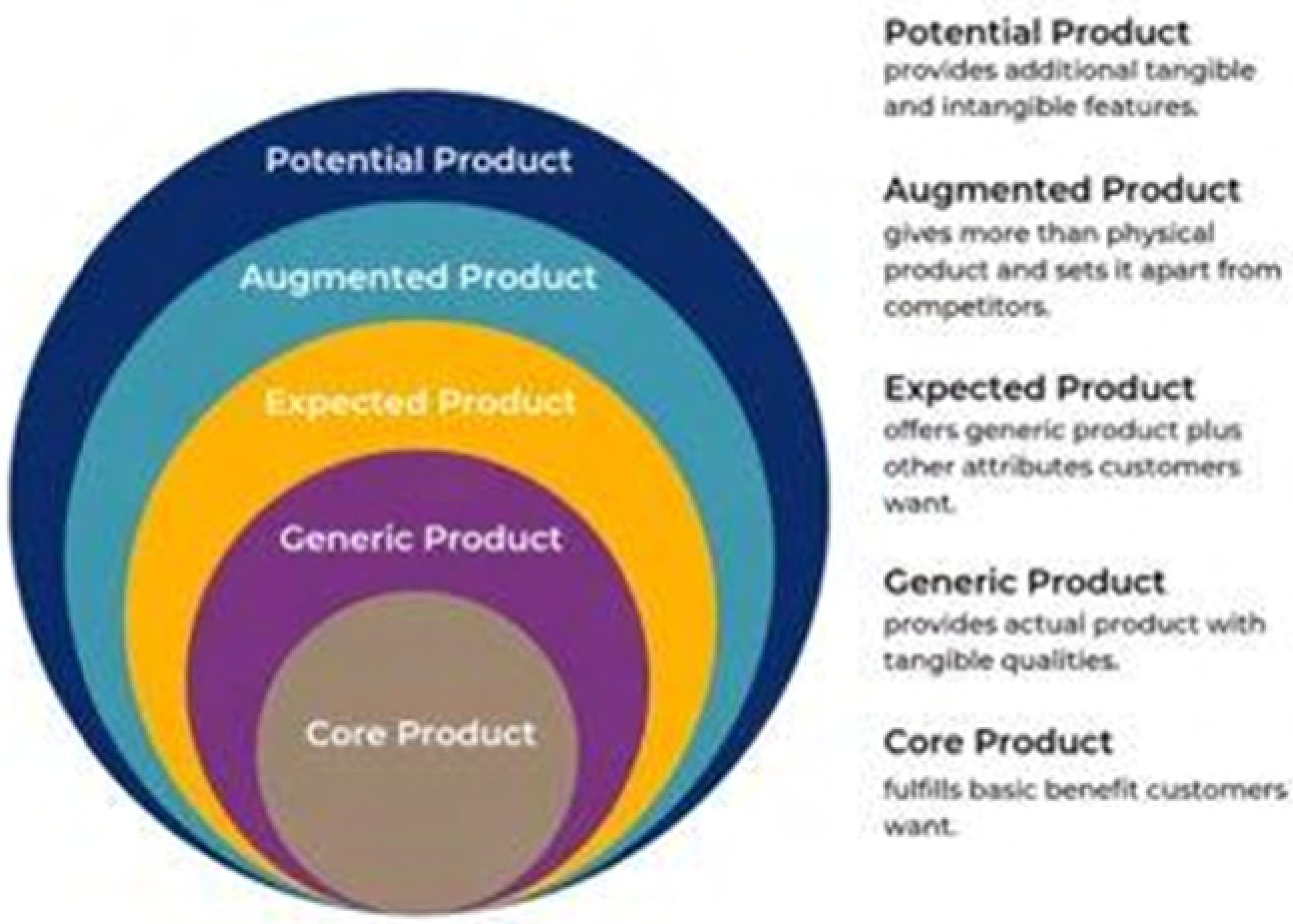



## Marketing Mix

It refers to the set of actions or tactics that the company uses to promote its product in the market.

Product:

It refers to anything that can be offered to the market for attention, acquisition, use or consumption that might satisfy a want or need. Product developers and marketers need to think about the product along the levels shown in the figure alongside.




Price:

It is the amount of money the customers would need to pay for obtaining the product. It also refers to the pricing strategy for products and services and how it will affect the customers. The companies should identify how much the customers are prepared to pay, mark up and cater to overheads, profit margins, payment methods, and other costs.


Place:

It signifies where you choose to distribute or allow access to your product or service. It could be ranging from a warehouse or a supermarket to an e-commerce shop or a local general store.

Promotion:

It refers to the activities that communicate the merits of a product and drive the target customers to buy it. It can be traditional advertising, via a TV, radio, hoardings, or the latest means like ads on web pages, podcasts, email marketing, etc.

People:

Another important element in the marketing mix is people. It refers to whether or not you have a large enough target audience and if there is enough demand for the product or not.

Process:

When it comes to the marketing mix's procedures, the organization's process might have an impact on the performance of the product/service they offer.

Physical Evidence:

Almost all services include some physical elements, even if the bulk of what the consumer is paying for is intangible. Even if the material is not physically printed, they are still receiving a "physical product" by this definition.

## Product and Service Attributes

Product quality:

The characteristics of a product or service that bear on its ability to satisfy the customer needs, implied or stated. It has two main components:

- Level
- Consistency


- Level:

It can mean the level of the product's quality up to which it will support its positioning. It can also mean the performance level, i.e., the product's ability to perform its functions as stated. While deciding the quality, companies decide on the quality and level that match the needs of the target market and the level of the competing ones.

- Consistency:

Consistency can attribute to the freedom from any defects, thereby offering the targeted level of performance termed as "Conformance Quality."

Product Features:

They are the characteristics that set a product or service apart from other similar items. It can also be seen as adding new characteristics to the existing one to make it a higher-level model.

Product Style and Design:

Style in marketing can be viewed as the description of the product's appearance. It is more about the visual appeal and the outlook of the product. It does not affect or improve the performance of the product.

Design, on the other hand, is about the basic structure of the product, keeping the basic functionality and user experience in mind. Good design contributes to the product's functionality and appearance.

## Branding

What is a brand?

A brand can be seen as the identity of the seller of the product/service. It helps you in understanding what your identity is.

What is branding?

It is a practice and process of communicating a Unique Selling Proposition (USP) which your product/service offers, thereby differentiating it from the competition.


Benefits of branding?

For consumers:

- It helps consumers identify the products they can get benefited from.
- Brands can also represent the quality and consistency of the product/service.
- It would ensure the buyers the same features, quality, and benefits each time they buy the same product/service.

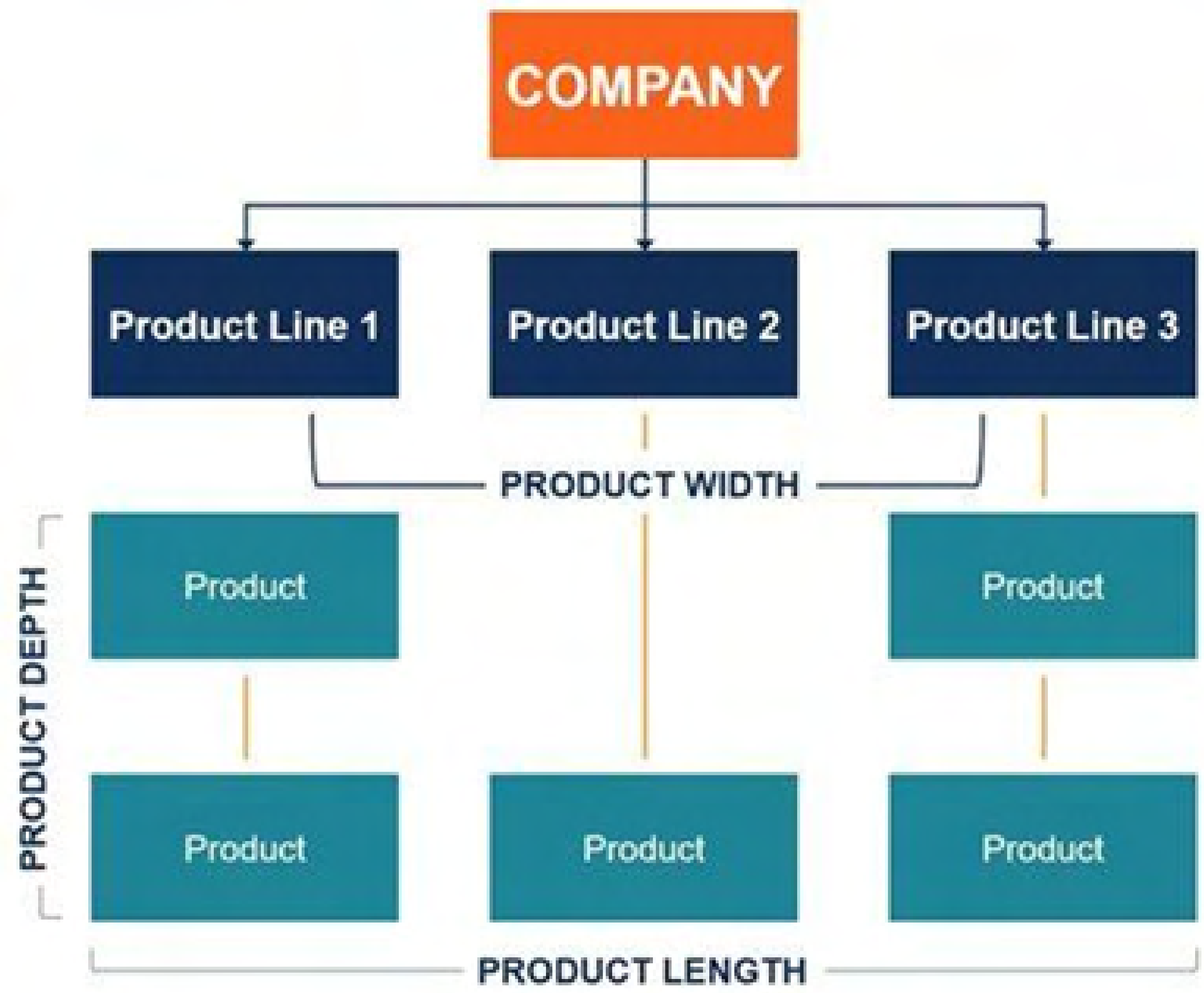
For sellers:

- It gives the seller legal protection for the product's or the service's identity and features, thus avoiding duplicating by competitors.
- It creates an exclusive segment in the market for the seller.
- It can be a means of story around which a story can be made about the product/service.


Product Mix:

Product Mix or a Product Portfolio is the complete set of product/service lines offered by a company to its customers. It has three dimensions:

- Length: It refers to the total number of products present in the product mix.
- Width: It is also known as breadth, which refers to the number of product lines offered by a company.
- Depth: The variety of variations of products offered within a product line.



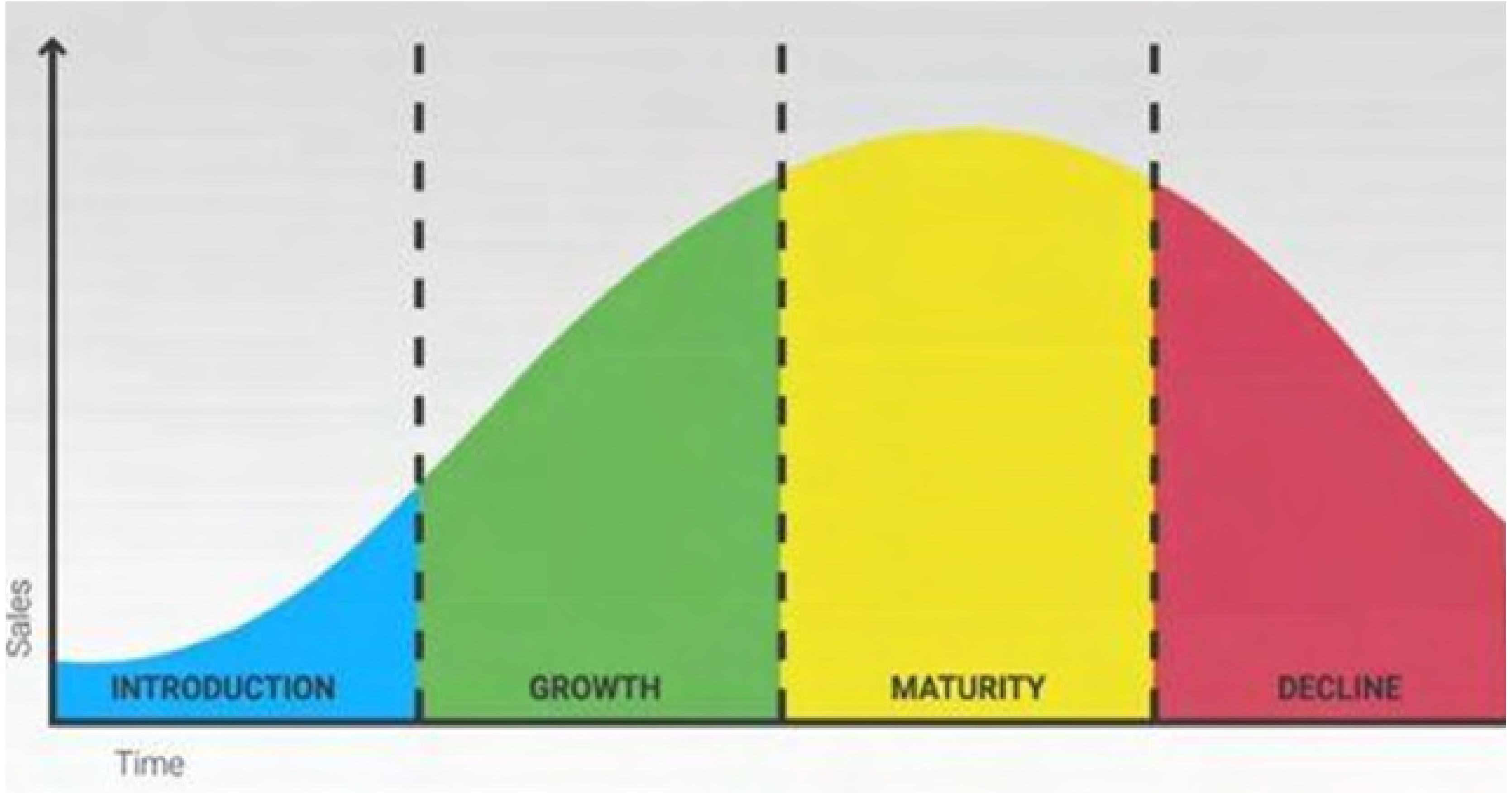

Product Life Cycle:

**Introduction:** It is the first stage where a product is released into the market. Its focus is on creating awareness and motivating buyers to acknowledge the product.

**Growth:** This stage occurs once the consumers become aware of the product and increasingly buy it. It also includes a significant boost in the market share, update of the product with new features.

**Maturity:** When a product reaches its maturity stage, its sales growth starts slowing down and reaches the saturation stage. In this stage, the company faces the problem of getting the consumers to prefer its brand rather than making them try its product.

**Decline:** Even though the company tries to sustain the product in its maturity stage once it is reached, it is inevitable for any product to enter the decline stage someday. The product loses market share, and competitive products cause its sales to deteriorate.




## Digital Marketing

It refers to advertising the product/service through digital channels such as email, webpages, mobile apps, and search engines.

### 5Ds of digital marketing

1. Digital Devices

These media include:

- Mobile phones
- Laptop
- Gaming Devices
- TVs

2.Digital Platform

Social media is the largest media among the Digital Platforms, and it has users more than half the world population. These include:

- Google
- YouTube
- Twitter
- LinkedIn
- Facebook

3.Digital Network

These are either owned or paid communication channels that help in building engagement through the following ways:

- Advertising emails
- Messaging
- Search engines
- Social networks

4. Digital Data

These include the agencies which collect data about customers and collect their interests which are used for cross-selling. It is helpful to build new products and promote their usage. These include:

- Website contacts form
- POS
- Contests
- Surveys,
- Event sign-ups
- App installation

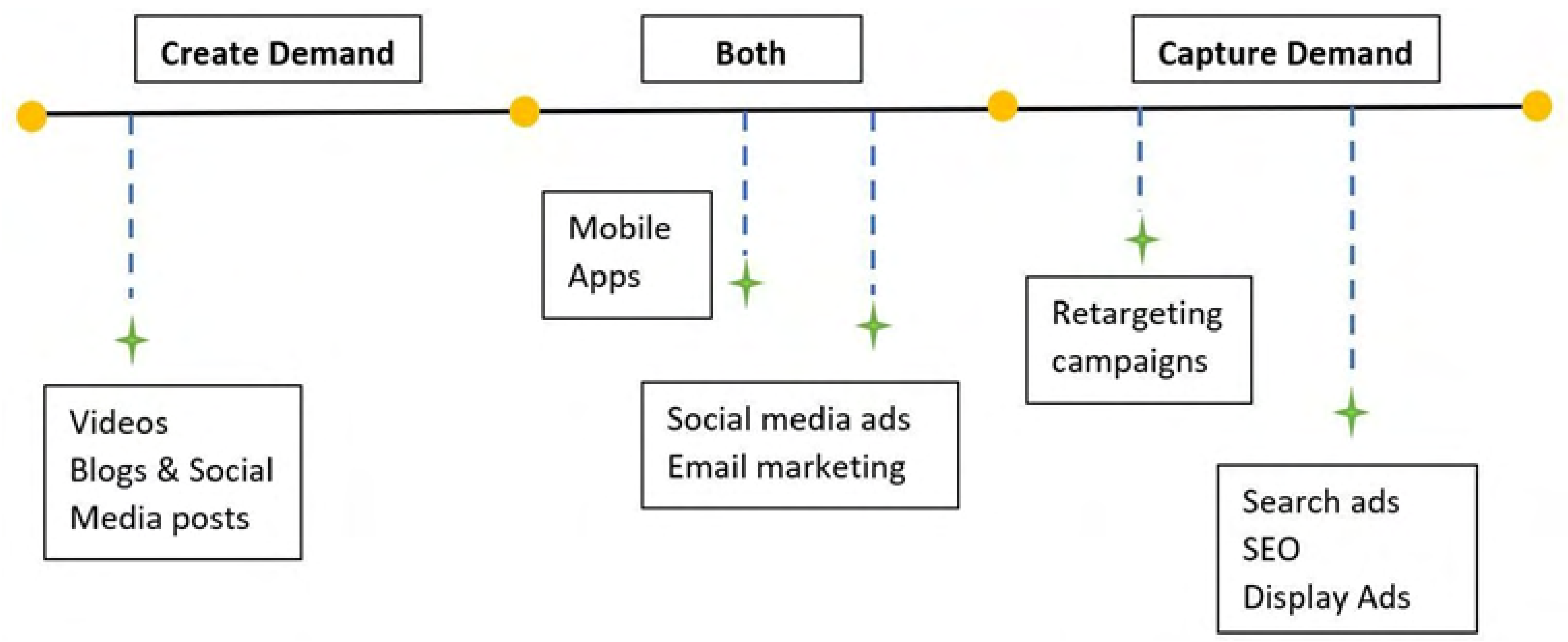
5.Digital Technology

The electronic tools, systems, devices, and resources which generate, store, or process data. These include:

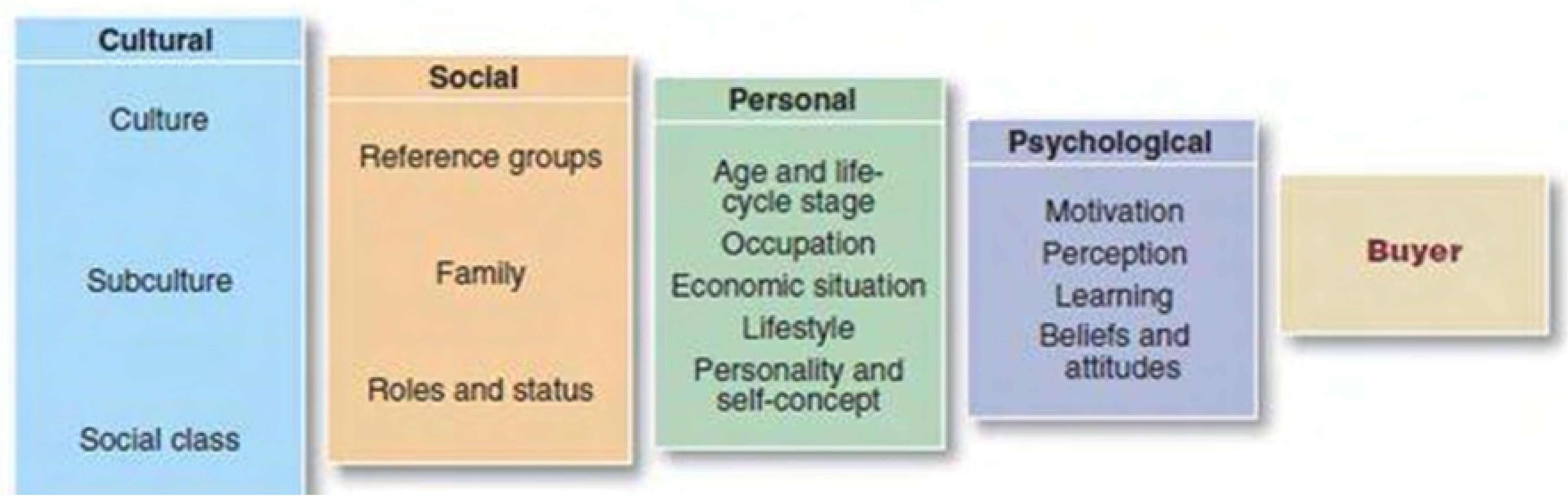
- Predictive search
- Chatbots
- Recommendation engines

## Digital Marketers Tools

- Search ads
- Search engine optimization
- Display ads
- Social media ads
- Blogs & Social media posts
- Email marketing
- Videos
- Mobile apps
- Retargeting Campaigns
- Conversion rate optimization




## Consumer Behaviour Models



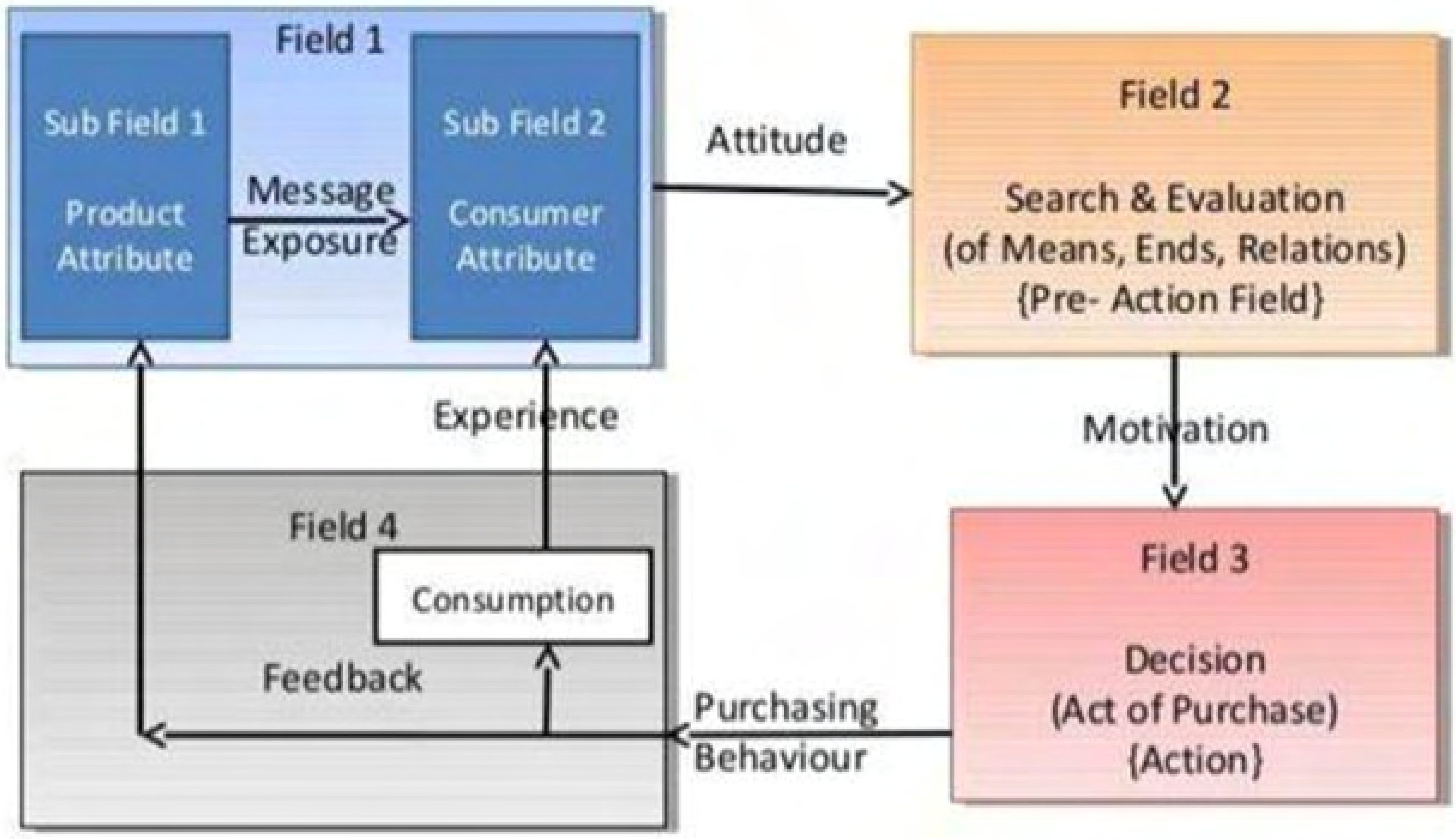

They are influenced by various factors such as cultural, social, and personal factors. There have been many models estimating consumer behavior. Famous ones are:

### Nicosia Model

This model discusses how a potential consumer responds to the launch of a new brand.

- It begins with brand awareness, where the consumer gets aware of the new brand through advertising.
- The attributes of the company influence his perception, and he develops an attitude towards the brand.
- The consumer now compares the new brand with other competitive brands either through other consumers, advertisements, or his previous experiences.

- Based on the comparison, he decides whether to purchase or reject the new brand.



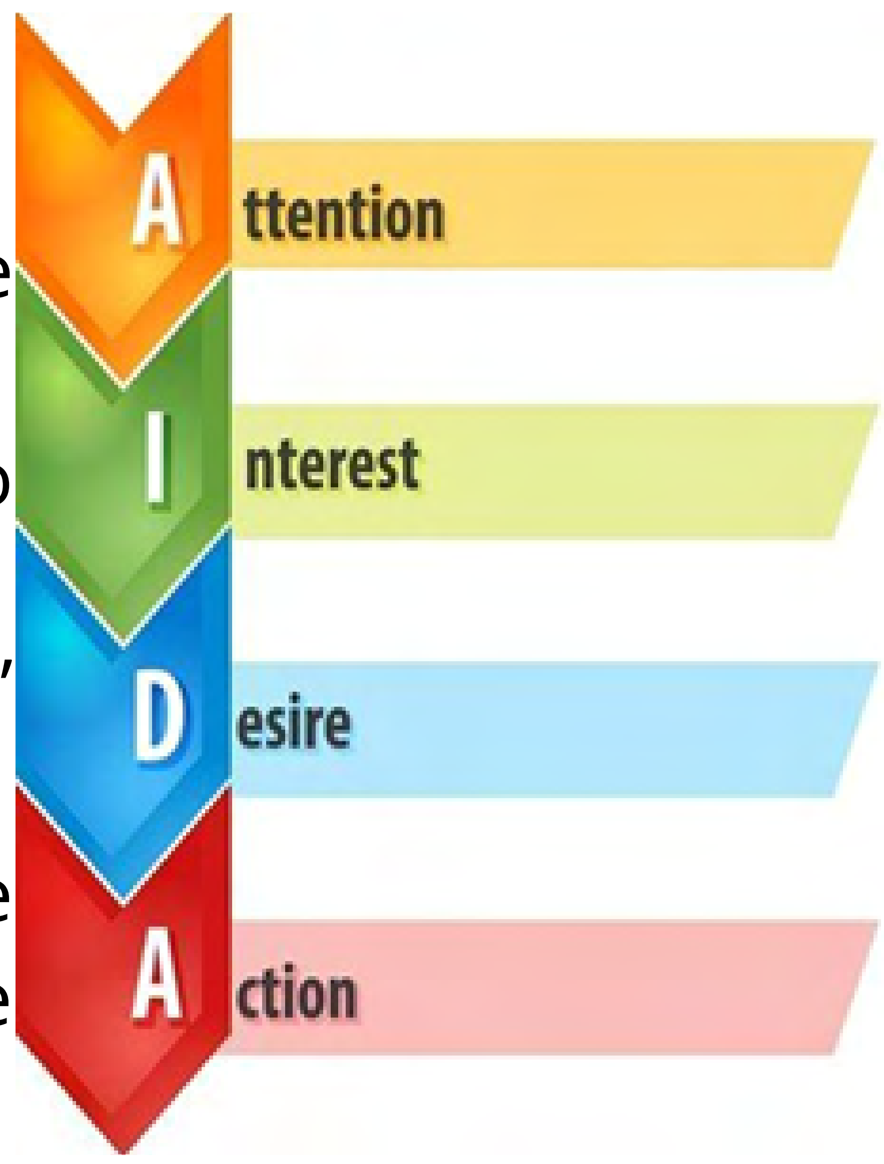

## Engel, Kollat, and Blackwell (EKB) Model:

- It starts with the consumer's perception of want which must be satisfied.
- He then searches for the information internally (memory) and externally (neighbours, influencers, friends) and from other sources (advertisements, magazines, etc.).
- Identifies the various ways in which they want can be satisfied.
- Determines the attitude towards his choice whether to purchase or not.
- The outcome obtained in the previous step will influence future behaviour.


## Consumer Response Models: AIDA Model

The steps involved in this process are:

- Attention to be considered on how to attract the customers.
- The interest level of the consumer needs to increase once his attention is grabbed.
- Desire level is the process of converting “I like it” to “I want it."
- The action level is the ultimate level where the company’s goal is to make the customer initiate action and purchase the product/service.



# Marketing Frameworks

## SWOT Analysis

SWOT is an acronym for Strengths, Weaknesses, Opportunities, and Threats. SWOT Analysis is one of the most commonly used tools to assess a company's internal and external environments and is part of a company's strategic planning process. In addition, a SWOT analysis can be done for a product, place, industry, or person. A SWOT analysis helps with strategic planning and decision-making, as it introduces opportunities to the company as a forward-looking bridge to generating strategic alternatives.


## Porter's 5 Forces

The Competitive Forces Model is an essential tool used in strategic analysis to analyze the competitiveness in the industry. The model is more commonly referred to as the Porter's Five Forces Model, which includes the following five forces: intensity of rivalry, the threat of potential new entrants, bargaining power of buyers, bargaining power of suppliers, and threat of substitute goods and/or services. In our competitive forces model, we include a sixth force, the power of complementary goods and/or services providers. The model helps a company understand the risks in its industry and decide how it wants to execute its strategies in response to competition.

## PESTLE


A PESTEL analysis is an acronym for a tool used to identify the macro (external) forces facing an organization. The letters stand for Political, Economic, Social, Technological, Environmental, and Legal. Depending on the organization, it can be reduced to PEST, or some areas can be added (e.g., Ethical).

PESTEL analysis aids an organization in identifying external influences that may have an impact on their market and analysing how they may affect their business directly. When doing such an analysis, it is critical to not only identify but also assess the elements affecting the organisation — for example, what influence might they have on the company? The results of a PESTLE analysis can then be utilised to fill in the gaps in a SWOT Analysis' opportunities and threats.

## BCG Matrix


BCG Matrix (also known as the Boston Consulting Group analysis, the Growth-Share matrix, the Boston Box, or the Product Portfolio matrix) is a tool used in corporate strategy to analyze business units or product lines based on two variables: relative market share and the market growth rate. Combining these two variables into a 2X2 matrix allows a corporation to plot their business units accordingly and determine where to allocate extra (financial) resources, where to cash out, and where to divest. The primary purpose of the BCG Matrix is, therefore, to make investment decisions on a corporate level. Depending on how well the unit and the industry are doing, four different category labels can be attributed to each unit: Dogs, Question Marks, Cash Cows, and Stars.

|   |   |   |   |
|---|---|---|---|
| Ventures or startups usually start off as Question Marks. Question Marks (or Problem Children) are businesses operating with a low market share in a high growth market. They have the potential to gain market share and become Stars (market leaders) eventually. | Stars are business units with a high market share (potentially market leaders) in a fast-growing industry. Stars generate large amounts of cash due to their high relative market share but also require large investments to fight competitors and maintain their growth rate | Eventually, after years of operating in the industry, market growth might decline, and revenues stagnate. At this stage, your Stars are likely to transform into Cash Cows. Cash cows, therefore, typically generate cash in excess of the amount of cash needed to maintain the business. Cash Cows ultimately bring balance and stability to a portfolio. | Business units in a slow-growth or declining market with a small relative market share are considered Dogs. These units typically break even (they neither create nor consume a large amount of cash). Dogs are likely to be divested or liquidated. |

## Ansoff Matrix

The Ansoff Matrix, also called the Product / Market Expansion Grid, is a tool used by firms to analyze and plan their growth strategies. The matrix outlines four strategies that can help a company grow and analyze the risks associated with each strategy.


The matrix was developed by the applied mathematician and business manager H. Gor Ansoff was also published in the Harvard Business Review in 1957. Ansoff Matrix has helped many retailers and managers better understand the risks involved in growing their business.

The four strategies of the Ansoff Matrix are:

Market Penetration: This focuses on increasing sales of existing products in the existing market.

**Product Development:** It involves making and introducing new products to an already existing market.
**Market Development:** It includes reaching out to a new market with existing products.
**Diversification:** It focuses on entering a new market by introducing new products.

## 5Cs Framework

The 5c's of marketing is a situation analysis technique that helps marketers make better business decisions. Company, Customers,Competitors, Collaborators, and Climate are the "5 C's." In a nutshell, a 5c analysis will assist you in evaluating the most critical aspects of your organization. It's analogous to a physical examination for your company. You will be able to make better-informed and more lucrative decisions by focusing on the most critical aspects of your organization and determining what is working well and what is not. While having a list of items checked under each C below, you can have a holistic picture of the company.


## Marketing Terms

- A/B testing – a method in marketing research where variables in a control scenario are changed and the ensuing alternate strategies tested in order to improve the effectiveness of the final marketing strategy.
- B2B – It is a business that sells products or provides services to other businesses.

- B2C – It is a business that sells products or provides services to end-user consumers.
- Bundle pricing- A form of promotional price adjustment that offers discounted pricing when customers purchase several products at the same time.
- Button ad – a graphical advertising unit, smaller than a banner ad.
- Cash and carry- Wholesale format represented by distributors that require buyers to visit the wholesaler's facility, physically select their order, pay in cash (i.e., credit purchases not permitted), and handle their own delivery (i.e., carry).
- Co-branding- A branding strategy where a marketeer with its own brand seeks to partner with an established brand owned by another organization in hopes the synergy of the two brands is even more powerful than the one.
- Customer lifetime value (CLV)-The Customer lifetime value is the predicted net profit associated with the future relationship with that customer.
- Click-through rate (CTR) – The average number of click-throughs per hundred ad impressions, expressed as a percentage.
- Freemium – It is a technique where a business offers a free basic product, giving the customer an option to use an advanced version for a premium cost.
- Geo-targeting – It is a method of detecting a website visitor's location to serve location-based content or advertisements.
- Mom and Pop Retailer- Retail format represented by a small, individually or family-owned and operated outlet that generally services a local community, often with a high level of service but relatively small product selection.
- Omnichannel retail- is a multichannel sales strategy that aims to give customers a consistent buying experience regardless of whether they are shopping online, over the phone, or in a physical store.
- Outbound link – It is a link to a site outside of your site.
- ATL- Above the Line (ATL) advertising is where mass media is used to promote brands, create awareness and reach out to the target consumers. These include conventional media as we know it, television and radio advertising, print, and the Internet. It is communication targeted to a wide audience and is not specific to individual consumers.

- BTL- Below the line advertising is more one to one and involves the distribution of pamphlets, handbills, stickers, promotions, brochures placed at the point of sale, on the roads through banners, placards, product demos, and direct marketing, such as utilizing email and social media, and sponsorship of events.
- TTL- Through the Line Marketing, or TTL approach combines ATL and BTL Marketing to raise brand awareness, target specific potential customers, and convert these into measurable and quantifiable sales.
  Example- 360-degree marketing, where you not only have a national TV campaign but supplement this with targeted flyers and newspaper ad digital Marketing, combining online banner ads with social media posts and blogs, for instance.
- Showrooming- It is the practice of visiting a shop or shops in order to examine a product before buying it online at a lower price.
- User-generated content- refers to content related to your brand created by someone who is not an official representative of your business. It could be a social media update, a review, a video, a podcast, or a number of any other types.
- Webrooming- It is the consumer practice of researching products online before buying them in a physical store.

## Latest Marketing Trends

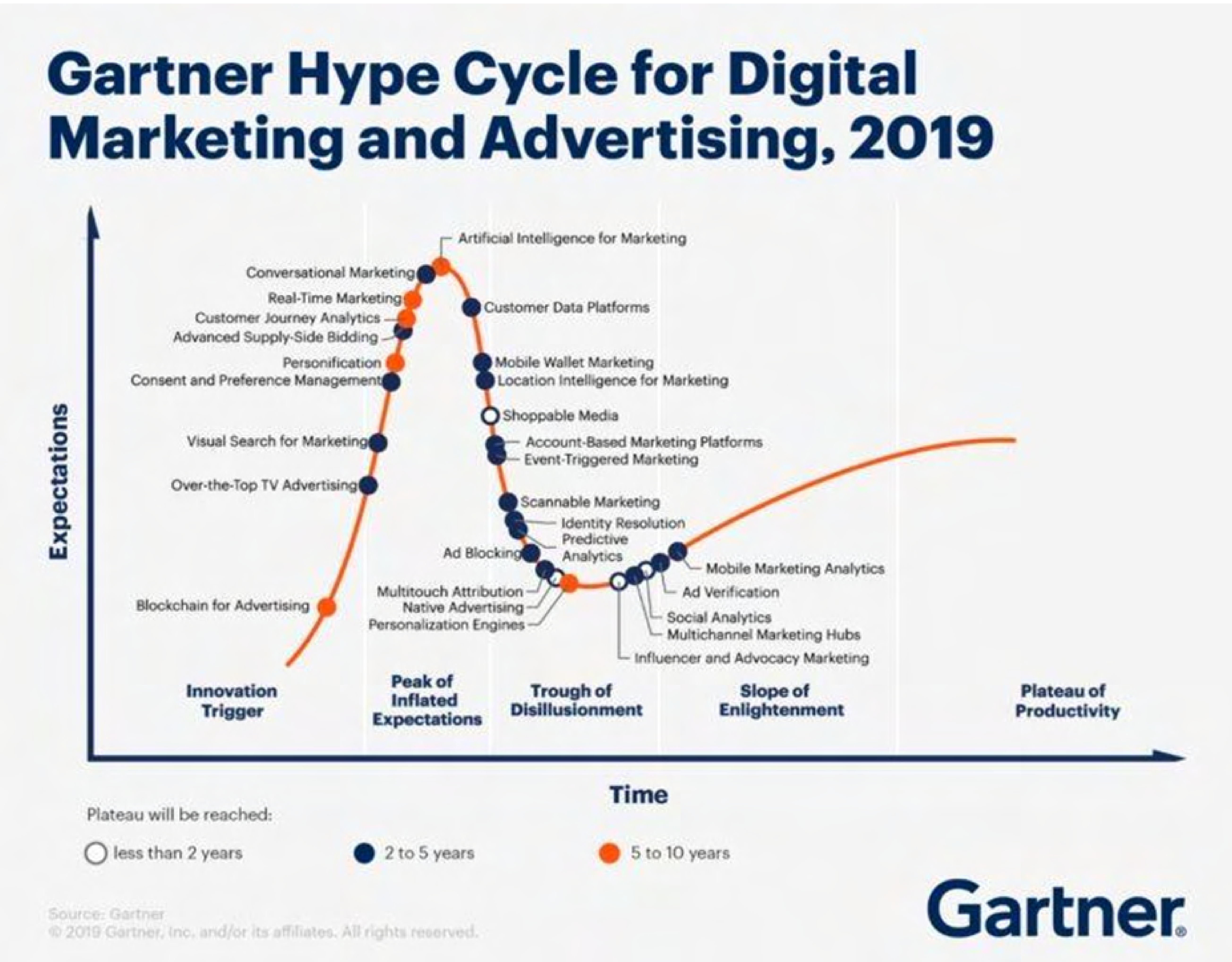
### Consumer Privacy and KYC

Repeated privacy faux-pas by Facebook, Google, and security breaches at other brands leading to the release of customer details have highlighted to consumers that their data is not as safe with online brands as they may have once thought. Privacy regulations like GDPR have been enacted to improve data privacy with increased fines.

While these may be more the concerns of the CIO or CFO rather than the CMO, it shows the need for marketers to work with colleagues to mitigate the potential impact of security breaches and reassure customers. At the same time, we have seen decreasing effectiveness of traditional identification methods such as cookies for tracking, which makes media ROI determination - supposedly one of the critical benefits of digital channels - more difficult.

### Lifecycle Marketing

It is often said that the 'funnel is dead' since consumers follow non-linear journeys. However, regardless of the product or service, you are involved with marketing, it will always be the case that to grow a business, your primary focus is growing awareness, closely followed by increasing customer leads and prospects. The role of digital in creating a unified customer experience is also high in the response. However, it is shocking that digital marketing is not seen as a driver of boosting revenue from existing customers. It is an artefact of the question since digital marketing is effective in achieving all of these goals, including customer retention.

**What is conversational marketing?**

Chatbots and voice assistants are used to communicate with users and have conversations with brands. It's also utilised a lot in internet marketing efforts, with click-to-messenger being one of the most popular paid advertising options. Conversational marketing relies heavily on artificial intelligence and machine learning.

**Why is it so effective?**

According to IBM research, 70% of customers demand rapid responses to their concerns and enquiries. It is a powerful technique of boosting engagement, which in turn enhances conversion rates and increases return on investment from a marketer's perspective (ROI). Chatbots can pre-screen prospects using AI and only give qualified leads to the sales team, making the sales process more nimble. Conversational marketing aids the collection of a greater range of audience data in the age of data-driven digital advertising.

Conversational marketing helps develop trust and improves the customer experience from the consumer's standpoint. According to a poll conducted by Salesforce, 42% of consumers do not trust brands, which is typically due to a lack of responsiveness or sluggish customer support.

**How to implement conversational marketing in your business?**

To take use of conversational marketing, a variety of techniques are available. Click-to-messenger is ideal for driving client dialogues on social media platforms like LinkedIn and Facebook. Live chats and WhatsApp messaging buttons are prominent conversational marketing tools on websites.

## Highly personalized content experience

**What is a highly personalized content experience?**

As the name suggests, it is content that's personalized and tailored to each individual user. Amazon, Netflix, Spotify, and Facebook are examples of well-known brands that effectively personalize content to each user. When you log on to Amazon, the home page content displays products likely to interest you based on your previous purchases and browsing history. Netflix makes movies and series recommendations based on your viewing history and preferred genres, while Spotify does the same with music. Even the social media giant Facebook uses algorithms to determine what content to show on your newsfeed.

**Why is it so effective?**

Following the Covid-19 pandemic, lockdowns, and increasingly virtual living, highly tailored material is more popular than ever. According to Hubspot research, 74% of internet consumers are annoyed by content that appears to have nothing to do with their interests. Experts think that society has become practically "immune" to material as a result of so much time spent on devices consuming content during the 2020 lockdowns.

Brands can help stand out and speak to their ideal customers in a relevant way by personalising content. Hubspot also looked at data from nearly 100,000 call-to-action buttons (CTAs) over the course of a year and discovered that tailored CTAs got 43% more clicks than generic ones.

**How to implement personalized content in your business?**

In order to provide highly personalized content, businesses need to be proactive in collecting consumer data and have strong data analysis, AI technology, and CRM platforms. By personalizing content, brands build stronger relationships with their audience, which helps drive engagement and conversions.

## Experiential Marketing

**What is experiential marketing?**

Experiential marketing, as the name implies, is a movement that focuses on generating a brand-based user experience rather than a product-based one. Experiential marketing takes many forms, depending on the company and industry, but the most popular examples are corporate events, webinars, and competitions.

Take, for example, the tech behemoth Apple, which is often recognised as a pioneer in this field. They've recently been holding their renowned "photo-walks," in which an Apple salesperson takes customers on a tour of an area and teaches them how to use their iPhone to capture images. The company also hosts its annual Worldwide Developers' Conference, its most important event of the year, which brings together thousands of programmers from around the world to discuss the latest developments.

**Why is it so effective?**

Customers engage with the brand and feel its values and personality through experiential marketing, not just the product. According to Salesforce data, 84 percent of customers prefer to be addressed as individuals rather than numbers.

**How to implement experiential marketing in your business?**

Experiential marketing should form part of any brand's marketing strategy, no matter the size of the business. Of course, small businesses do not have the budgets to run large events like Apple, but that does not mean they cannot create unique experiences for their market segmentation. Small-scale local and online events are common examples of experiential marketing used by SMEs and startups.

In order to be successful at experiential marketing, businesses need to know their audience and define clear and measurable objectives for their experiences. Building email subscriber lists, increasing social media following, and driving sales are some of the more common objectives in experiential marketing.

## Influencer Marketing

**What is influencer marketing?**

Similar to celebrity endorsements, brands use influencers for their marketing campaigns through social media platforms like TikTok and Instagram. It is by no means a new trend but has gained significant traction in the past few years for its simplicity. Influencers (including micro-influencers) post content in which they interact with a brand, either by using one of its products or services or engaging with employees.

**Why is it so effective?**

Influencer marketing usually yields better results than traditional celebrity endorsements given the "engagement factor": people interact with influencers and are more likely to react to the marketing campaign. For example, Amazon subsidiary Audible, specializing in e-book subscriptions, worked with photography influencer Jesse Driftwood. Although he has less than 100,000 followers on Instagram, Amazon saw he had loyal fans with high levels of engagement. Driftwood's posts about Audible received high engagement rates, with users leaving comments like "that is a good idea" and "can't wait to give it a try."

Influencer marketing also plays on consumer behaviour and psychology, such as recommendations. Market research firm Nielsen found that 83% of consumers trust personal recommendations more than traditional digital advertising, so influencers are the perfect way for brands to create persona recommendations en masse.

Social media influencers also specialize in a particular niche and have followers with certain types of interest. For marketers, this means more targeted advertising, which helps reduce ad spending. For example, National Geographic recently teamed up with wildlife photography influencers for a social media marketing campaign. Of course, their followers will naturally be interested in the National Geographic brand as they are interested in wildlife photography.

**How to implement influencer marketing in your business?**

Brands should source influencers who post content related to their product or industry for the best results. Marketers can use hashtags to find influencers through different social media platforms or work with influencer agencies. As with all marketing campaigns, brands should define their objectives and target audience before contacting influencers. Influencers posting photos and videos of themselves using a brand's product or service is the most popular type of influencer marketing content.

## Continued Digital Transformation

**What is continued digital transformation in marketing?**

It is how companies adapt their business models, products, and internal structures to new, digital-driven consumer trends. In marketing, digital transformation meant businesses were changing their marketing mix to more digital channels, moving away from print advertising to social media, for example. Continued digital transformation in marketing for 2021 and beyond refers to how businesses leverage new technology to optimize their marketing efforts and improve customer experience.

**Why is it so effective?**

Continued digital transformation in marketing means more data-driven campaigns and optimization, which leads to higher conversions, lower ad spend, and greater ROI – something that's not possible with traditional advertising. According to research, 86% of businesses claim that customer acquisition costs (CPA) have increased over two years. To help reduce CPA, brands need to improve user experience and increase customer retention.

Amazon's Alexa is a prime example of customer-focussed digital transformation. Let's say you want to order your favourite variety of coffee. You no longer need to go online and search for it; you simply tell Alexa, "order my favourite coffee," and Amazon, through artificial intelligence-powered voice search, will take care of the rest. It is known as "headless commerce" and is a perfect example of how brands leverage technology to improve user experience and retain customers.

**How to implement continued digital transformation in your business?**

Continued digital transformation does not have to be as sophisticated as Alexa. In smaller businesses and startups, marketers have a wide range of tools at their disposal to continue digital transformation in their brands. Google Analytics, A/B testing, customer data platforms (CDP) are all examples of digital transformation in marketing.

## New Social Media Trends

**What are the new social media trends for 2022?**

In 2022 and beyond, video content and social commerce will be the most popular new features on social networking networks. Video and Livestream have grown more popular than ever thanks to the introduction of TikTok. Indeed, Instagram created Reels in 2020 in response to TikTok's domination in the video sector, according to numerous social media analysts.

Since Facebook launched Shops across its network in May 2020, social selling has been increasingly popular. Brands can now leverage social media as an e-commerce channel by uploading products that can be purchased directly from the platform.

**Why are these new social media trends so effective?**

Audiovisual information is 40 times more likely to be shared than non-audiovisual ones, according to studies. Video advertising is the most popular, with higher engagement than text and image-only commercials. When considering a purchase, almost 80% of consumers prefer to watch videos rather than read text. With statistics like these, it's evident that customers prefer video, which marketers should take advantage of when creating campaigns. According to some social media gurus, videos can enhance conversions by 30%.

According to market studies, 87 percent of consumers believe that social media helps them make purchasing decisions. Consumers typically conduct product research on social media, reading reviews and content before making a purchase on a company's website.

**How to implement new social media trends in your business?**

While there are high-tech cameras and clever editors, anyone with a smartphone can record a video for social media. Marketers can repurpose evergreen content to create videos and use Stories, Reels, and Lives to drive engagement. Social media teams should analyze audience data to determine the best types of content and times of day to post for the best results. Avoid the common mistake of trying to be on all channels, and instead focus on the platforms most used by your audience. For social selling, marketing teams should go to their account settings to configure shops and upload their products for sale.

## E-commerce

**What are the new e-commerce trends for 2022?**

In this post, we've already discussed various new e-commerce trends, like social media selling, personalisation, headless e-commerce, and conversational marketing. Virtual reality, visual search, and shop local are some of the other new trends.

Virtual reality is gaining popularity because it solves a key stumbling block to online shopping: the anxiety that the goods will differ from the photographs. Some merchants publish user-created videos of their products to assist drive conversions, while others employ interactive 3D and 360° pictures to help users visualise the product better. When consumers submit search phrases, AI-powered visual search displays photos of products.

Due to the pandemic's severe impact on small businesses, "Shop Local" has become a popular fad. Consumers are increasingly choosing independent retailers over major brands.

**Why are these new trends so effective?**

Due to the advent of the Coronavirus pandemic and the closing of traditional businesses, e-commerce exploded in 2020. In May 2020, e-commerce sales in the United Kingdom increased by 61% over May 2019. Consumer behaviour has altered since the world reopened, and e-commerce penetration is anticipated to increase further.

Because humans respond better to visual content than written content, virtual reality and visual search are increasing conversions. According to Google, visual material attracts 94% more hits, and AI firm Vizenze believes that 62% of millennials prefer visual search over word search.

Customers increasingly want to buy from brands that support sustainability, and local firms are more flexible in this regard: 65 percent of consumers now prefer to buy from brands that support sustainability, and local businesses with footprint and energy consumption compared to big brand retailers.

**How to implement new e-commerce trends in your business?**
Businesses can make a few simple changes to boost conversions through visual content. Switching images from JPEG and PNG to WebP format will improve image quality and loading speed. Asking customers to submit photos and videos of them using products is an effective way of combining social proof with visual content to increase conversions. As for sustainability, businesses should support green initiatives like carbon offsetting and reduced packaging.

## Programmatic Advertising

**What is programmatic advertising?**
In simple terms, programmatic advertising is the automation of buying digital advertising space. Traditionally, marketing teams would need to create proposals, negotiate and sign contracts. However, through programmatic advertising, brands can bid for ad space within milliseconds, freeing up marketers to spend more time on campaign optimization rather than administration. Many brands are now assigning up to 50% of their ad budgets to programmatic advertising, and the trend is expected to exceed $100 billion in 2022.

**Why is it so effective?**
Programmatic advertising facilitates real-time data analysis and audience targeting. Google used programmatic advertising to promote its search app and reached up to 30% more people with a 30% lower cost per thousand impressions (CPM). Through programmatic advertising, brands enjoy more agile and automated ad buying, saving employee time and increasing ROI.
Programmatic advertising works across a wide range of networks and ad exchanges, allowing businesses to increase their reach and target their audience with more relevant ads. It helps drive conversions and brand awareness.

**How to implement programmatic advertising in your business?**
In order to run programmatic ads, businesses first need to choose a demand-side platform (DSP) to set budgets. Popular DSPs include Media Math and Adform. Then, as with all digital advertising campaigns, marketers need to define their campaign's objectives and KPIs, the creative format, and the target audience. Then once in circulation, marketers should use data to see trends and optimize their campaigns for better results.

## Adoption of automation

**What is automation in marketing?**

Marketing automation refers to the use of technology to automate marketing and advertising campaigns. The pandemic has pushed the use of technology in the workplace over the last year, with automation taking centre stage in all company processes, not just marketing. Automation in marketing may appear to be technical and complicated, but it is actually fairly simple. Automated email sequences in sales funnels, social media posts that are scheduled, and email order updates are all instances of marketing automation.

**Why is it so effective?**

Marketing automation enables businesses to scale their efforts in order to reach larger audiences. The largest benefit of automation, according to 30% of business owners, is time savings. Their marketing teams may now focus on optimization and content production rather than wasting time on repetitive tasks. Marketing teams can also use automation to consolidate their omnichannel marketing efforts into a single platform, eliminating the need to submit content and communicate with their audiences on several social media platforms. It boosts productivity, which directly translates to increased ROI and conversion rates.

It also enables organisations to collect and analyse considerably larger volumes of client data than a human could. It means that businesses can immediately create a 360-degree perspective of their sales cycle and client journey, revealing any gaps.

**How to implement automation in your business?**

Marketers should map out their customer journey and sales cycle and identify processes that can be automated to get the most out of automation. To measure the success of automation, brands should define SMART goals (specific, measurable, attainable, realistic, and timely). Finally, experiment with several automation platforms such as MailChimp for email marketing, SproutSocial for social media marketing, and Google Analytics for data analysis.

## Artificial Intelligence

**What is Artificial Intelligence (AI)?**

AI is where machines and computers undertake tasks that require human intelligence, such as decision making and speech recognition. In marketing and advertising, AI leverages historical sales and marketing data to predict the customer's next step in the sales cycle. It allows marketers to optimize their customer journey, improving weak points and gaps in the process.

AI is increasingly being used to help marketers with creative tasks, such as headline and copy creation, logo designs, and email newsletter generation. It analyses data from past customer interactions to "learn" how to carry out these tasks effectively and create relevant content.

As discussed in this post, AI is the driving technology behind new digital marketing trends like personalized content and chatbots. You can read more about it in this post here.

**Why is it so effective?**

Put simply, AI allows marketers to analyze, interpret and understand infinite amounts more customer data than humans can. It allows teams to have a far greater understanding of how their target audience behaves. By using this data to predict a customer's next move, marketers can create new campaigns with more targeted outreach, which in turn increases conversions and ROI. A recent study by consulting firm PwC found that 72% of CMOs consider AI to be a "considerable advantage."

AI and automation take care of repetitive and time-consuming tasks, which frees up marketing teams to focus on optimization and strategy.

**How to implement artificial intelligence in your business?**

These days, the most popular marketing-related software leverage AI, so implementing it is a case of adopting the right tool for your business. Moreover, this depends on your firm's goals and objectives. Chatbot software, AI-powered PPC campaigns, and AI content creation tools are all common examples of marketing software in use in 2021.

## Direct Mail

**What is direct mail?**

Direct mail refers to physical marketing material mailed directly to a potential customer's home, hence the name: direct mail. Examples include brochures and letters with special offers. Compared to the other points in this article, direct mail bucks the trend in the sense that it is not digital but rather print-based marketing. However, direct mail plays an increasingly important part in omnichannel marketing strategies in 2021, with research showing that 70% of people engage with a brand online after receiving direct mail from them. Postcards became one of the most effective direct mail formats in 2021: with no envelope and short content, they are much more likely to be read than letters and brochures. It is also more cost-effective than sending traditional mail. Short copy is another trend, with research finding that direct mail has on average 62% fewer words in 2021 compared to 2014. The average word count for direct mail in 2021 was just 500 words.

**Why is it so effective?**

Changing customer behavior has made direct mail to come back. Many customers have become "numb" to digital marketing initiatives as a result of the content marketing explosion and remote working being the new normal. Consumers love direct mail because of its genuineness and personal nature, which makes them feel cherished, according to studies. According to the same study, 56 percent of physical mail is kept in homes for more than 28 days after it is received, resulting in more brand exposure. Direct mail's sensory character also contributes to its effectiveness.

**How to implement direct mail in your business?**

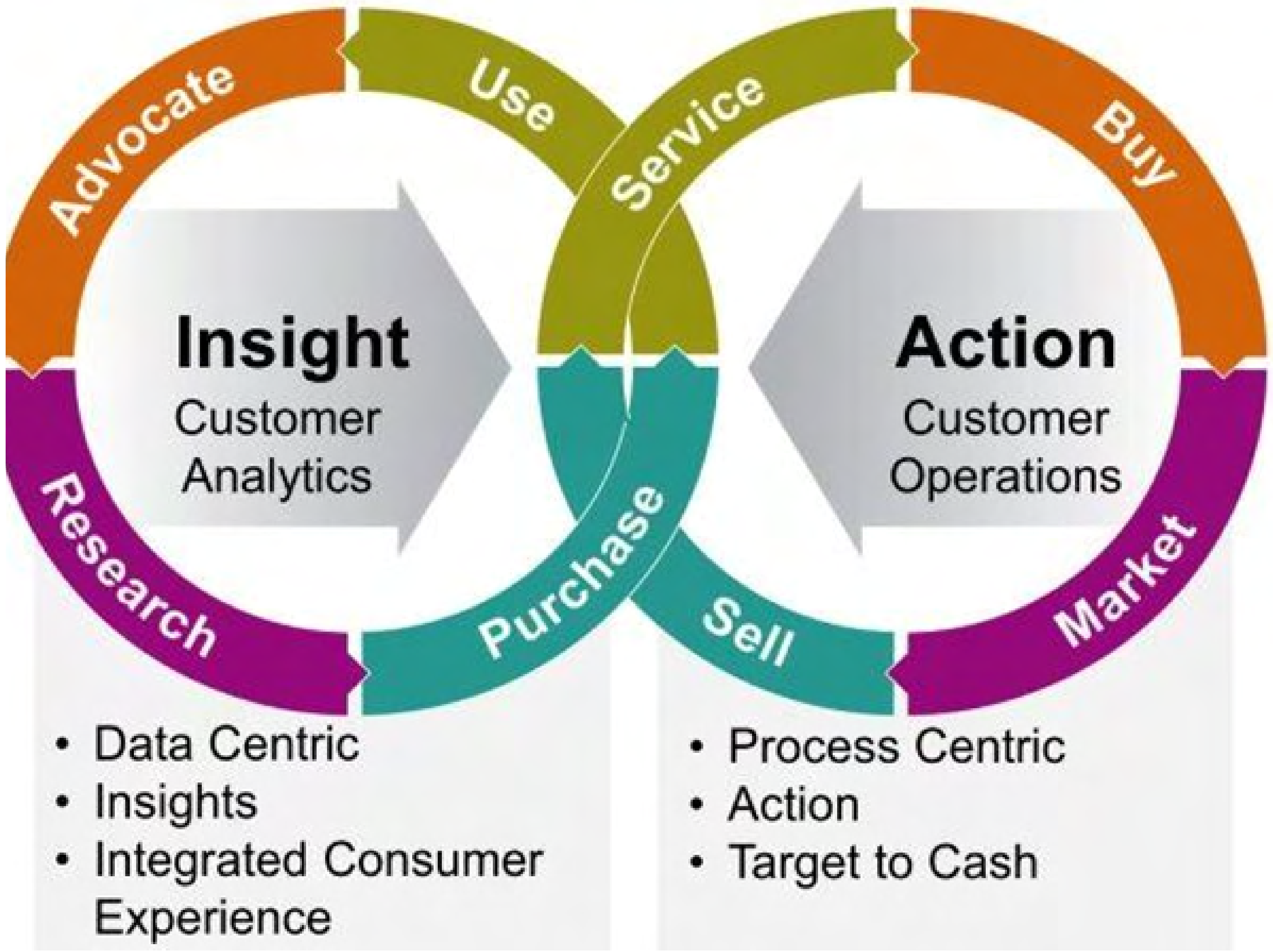
Marketers must first identify their objectives in order to conduct a successful direct mail campaign: increased sales, website visits, and social media followings are some of the most typical aims of direct mail. It's also crucial to figure out how it'll work with online marketing channels and where it'll be most useful during the consumer journey. Direct mail is a more expensive form of advertising due to postage and printing costs, therefore marketing teams must ensure they have the data and tools they need to assure its efficacy. Before targeting a bigger audience, it's a good idea to test and optimise several direct mail campaigns on a small group of consumers. Consider using QR codes into your material to direct customers to your website.

## Insights-driven Marketing

At Smart Insights, they are huge fans of using analytics and insight to drive business performance and optimize the results from digital marketing. Improving their data-driven marketing is an aim of many businesses indicated by the most desired skill amongst digital marketers revealed by the Altimeter/Prophet State of Digital Marketing report.

In addition to advances in customer analytics supported by CDPs described in the next section, new Voice of the Customer (VoC) techniques, such as online-hosted customer communities, can improve customer preferences for future products and how they are delivered.

For example, Red Bull used the insight platform Vision Critical to launch a community of consumers passionate about the energy drink category. By providing a deeper understanding of consumer preferences, the community challenges widely-held assumptions.The company, for instance, learned who consumes Red Bull drinks — and how and when they buy — were changing.




## [Marketing Technology](#)

Today, Marketing Technology (Martech for short) presents a bewildering choice of software services for businesses looking to improve digital media management, experiences, and supporting data. If your business and your agencies adopt the right blend of Martech, it can help give you an edge against competitors, but if not, you may be missing out on the insights and automation processes they are using.

To highlight the range of great services available and simplify the options, they designed this essential digital marketing tools infographic to recommend the categories of tools you should consider across the Smart Insights RACE Planning system and highlight the most popular and most capable tools.

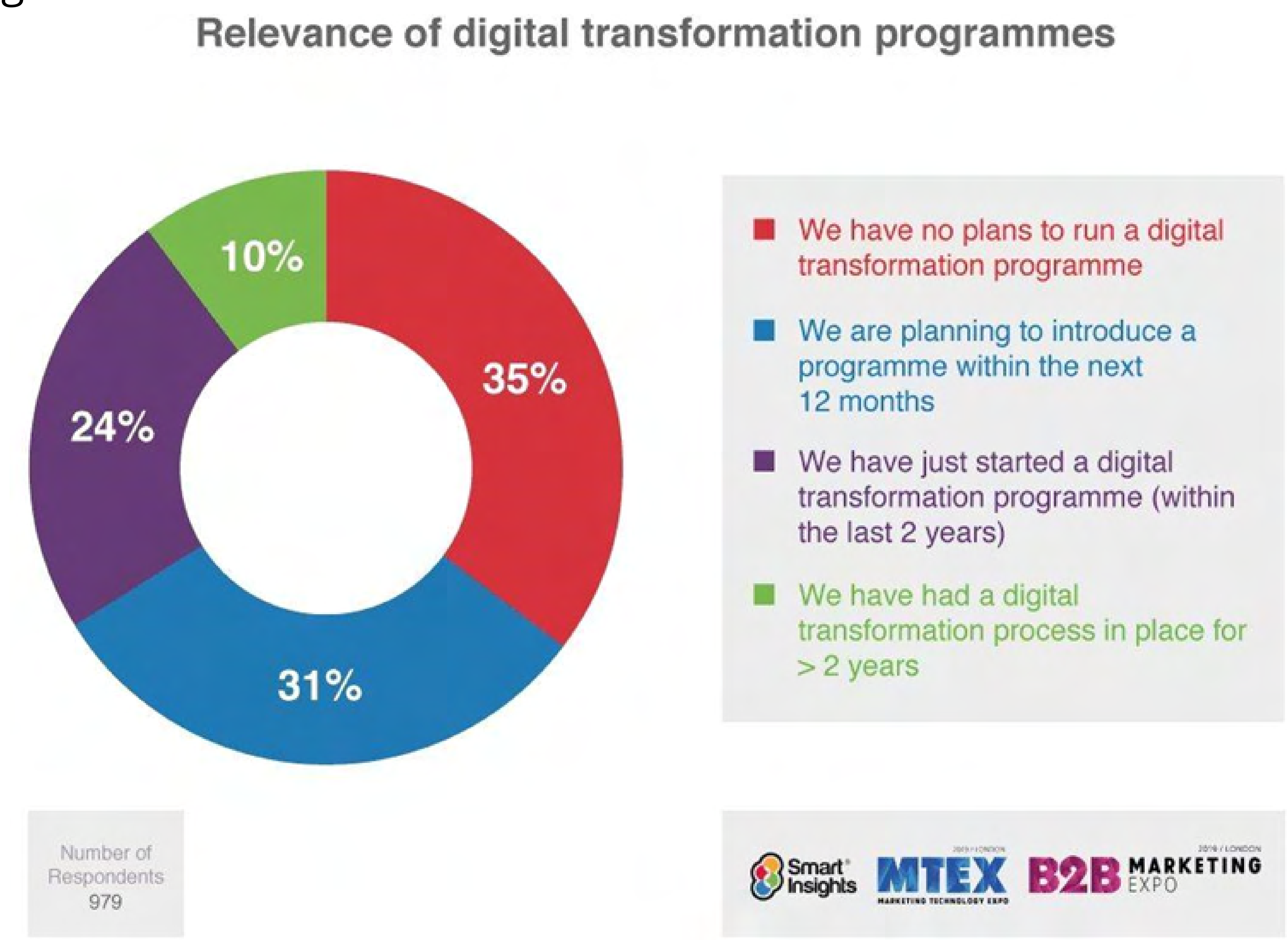
## Digital transformation and Marketing Transformation

Managing digital marketing research revealed many challenges in terms of how digital marketing is run in companies today. Problems included a lack of focus on integrated strategy, testing, and optimization and structural issues like teams working in silos or a lack of skills in integrated communications.

This chart from the research shows that many businesses are actively transforming to achieve this aim through the success factors covered in this briefing.

Digital transformation aims to develop a roadmap to improve digital capabilities and skills while at the same time integrating 'always-on' digital marketing activities with brand and product marketing in the business.

Through the year, there have been additions to tools to help all members assess how well their businesses are adapting to using digital media and technology as part of Digital Transformation.



# References:


- Focus 7 International, Understanding the 7Ps of a Marketing Mix [online] Available at: <https://focus7international.com/2018/05/29/understanding-the-7ps-of-a-marketing-mi x/> [Accessed 11 January 2021].
- Corporate Finance Institute. 2021. Product Mix [online] Available at: <https://corporatefinanceinstitute.com/resources/knowledge/other/product-mix/#:~:te xt=Product%20mix%2C%20also%20known%20as,are%20associated%20items%20that% 20consumers> [Accessed 11 January 2021].
- Marketing Insider, Product Mix Decisions - Width, Length, Depth [online] Available at: < https://marketing-insider.eu/product-mix-decisions/. [Accessed 11 January 2021].
- CFL, Product Lifecycle Marketing: What Matters Most at Every Stage [online] Available at: <https://cxl.com/blog/product-lifecycle-marketing/> [Accessed 11 January 2021].
- Corporate Finance Institute. 2021. SWOT Analysis - Learn How To Conduct A SWOT Analysis. [online] Available at: <https://corporatefinanceinstitute.com/resources/knowledge/strategy/swot-analysis/> [Accessed 11 January 2021].
- Corporate Finance Institute. 2021. Competitive Forces Model - Understand The Six Competitive Forces. [online] Available at: <https://corporatefinanceinstitute.com/resources/knowledge/strategy/competitive-forc es-model/> [Accessed 11 January 2021].
- Oxford College of Marketing Blog. 2021. What Is A PESTEL Analysis? - Oxford College Of Marketing Blog. [online] Available at: <https://blog.oxfordcollegeofmarketing.com/2016/06/30/pestel-analysis/> [Accessed 11 January 2021].
- B2U - Business-to-you.com. 2021. BCG Matrix EXPLAINED With EXAMPLES | B2U | Business-To-You.Com. [online] Available at: <https://www.business-to-you.com/bcg-matrix/> [Accessed 11 January 2021].
- Corporate Finance Institute. 2021. Ansoff Matrix - Overview, Strategies, And Practical Examples. [online] Available at: <https://corporatefinanceinstitute.com/resources/knowledge/strategy/ansoff-matrix/> [Accessed 11 January 2021].
- KnowThis.com. 2021. Marketing Terms - Knowthis.Com. [online] Available at:<https://www.knowthis.com/marketing-terms/> [Accessed 11 January 2021].
- Smart Sights, What's new? What's next? 6 essential marketing trends for 2020 [online] Available at: <https://www.smartinsights.com/managing-digital-marketing/marketing-innovation/6-e essential-marketing-trends-for-2020//
- KOTLER, P. AND ARMSTRONG, G. Principles of Marketing 2018 - Pearson - HarlowIn-text: (Kotler and Armstrong, 2018) Kotler, P. and Armstrong, G., 2018. Principles of Marketing. 17th ed. Harlow: Pearson
- Marketing Mix Process - Understanding The 7Ps Of A Available at: https://focus7international.com/2018/05/29/understanding-the-7ps-of-a-marketing-mix/Marketing Mix. [online] [Accessed 12 January 2021].
- What Is Product Mix? Explanation With Examples | Feedough Available at: https://www.feedough.com/product-mix-explanation-examples [Accessed 12 January 2021].
- PRODUCT MIX DECISIONS - WIDTH, LENGTH, DEPTH, AND CONSISTENCY Available at: https://marketing-insider.eu/product-mix-decisions/ [Accessed 12 January 2021].
- 5Cs Framework Available at: https://www.volusion.com/blog/situation-analysis-the-5-cs/ [Accessed 12 January 2021].

# Analytics

by

MATRIX

The System and Analytics Club of
IIM Trichy

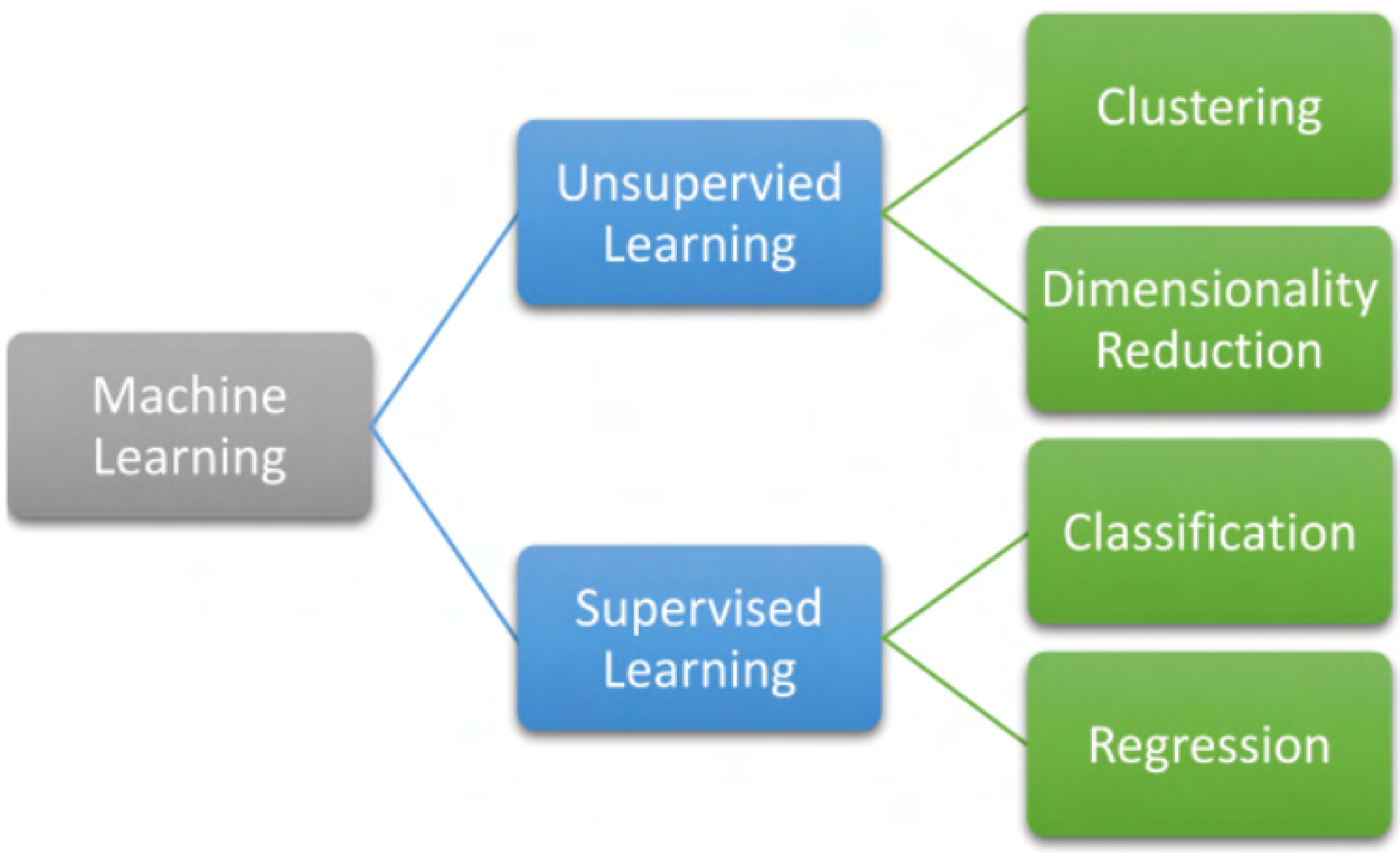
## What is Analytics?

Analytics is the Systematic process of extracting and communicating insights from patterns available in data through statistical methods and data modelling techniques. It is the process of converting raw data into business insights to make well-informed decisions.

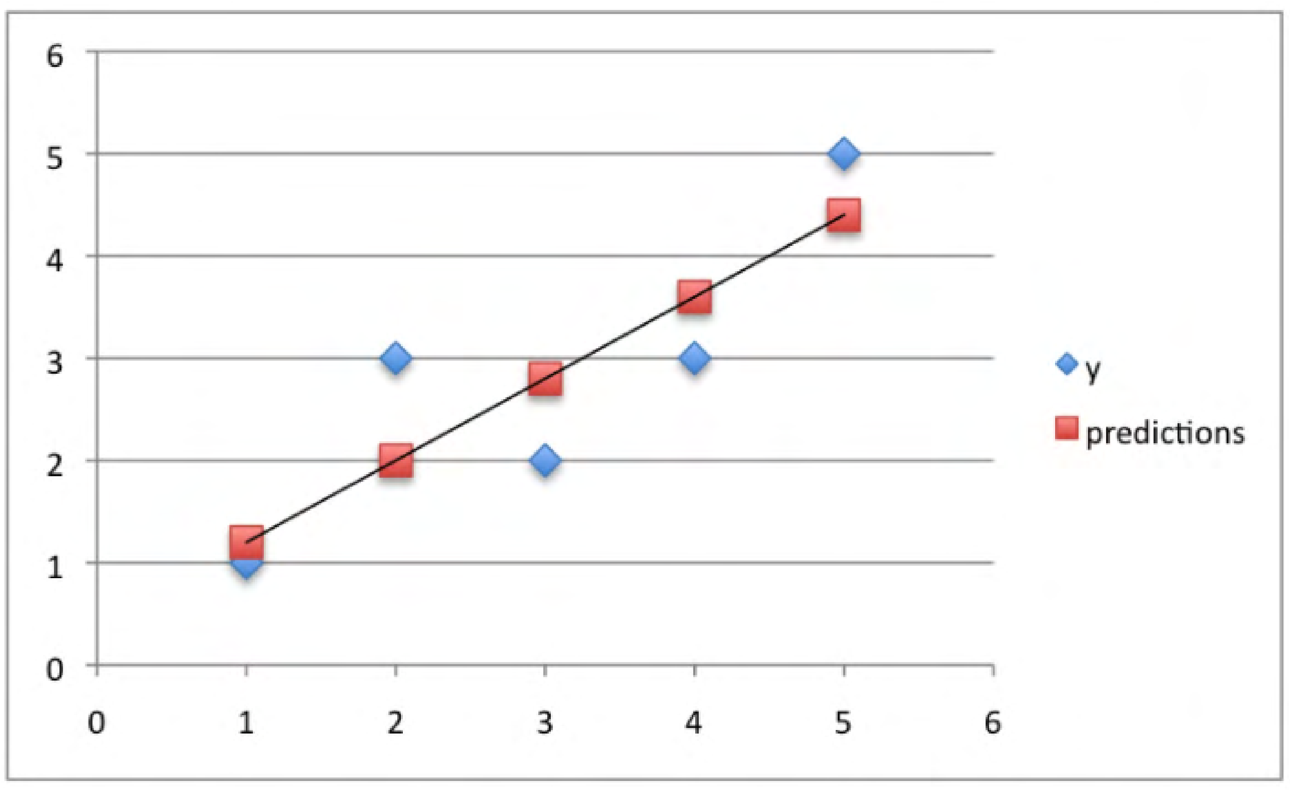
Data analytics

1. Descriptive Analytics - the process of analyzing historic data to identify patterns and extract insights on past events
2. Diagnostic Analytics - the process of mining data to identify reasons behind the occurrence of events/results
3. Predictive Analytics – Forecasting future events/results through Machine learning techniques
4. Prescriptive Analytics – Suggests action that could influence the predicted outcomes.

## Machine Learning Models

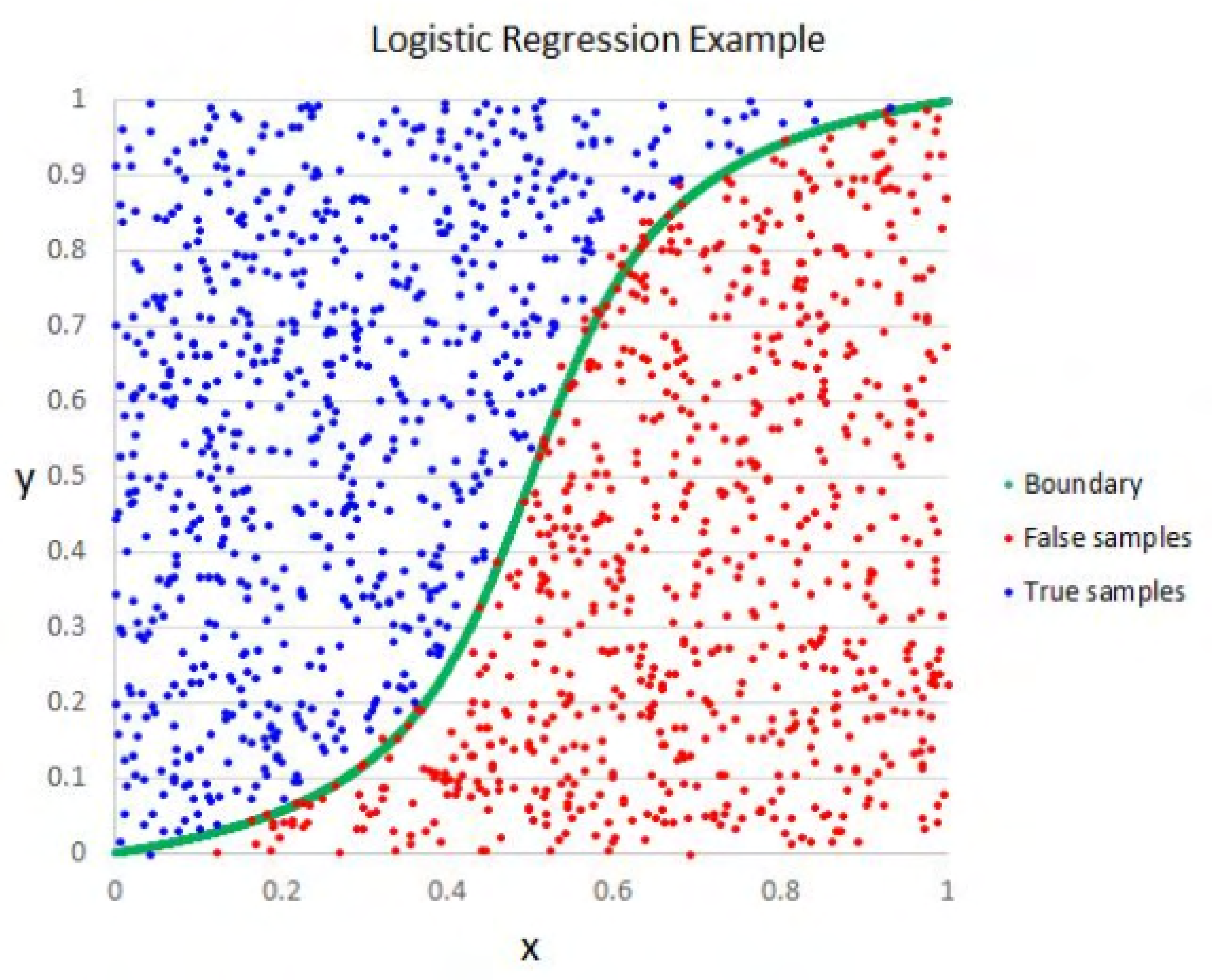



## 1.Linear Regression




The technique is used to predict the outcome of a dependent variable (Y) by establishing a linear relationship between a dependent variable and independent variables (X).

Example: Predicting house prices based on historic house sales data.




## 2. Logistic Regression

Supervised learning technique used to predict categorical variables based on historical data

Example: Is the Money Transaction fraudulent? Yes/No

## 3. Clustering

Unsupervised learning techniques to group data points into different categories based on the parameters of the data points.

Example: Categorizing customers based on shopping behaviour.

## 4. Neural Networks

Machine learning technique inspired by neurons of human brain to perform complex prediction/classification through multiple layers of computation.

## Statistics

## 1. Measures of Central Tendency

- **Mean:** The mean is the sum of the values divided by the number of values.

$$\overline{X} = \frac{\sum_{i=1}^{n} x_i}{n}$$

- **Median:** The median is the middle value in an ordered array of data that has been ranked from smallest to largest. Half the values are smaller than or equal to the median, and half the values are larger than or equal to the median. The median is not affected by extreme values.

  Median = (n+1)/2 ranked value
- **Mode:** The mode is the value that has the highest frequency. Like the median, extreme values do not affect the mode.

## 2. Variance and Standard Deviation

- **Variance (σ2):** Variance refers to a statistical measurement of the spread between numbers in a data set. Mathematically, it is the average of the squared differences from the mean.

$$\sigma^2 = \frac{\sum (x - \mu)^2}{N}$$

- **Standard Deviation (σ):** Standard Deviation is the square root of the average of the squared differences from the mean.

$$\sigma = \sqrt{\frac{\sum(x_i - \mu)^2}{N}}$$

### 3. Central Limit Theorem:

It states that, as the sample size gets large enough (at least 30), the sampling distribution of the mean is approximately normally distributed regardless of the shape of the distribution of the individual values in the population.

## Probability Distributions

### 1. Normal Distribution:

The normal distribution is a symmetrical bell-shaped distribution, which suggests the profile of a bell. Although the values in a normal distribution can range from negative infinity to positive infinity, most values of the continuous variable will cluster around the meanwhile extremely large or extremely small values will occur towards the tail.

$$P(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-(x-\mu)^2/(2\sigma^2)}$$

### 2. Uniform Distribution:

The uniform distribution also known as the rectangular distribution contains values that are equally distributed in the range between the smallest value and the largest value where every value is equally likely.

$$P(x) = \begin{cases} 0 & \text{for } x < a \\ \frac{1}{b-a} & \text{for } a \le x \le b \\ 0 & \text{for } x > b \end{cases}$$

### 3. Bernoulli Distribution.

The Bernoulli distribution is a discrete distribution having two possible outcomes labelled by n = 0 and n = 1 in which n = 1 ("success") occurs with probability P and n = 0 ("failure") occurs with probability q = 1 - p, where 0 < p < 1

$$P(n) = \begin{cases} 1-p & \text{for } n = 0 \\ p & \text{for } n = 1, \end{cases}$$

### 4. Binomial Distribution:

The binomial distribution gives the discrete probability distribution of obtaining exactly n successes out of N trials (where the result of each trial is true with probability p and false with probability q = 1 - p). The binomial distribution is given by

$$P_p(n \mid N) = \binom{N}{n} p^n q^{N-n} = \frac{N!}{n!\,(N-n)!} p^n (1-p)^{N-n},$$

### 5. Poisson Distribution:

A Poisson distribution helps to predict the probability of certain events when the average number times an event has occurred in a given time interval is known.

$$P(X = x) = \frac{\lambda^x e^{-\lambda}}{x!}$$

## Most Frequently Used Terms:

### 1. Blockchain

A Blockchain is basically a group of blocks linked together with the use of cryptography among a network of people/computers. Each block contains some data, and it can be accessed by anyone in the connected network. The data in these blocks cannot be modified though. Every change in the network will be considered as a new entry, thus preserving the original data that can be accessed anytime. If one person wants to change or add some data in a network, then that will have to approve by the majority of the individuals in the network.

### 2. Big data

In simpler words, Big Data is huge amounts of unstructured data (does not have a pre-defined data model). The Five V's of Big Data are:

Velocity - refers to the high speed of accumulation of data

Volume – It is a huge amount of data. The name 'Big Data' itself is related to a size that is enormous.

Value – refers to the worth of the data extracted

Variety – The different types of data that is collected from various sources

Veracity – refers to the inconsistencies in the data; How accurate is the data that is collected?

### 3. Industry 4.0

It's a name given to the transition of using traditional manufacturing methods along with new-age technologies.

It includes technologies like cyber-physical systems, IoT, Cloud computing and cognitive computing. With the help of AI and interconnected systems, the industry is now moving towards more automation and collecting real-time data.

Industry 4.0 offers a more comprehensive, interlinked, and holistic approach to manufacturing.

### 4. Artificial Intelligence

AI is often confused with other terms like machine learning or deep learning. Artificial Intelligence, in simple terms, is a field that aims to turn a machine or a 'dumb' thing, into an entity that can think, understand, and react like a human. There are multiple ways a system can be programmed to achieve this and all those require data to work with. Only through the input of a large quantity of data, will a machine be able to learn and take decisions.

### 5. Quantum Computing

Quantum computing controls the behaviour of electron and photon particles, in a way different from regular computing. In normal computing, the computer is used to complete a task and there every bit is stored as either 0 or 1 and the electron can be at only one place, i.e., only one calculation at a time. Hence when there is large data it reduced its computational power.

E.g.: B in computing is stored in binary as 01000010.

Unlike normal computers which function on bit-0 or 1, Quantum computing uses superposition which allows electrons to be at more than one place at the same time and 0 and 1 can superimpose each other. It forms quantum bits – Qubits. So, the data stays in an unrecognized state until it's called and then it becomes either 0 or 1.

Quantum computing increases speed reduces the number of operations and helps in reducing power consumption.

### Tools required

| **Visualization** | **Modelling** |
|---|---|
| Power BI<br>Tableau<br>Qlik<br>Metabase | Python<br>RStudio<br>SAS |
| **Analysis** | **Bigdata** |
| Excel<br>Microsoft SQL Server<br>Google Data Studio | Hive<br>PySpark<br>Apache Hadoop |

## Emerging Clean Technology Trends

JANUARY 2022 | ISSUE 1

Technology that reduces or eliminates negative environmental impacts and promotes economic and social development is known as clean technology. The idea behind clean technology is to preserve non-renewable resources through technologies. In addition to clean technology, green technology, and sustainable technology are also frequently used synonymously. The term describes a variety of eco-friendly practices. In recent years, clean technology has been a topic of prime importance due to environmental challenges, and adopting clean technology is a step towards creating a sustainable planet for the future and protecting it. We all gain from the implementation of clean technology in some way as it aims to protect the environment, we live in. There is a clean technology application for every industry. Start-ups and small businesses alike can incorporate clean technology and promote the benefits of switching to sustainable ways of using technology for businesses. Some industries significantly affect the environment more than others, but we can all work together to preserve natural resources. Energy, waste, and agriculture are some of the industries that have the most negative impact on the environment. However, without the support of all sectors, it will be too late for the environment to be saved when we reach the tipping point. Clean energy technologies continued to develop in the second half of the year against the backdrop of the ongoing pandemic. As technology evolves, major policies are being enacted to combat climate change and decarbonize the energy industry.

Here are some ways we can expect clean technology trends to continue growing in the future:

**Impact Investment:** Investments that have a positive impact on the environment and generate financial returns are called impact investments. A core element of these investments is for companies to make additional improvements to their business model.

Infonomics and Data: According to a survey last year, 35 per cent of respondents have or will sell data collected by their products. From this data, we can conclude that at least by 2023, buying and selling user data will become a crucial part of many IoT systems.

**Artificial Intelligence:** Data being the essential part of any business, collecting this data will be the competition. With the help of AI, it is elementary to collect the data, and most of the IoT systems will adopt this technology soon.

**Innovation in sensors:** Sensors will be available that will gather data more precisely and at a lower cost than the ones currently available, and everything will become data-driven.

**Smart Agriculture:** In terms of reducing carbon emissions, smart agriculture is a game-changer. Our planet's agricultural industry has enormous ramifications; the livestock sector alone accounts for 44% of all human-produced methane emissions.

### Impact of covid-19 on analytical models

The COVID-19 pandemic has accelerated many companies' uses of advanced analytics and AI. These strategies have helped to engage customers through digital channels, manage fragile and complex supply chains, and support workers through disruption to their work and lives. At the same time, leaders have identified a major weakness in their analytics strategy: the reliance on historical data for algorithmic models. From customer behaviour to supply and demand patterns, historical patterns and the assumption of continuity are what give predictive models their power. COVID-19's impact on how we live and work has challenged those patterns—and the model's companies use for making business decisions.

**For more information**

https://www.mckinsey.com/featured-insights/mckinsey-live/webinars/navigating-the-impact-of-covid-19-on-analytics-models

### Analytics and AI in 2022: Innovation in the era of covid

#### 1. Supply Chain

We all know the pandemic has had a knock-on effect of impacting global supply chains. For business, that has meant disruption and flux. Interestingly, many of our prediction participants saw this as a tech challenge. As unpredictable as supply chain issues might make things feel, many predictions were based on the premise that predictive analytics could mitigate the difficulties, as long as the models themselves were carefully monitored for accuracy and drift.

#### 2. No/Lo-Co

Automation will act as a partial antidote to the labour shortage, and many of our predicting personnel see low-code/no-code platforms – in many ways, automation's partner – as a huge force for efficiency and change in 2022.

#### 3. Personalized, but not surveilled

In 2022 we will see new ways for users to regain control of their data. That's great, but it's yet another disruption, forcing companies to personalize experiences without access to as much personal data.

### 4. Of fabric, and mesh

Beyond societal issues, architectural ones have been important this year too, especially those that can help companies leverage their analytics investments more successfully. Leading contenders here are the Data Mesh and Data Fabric approaches and many of this year's predictions focused on them.

### For more information

https://www.zdnet.com/article/analytics-and-ai-in-2022-innovation-in-the-era-of-covid/

### Analytics as a career:

- Data Science
- IT Consulting
- Business Intelligence
- Business Analytics

### Courses offered

- Quantitative Methods
- IT Consulting
- Managing digital transformation
- Business Analytics for Decision Making
- E-Commerce & E-Business
- Artificial Intelligence for Managers
- Software Project Management
- Big Data Analytics

# Human Resource

by

PERSONA

The HR & OB Club of IIM Trichy

The HR and OB Club of IIM Trichy

Human Resource Management (HRM) is the term used to describe formal systems devised for the management of people within an organization. The responsibilities of a human resource manager fall into three major areas: staffing, employee compensation and benefits, and defining/designing work. Essentially, the purpose of HRM is to maximize the productivity of an organization by optimizing the effectiveness of its employees. This mandate is unlikely to change in any fundamental way, despite the ever-increasing pace of change in the business world.

## Role of HR Managers:

### Improving Profits and Performance:

An organization could do everything else right, like laying brilliant plans, drawing clear organization charts, setting up modern assembly lines, and using sophisticated accounting controls, yet failing only because the wrong people were hired for the wrong jobs. Efficient Human Resource planning and management is key to the organization's growth, without which the functioning would get hampered.

## Essential Qualities of an HR Manager:

### Qualities that we commonly remember:

- Good people skills
- Good communication skills
- Quick decision making
- Integrity
- Patience
- Leadership
- Team-building skills

### Qualities that we generally forget to develop:

- Business Acumen
- Analytical skills (always back your decisions with data)
- Planning and Scheduling

**Key HR Concepts:**

**Management by Objective:** Management by Objectives (MBO) is a method of personnel management where managers and employees work together to set, record, and monitor objectives over a period of time. Organizational principles and organization flow upwards through the organization and are translated into the personal goals of its members. It aims to improve the performance of an organization by clearly defining objectives that are agreed to by both management and employees.

**360-degree Performance Appraisal:** A 360- degree appraisal is an employee performance review in which subordinates, co-workers, and managers anonymously rate the employee. This information is then incorporated into that person's performance review. The feedback is often used as a benchmark within the employee's development plan.

**Balanced Scorecard:** The balanced scorecard is a strategic planning and management system used extensively in business, industry, government, and non-profit organizations worldwide. It’s used to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor internal and external communications organization performance against strategic goals.

**Self-Ratings:** Sometimes, employers can obtain employees' self-ratings, usually in conjunction with supervisors' ratings. The fundamental problem, of course, is that employees usually rate themselves higher than do their supervisors or peers.

**Forced Distribution method/ Bell curve Method:** The forced distribution method is similar to grading on a curve. With this method, the manager places a predetermined percentage of rates into performance categories. Forced distribution's most significant advantage is that it prevents supervisors from rating all or most employees ``satisfactory" or "high." Distinguishing between the top and bottom performers is usually not the problem. The challenge is to differentiate meaningfully between the other 80%. Through this forced ranking system, the organization tries to segregate the best, mediocre, and worst performers, nurture the best, and discard the worst. Many multinational organizations such as Microsoft, Infosys, Airtel, TCS, and Cigna TTK used forced rating (bell curve) but are now gradually shifting to a more qualitative and frequent appraisals system which has reduced stress on employees and supports them to perform.

## Maslow's Need Hierarchy Theory:

Maslow's heirarchy of needs is an inspiring theory in the ecology of the five-phase human needs model, often presented as hierarchical levels within a pyramid. Maslow said people are encouraged to meet certain needs and that some needs are more important than others. Our most basic need is physical health, and this will be the first thing that motivates our behavior. Once that level is reached, the next level above is the one that motivates us, and so on. This five-stage model can be divided into needs and growth needs.

The first four levels are often called D-needs, and the higher levels are known as B-needs.


## Big Five Model of Personality

Personality is an easy concept to grasp for most of us. It's what makes you "you". It encompasses all the traits, characteristics, and quirks that set you apart from everyone else.

Human resources professionals often use the Big Five personality dimensions to help place employees. The Big Five traits are:

- <u>Openness</u> - Openness includes traits like being insightful and imaginative and having a wide variety of interests.
- <u>Conscientiousness</u> - People with a high degree of conscientiousness are reliable and prompt. Traits include being organized, methodic, and thorough.
- <u>Extroversion</u> - Extraverts get their energy from interacting with others, while introverts get their energy from themselves. Extraversion includes the traits of energy, talkative, and assertive.
- <u>Agreeableness</u> - These people are friendly, cooperative, and empathetic.
- <u>Neuroticism</u> - Neuroticism is also sometimes called Emotional Stability. This factor is related to the emotional stability of a person and the level of negative emotions.

**Attitude -** “My personality is who I am, and my attitude is who you are.” Our behaviour towards an individual, group, or people surrounding us changes, but our personality is rigid, and it does not change.

**Emotional intelligence:** The intelligence that we acquire on interacting with individuals and adapting accordingly in a conversation with the individual is termed emotional intelligence. For instance, I learned about Ravi’s reluctance to talk about this family within two conversations with him. Hence I do not talk about this family anymore in our conversations. This adaptation is due to emotional intelligence.

**Decision-making process:** In psychology, decision-making is regarded as the cognitive process resulting in selecting a belief or a course of action among several alternative possibilities.
The six steps involved in decision-making are as follows:

1. Define the problem
2. Identify the decision criteria
3. Allocate weight to the criteria
4. Develop the alternative
5. Evaluate the alternative
6. Implement the best alternative

We measure the output to check the effectiveness and efficiency of the decision made.

**The span of control:** The number of people (more technically employees) who report to you gives us your span of control.

**Organizational design:** In simple terms, organizational design means how various parts of the organization and its distinct elements are brought together to make it functional. Organizational design principles consider how these elements come together, match, and the process through which they can be reflected and improved.

**Competitive advantage:** This refers to the aspects that set the organization apart from others and provide it with a distinctive edge for meeting customer or client needs in the marketplace. It arises primarily due to the core competence of the organization. Core competency is an organization’s defining strength, providing the foundation from which the business will grow, seize upon new opportunities and deliver value to customers. A company's core competency is not easily replicated

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**Competitive advantage:** This refers to the aspects that set the organization apart from others and provide it with a distinctive edge for meeting customer or client needs in the marketplace. It arises primarily due to the core competence of the organization. Core competency is an organization's defining strength, providing the foundation from which the business will grow, seize upon new opportunities and deliver value to customers. A company's core competency is not easily replicated by other organizations, whether existing competitors or new entries into its market. For example, Honda's core competence is attributed to its manufacturing capability and culture of innovation which gives birth to lightweight, high revving, reliable engines which Honda uses in its multiple products like cars, gensets, lawnmowers, etc. Remember, products are not a core competency.

**Strategy:** Strategy can be defined as "A general direction set for the company and its various components to achieve a desired state in the future." It means that all the organization's energy and resources are directed towards a focused, unifying, and compelling output or future state.

**Recruitment:**

It is a process of identifying job requirements, specifying the position requirements and job owner, advertising the position, and selecting the most suitable person for the job. "Recruitment" as a process is exploratory as it involves finding and hiring the best possible talent for a job vacancy in a timely and cost-effective manner. Recruitment is a positive process of searching for prospective employees and stimulating them to apply for jobs in the organization.

**Recruiting Yield Pyramid:**

**Selection:**

Selection is the process of choosing the most appropriate candidate for the vacant position in the organization. In other words, the selection is an eliminating process wherein we weed out unsuitable applicants.

**Training and Development:**

Training means giving new or current employees the skills they need to perform their jobs, such as showing new salespeople how to sell your product. Training might involve having the current job holder explain the position to the new hire or multi-week classroom or internet classes.

Training is important. If even high-potential employees don't know what to do and how to do it, they will improvise or do nothing at all.

Training also plays a crucial role in retaining employees, since about three-fourths of the middle-aged employees tend to leave if they are dissatisfied with the training program. A training program may be a mix of on-the-job training and classroom training.

It encompasses three main activities:

1. Training: This activity is focused upon and evaluated against an individual's job.
2. Education: This activity focuses on the job an individual may hold in the future and is evaluated against those jobs.
3. Development: This activity focuses upon the activities that the organization employing the individual, or that the individual is part of, may partake in the future and is almost impossible to evaluate.

Critical Incident Method:

With the Critical Incident Method, the supervisor keeps a log of positive and negative examples (critical incidents) of a subordinate's work-related behaviours. Every six months or so, supervisors and subordinates meet to discuss the latter's performance, using the incidents as examples. Compiling incidents is useful. It provides examples the supervisor can use to explain the person's rating. It makes the supervisor think about the subordinate's work-related behaviour appraisal throughout the year (so the rating doesn't just reflect the employee's most recent performance). The downside is that it doesn't produce relative ratings for pay raise purposes.

**Codification of Labor Laws in India:**

Why was there a need to reform and codify India's Labor Laws?

The existing laws have neither benefited industries nor workers due to various reasons such as:

- Complexity and plethora of laws
- Poor enforcement of laws
- Promoted more capital-intensive industries
- Contractualization of labour
- High administrative burden
- Inadequate coverage hiking social issues

There are 4 Codes:

1. Occupational Safety, Health and Working Conditions Code, 2020
2. Industrial Relations Code, 2020
3. Code on Social Security, 2020
4. Code on Wages, 2019

**Important definitions:**

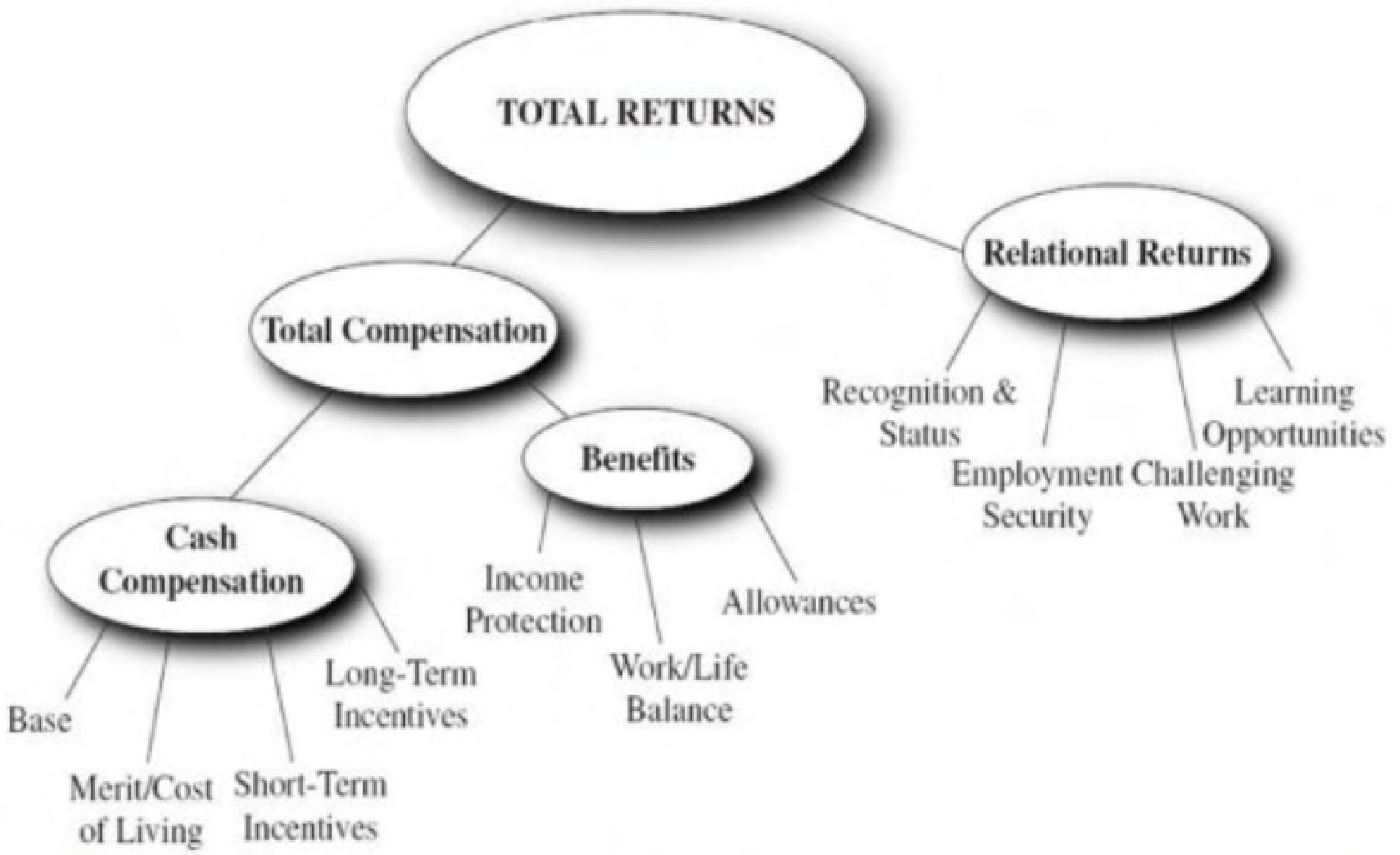
1. **Trade Union:** Any temporary or permanent combination formed to regulate relations between workers and employers, workers and workers, or employers and employers.
2. **Industrial dispute:** Any dispute or difference between employers and employers; employers and workers, or workers and workers; which is connected with employment/ non-employment/ terms of employment/ conditions of labour of any persons.
3. **Collective bargaining:** All negotiations which take place between an employer and worker organizations for determining working conditions, fair wages, and terms of employment.
4. **Interest-based bargaining:** Negotiations revolve around interests and not rights. It can be done only once the rights have been provided.
5. **Lay-off:** Refusal or inability of the employer to give employment to a workman whose name is borne on the muster-rolls of his establishment and who has not been retrenched.
6. **Lock-out:** Temporary closing of a place of employment, suspension of work, or refusal by the employer to continue to employ any number of persons.
7. **Retrenchment:** Termination of service by employer, but not as punishment for disciplinary action.
8. **Strike:** Cessation of work by a body of persons employed. It is a legal right, not a fundamental right. Strike in a public utility service is prohibited.
9. **Industrial Dispute:** Refers to any dispute or difference between employers and employers, workers and workers, or employers and workers. This could be due to non-conformity with terms of employment, labour laws, disagreement with unions, etc.

## Competency:

It is a cluster of knowledge, skills, and personal attributes (such as motives, traits, and self-image) that predict the person's performance and behaviour at the job. It can be measured against well-accepted standards and improved via training and development. Competencies are the Knowledge, Skills, Abilities, and other requirements needed to perform a job successfully. They define not only what a person must know and do, but also how a person does it.

## Compensation and Benefits:

Compensation is the monetary benefit given to an employee or worker who offers their services to an organization. Compensation includes components like salary, wages, bonuses, etc.




The image above shows the variety of returns people receive from work. They are categorized as total compensation and relational returns. The relational returns (learning opportunities, status, challenging work, and so on) are psychological. Total compensation returns are more transactional. They include payments received directly as cash (e.g., base, merit, incentives, cost-of-living adjustments) and indirectly as benefits (e.g., pensions, medical insurance, programs to help balance work and life demands, brightly colored uniforms).

### Benefits Meaning:

Employee benefits and benefits in kind (also called fringe benefits, gratuities, or perks)
include various types of non-wage compensation provided to employees in addition to their normal wages or salaries. Both Indian government and private companies consider employee benefits as a source of motivating employees for better performance and also help in retaining the best employee in the organization who can be an asset to the company rather than thinking of it as a burden.

### Diversity & Inclusion:

### What is Diversity?

Workplace diversity is understanding, accepting, and appreciating the differences between people including those:

- of different races, genders, ages, religions, disabilities, and sexual orientations
- diversity of education, personality, skills, knowledge, and knowledge base.

### What is Inclusion?

Inclusion is a practice that leads to a collaborative, supportive, and respectful environment and increases the participation/contribution of all employees, regardless of their gender, age, disability, posture, etc.

It includes the organization's efforts to make employees of all backgrounds feel welcome and treated equally.

# Operations

by

**SigmaEta**

The Operations and Supply chain
Club of IIM Trichy

## Operations Management

Operations management refers to the function of planning, coordinating, and controlling the limited resources available to the business for producing products and services.

"The Science and Art of ensuring that the good and services are created and delivered successfully to the customers."


**Cycle Time:** Cycle time is the time gap between two consecutive outputs from a process, as defined by the manufacturer or customer.

**Lead time:** It represents the time between the moment the customer places the order and the moment he receives it

**Throughput time:** It is the time required for a product to pass through a manufacturing process, thereby being converted from raw materials into finished goods.

**Flow rate:** It is also known as Throughput. It is defined as the number of flow units (e.g. customers, money, produced goods/services) going through the business process per unit time, e.g. customers served per hour.

## Inventory Management

Inventories can be classified based on their purpose of stocking as follows:

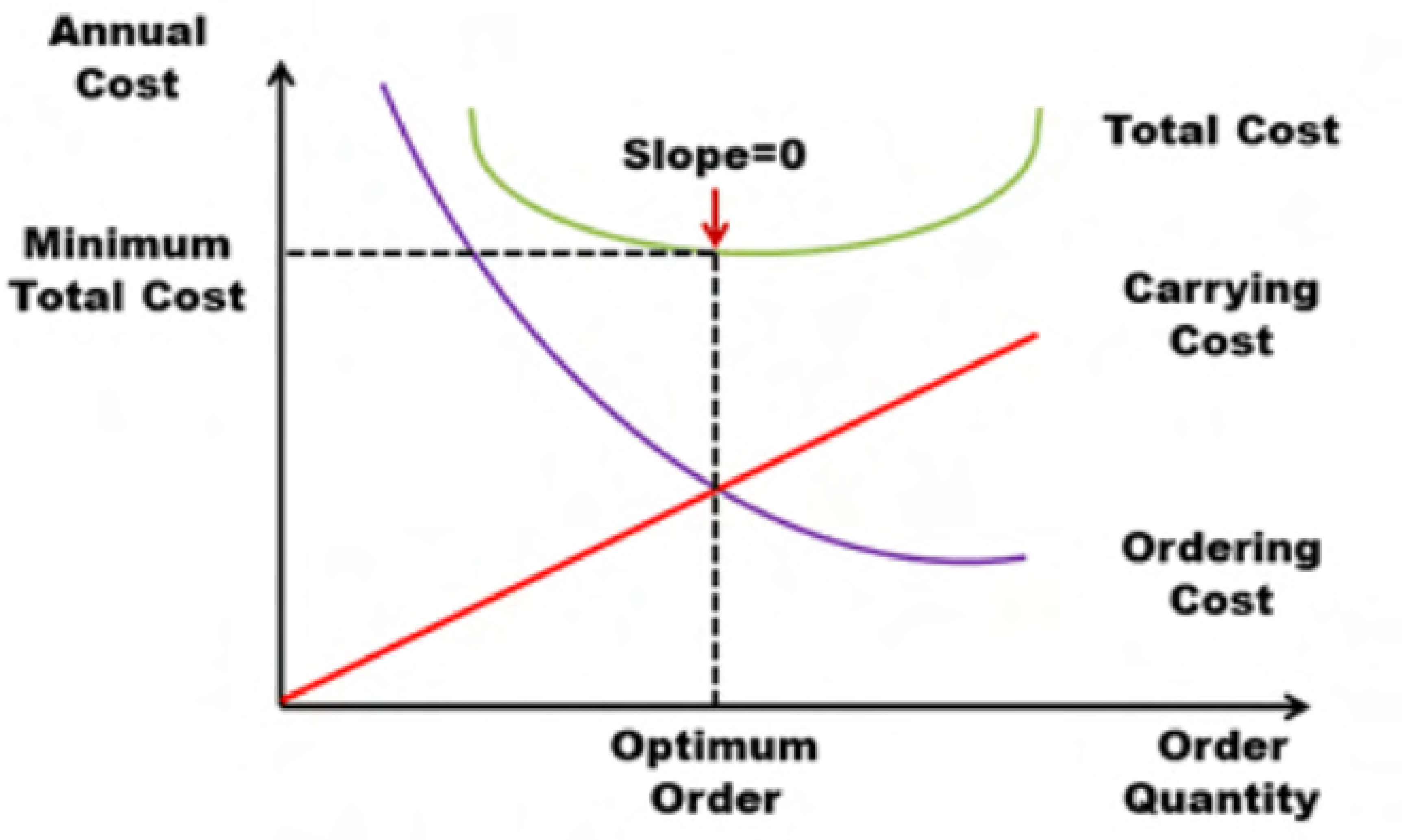
- Buffer/Safety Stock: An extra buffer is kept for reducing the possibility of running out of stock due to uncertain circumstances.
- Cycle Stock: It is the amount of inventory that is planned to be used during a given period. The period is often defined as the time between orders (for raw materials), or the time between production cycles (for work in process and finished goods).

- De Coupling Stock: This is the stock kept when the input rate of a process is greater than the output rate of the process before it, which could create a de coupling between them, if stock is not maintained
- Anticipation Stock: This is the stock kept in anticipation of a peak in demands, due to uncertain consumer requirements or seasonal variations, which are unpredictable
- Pipeline Stock: These are the goods in between the finished product stage and finally reaching the customer
- Raw material inventory: Materials that are usually purchased but are yet to enter the manufacturing process.
- Work-in-progress: Products or components that are no longer raw materials but are yet to become finished products.

Finished-goods inventory: It refers to the end product that is ready to be sold but hasn't been sold yet. It is still an asset on the books of the company.

## Economic Order Quantity (EOQ)

A type of fixed-order-quantity model that determines the amount of an item to be purchased or manufactured at one time. It is an inventory-control technique that minimises the total ordering and holding costs.




$$Economic\ Order\ Quantity\ (EOQ) = \sqrt{\frac{2 \times Yearly\ Demand \times Ordering\ Cost}{Carrying\ Cost}}$$

## Lean Tools

The following link is a collection of 25 essential lean tools. Each tool is distilled into a simple description of what it is and how it helps. (http://www.leanproduction.com/top-25-lean-tools.html). Some of them are as follows:

| | | |
|---|---|---|
| **5S** | Organize the work area:<br>• Sort (eliminate that which is not needed)<br>• Set In Order (organize remaining items)<br>• Shine (clean and inspect work area)<br>• Standardize (write standards for above)<br>• Sustain (regularly apply the standards) | Eliminates waste that results from a poorly organized work area (e.g. wasting time looking for a tool). |
| **Bottleneck Analysis** | Identify which part of the manufacturing process limits the overall throughput and improves the performance of that part of the process. | Improves throughput by strengthening the weakest link in the manufacturing process. |
| **Heijunka (Level Scheduling)** | A form of production scheduling that purposely manufactures in much smaller batches by sequencing (mixing) product variants within the same process. | Reduces lead times (since each product or variant is manufactured more frequently) and inventory (since batches are smaller). |
| **Just-In-Time (JIT)** | Pull parts through production based on customer demand instead of pushing parts through production based on projected demand. Relies on many lean tools, such as Continuous Flow, Heijunka, Kanban, Standardized Work and Takt Time. | Highly effective in reducing inventory levels. Improves cash flow and reduces space requirements. |
| **Kaizen (Continuous Improvement)** | A strategy where employees work together proactively to achieve regular, incremental improvements in the manufacturing process. | Combines the collective talents of a company to create an engine for continually eliminating waste from manufacturing processes. |
| **Kanban (Pull System)** | A method of regulating the flow of goods both within the factory and with outside suppliers and customers. Based on automatic replenishment through signal cards that indicate when more goods are needed. | Eliminates waste from inventory and overproduction. Can eliminate the need for physical inventories (instead relying on signal cards to indicate when more goods need to be ordered) |
| **KPI (Key Performance Indicator)** | Metrics designed to track and encourage progress towards critical goals of the organization. Strongly promoted KPIs can be extremely powerful drivers of behavior – so it is important to carefully select KPIs that will drive desired behavior. | The best manufacturing KPIs:<br>• Are aligned with top-level strategic goals (thus helping to achieve those goals)<br>• Are effective at exposing and quantifying waste (OEE is a good example)<br>Are readily influenced by plant floor employees (so they can drive results) |

| | | |
|---|---|---|
| **Muda (Waste)** | Anything in the manufacturing process that does not add value from the customer's perspective. | Eliminating muda (waste) is the primary focus of lean manufacturing. |
| **PDCA (Plan, Do, Check, Act)** | An iterative methodology for implementing improvements:<br>• Plan (establish plan and expected results)<br>• Do (implement plan)<br>• Check (verify expected results achieved)<br>Act (review and assess; do it again) | Applies a scientific approach to making improvements:<br>• Plan (develop a hypothesis)<br>• Do (run experiment)<br>• Check (evaluate results)<br>Act (refine your experiment; try again) |
| **Poka-Yoke (Error Proofing)** | Design error detection and prevention into production processes with the goal of achieving zero defects. | It is difficult (and expensive) to find all defects through inspection, and correcting defects typically gets significantly more expensive at each stage of production. |
| **Root Cause Analysis** | A problem-solving methodology that focuses on resolving the underlying problem instead of applying quick fixes that only treat immediate symptoms of the problem. A common approach is to ask why five times – each time moving a step closer to discovering the true underlying problem. | Helps to ensure that a problem is truly eliminated by applying corrective action to the "root cause" of the problem. |
| **Value Stream Mapping** | A tool used to visually map the flow of production. Shows the current and future state of processes in a way that highlights opportunities for improvement. | Exposes waste in the current processes and provides a roadmap for improvement through the future state. |

## Supply Chain

Supply Chain refers to the chain of activities involved in the delivery of the products or services to the customer. For example, the supply chain of a steel angle begins from the procurement of raw material from the supplier to the final purchase by the customer. The supply chain for a firm in the service industry begins from the acknowledgement of the customer requirement to the final fulfilment of the service to the customer.

Supply chains involve the movement of: -

• Material
• Money
• Information

Supply Chain Management refers to coordinating these activities to ensure the smooth and uninterrupted flow of products through the various stages of processing. For traditional products, an efficient Supply Chain is preferred. However, for products where continuous innovation is required, the Supply Chain needs to be responsive to cater to variations in product design.

The activities involved in the Supply Chain are: -

- Inbound Logistics: The logistics associated with the initial movement of the raw material to the manufacturing unit and subsequent movement within the unit
- Outbound Logistics: The logistics associated with the movement of the finished goods from the end of the manufacturing production line till the end-user
- Marketing and Sales: Involve gathering customer requirements and then fulfilling them through an exchange process.
- Service: The activities associated with the delivery of the product eg in-store staff and post-sales service, fulfilling warranty, etc
- Support Areas: Finance, Human Resource Management, Legal, Control, Quality departments which are indirectly involved in the production of the product
- Procurement: Purchase of raw material or services which are transformed into or used to reach the final product.

## The Procurement Process

There are two main categories of purchased goods: direct and indirect materials. *Direct materials* are components used to make finished goods. For example, hard drives, and CD drives. *Indirect materials* are goods used to support the operations of a firm. For e.g.: PCs. The procurement process for direct material should be focused on improving visibility and coordination with the supplier. For indirect materials, the process should focus on decreasing the transaction cost for each order. The procurement process in both cases should consolidate orders to take advantage of the economies of scale and quantity discounts.
Based on the value and criticality of the product, they are classified into four groups:

1. General Items: Low value, Low Criticality. Mostly Indirect Items. *Aim: Lower the cost of acquisition*.
2. Bulk purchase items: High value, Low Criticality. *Method: well-designed auctions*.
3. Strategic Items: Low value, High Criticality. Components with long lead times. Aim: ensure availability
4. Critical Items: High value, High Criticality. Aim: Long term buyer-supplier relationship

## Risk Management in Sourcing

- Supply Disruption: developing multiple sources especially for products with high demand.
- Delay from suppliers: Carry inventory (low-value items) or develop backup sources (high-value items).
- Higher procurement costs: have a portfolio of long- and short-term contracts
- Exchange-rate risk: using financial hedges or by developing a global supply network
- IP: keeping sensitive production in-house. maintain ownership of part of the equipment

## Making Sourcing Decisions in Practice

- Use multifunctional teams
- Ensure appropriate coordination across regions and business units. Always evaluate the total cost of ownership
- Build long-term relationships with key suppliers

## SIX SIGMA OVERVIEW

### What is Six Sigma philosophy?

Six Sigma is a structured and disciplined process designed to consistently deliver perfect products and services. It aims to improve the bottom line by finding and eliminating the causes of mistakes and defects in business processes. Sigma (σ) is a statistical term that refers to the standard deviation of a process about its mean. The purpose of six sigma is to reduce variation. It was introduced by engineer Bill Smith while working at Motorola in 1980. Jack Welch made it central to his business strategy at General Electric in 1995. A six sigma process is one in which 99.9999998027% of all opportunities to produce some feature of a part are statistically expected to be free of defects. In simple terms, Six Sigma quality performance means 3.4 defects per million opportunities (accounting for a 1.5sigma shift in the mean advocated by Motorola).

### Lean v/s six sigma?

Six Sigma focuses on reducing process variation and enhancing process control, while lean— originally known as lean manufacturing and now broadly accepted as lean enterprise— drives out waste (non-value added activities) through value stream mapping and promotes work standardization. Six Sigma practitioners should be well versed in both lean and Six Sigma methodologies. Most practitioners advocate to implement lean first to remove wastes and standardize processes, and then implement Six Sigma to reduce variability and make the process efficient. Effectiveness before efficiency.

### What is Six Sigma Methodology?

DMAIC (Define, Measure, Analyse, Improve, Control) − It refers to a data-driven quality strategy for improving processes. This methodology is used to improve an existing business process. The DMAIC model is very similar to the PDCA (Plan, Do Check, Act) and PDSA (Plan, Do, Study, Act)

- Define the problem, improvement activity, opportunity for improvement, the project goals, and customer (internal and external) requirements.
- Measure process performance.
- Analyze the process to determine root causes of variation, poor performance (defects).
- Improve process performance by addressing and eliminating the root causes.
- Control the improved process and future process performance

DMADV − It refers to a data-driven quality strategy for designing products & processes. This methodology is used to create new product designs or process designs in such a way that it results in a more predictable, mature and defect-free performance.

### Steps in six sigma project identification

1. Determine the assurance unit (what is to be measured)
2. Determine the measuring method (how it will be measured)
3. Determine the relative importance of quality characteristics (is this key to our process?)
4. Arrive at a consensus on defects and flaws (does everyone agree on good and bad quality?)
5. Expose latent defects (look at the process over time)
6. Observe quality statistically (use process behaviour charting)
7. Distinguish between "quality of design" and "quality of conformance"

### Six Sigma Metrics

- Defects per unit (DPU)
- Defects per million opportunities (DPMO)
- Rolled throughput yield (RTY)
- Cycle time
- Cost of poor quality (COPQ).

### Defects (Deficiencies or Nonconformities) per Unit (DPU)

This metric is used when the area under inspection is large in size or volume, for example, the number of defects on a painted chassis or textile.

### Defects (Deficiencies) per Million Opportunities (DPMO)

DPMO = (Total number of defects ÷ Total number of units × Number of opportunities per unit)

### Rolled Throughput Yield (RTY)

RTY applies to the yield from a series of processes and is found by multiplying the individual process yields. If a product goes through four process steps whose yields are Process step #1 = 99.4%, Process step #2 = 98.7%, Process step #3 = 95.1%, and Process step #4 = 99.0%, then RTY = 99.4% × 98.7% × 95.1% × 99.0% ≈ 92.37%. Throughput yield can also be calculated by knowing DPU = e– DPU.

### Cycle Time

Cycle Time Cycle time is the time it takes for a process to be completed, from start to end.

## Cost of Poor Quality (COPQ)

However, in some publications, COQ is referred to as the overall cost that includes both the cost of conformance and the cost of nonconformance. The cost of nonconformance is the sum of internal and external failure costs the organization incurs. Examples of internal failure costs are scrap, rework, repair, and retest. Examples of external failure costs are customer return, replacement, investigation, and administration. The cost of conformance is the sum of the appraisal and prevention costs Examples of appraisal costs are inspection, administrative costs for quality functions, and supplier surveillance. Examples of prevention costs are training, supplier qualification, risk assessment, and process capability measurement. Improvement in COPQ should come from a reduction in failure costs. Improvement in COQ should come from a reduction in appraisal costs and an increase in prevention costs.

## Sigma Levels

A sigma level is the quality level of the process— There are two types of sigma level calculations: sigma level with Motorola 1.5 sigma shift and without the shift. Six Sigma Quality level without shift is 2 parts per billion (ppb) and with 1.5 sigma shift is 3.4 DPPM.

| Sigma level | Sigma (with 1.5σ shift) | DPMO |
|---|---|---|
| 3 | 1.5 | 66,807 |
| 4 | 2.5 | 6,210 |
| 5 | 3.5 | 233 |
| 6 | 4.5 | 3.4 |

## References:


- Rwww.asq.com, Accessed on 11th Nov 2018
- GOVIND, R., The certified six sigma yellow belt, ASQ, 2017
- RODERICK M, GOVINDARAJAN, R., DANIEL Z, The certified six sigma green belt, ASQ, 2015
- Lean Six Sigma in Healthcare, Article in Journal for Healthcare Quality, March 2006
- Identify the Lean Tool for Different Industrial Sectors in India, Research, Mandar Mukundrav Sumant, Shashank Thanki, December 2015
- Lean, Six Sigma and Lean Six Sigma: an analysis based on operations strategy, Article in International Journal of Production Research, February 2014
- Lean Six Sigma & Local Government, Jeffrey Alan Fletcher, Working Paper, February 2016
- Implementation of Lean Six Sigma approaches in Construction Operations, Conference Paper, Naji Abdelwanis, February 2018
- Lean Six Sigma in the Financial Services Industry: Germany, Technical Report, Jürgen Moormann, Jiju Antony, Ayon Chakraborty, Yevgen Bogodistov, October 2017
- Lean Six Sigma in the Service Industry, Chapter, Alessandro Laureani, March 2012
- Nadeau, S. (2017) Lean, Six Sigma and Lean Six Sigma in Higher Education: A Review of Experiences around the World. American Journal of Industrial and Business Management, 7,591-603.

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