



भारतीय प्रबंध संस्थान शिलांग
Indian Institute of Management Shillong



PREPARATION KIT 2026

A Comprehensive Guide for Aspirants

An initiative by the Public Relations Cell, IIM Shillong



Dear Aspirants,

The Public Relations Cell would like to extend its heartiest congratulations to all of you for making it to this stage of the Admission Process. To help you prepare for the next part of the journey, the students of IIM Shillong have come together to present the **Preparation Kit 2026**. It consists of domain-specific information and tips to ace your Personal Interview.

We wish you the best of luck with your interviews and future endeavours.

You can follow us at:

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For any queries, you can reach out to us at:

PagalGuy: <https://www.pagalguy.com/t/2026-2028-official-iim-shillong-pgp-admission-queries/4207448>

Regards,
Public Relations Cell
IIM Shillong



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How to prepare for the interview?



What is a personal interview?

A personal interview is essentially a way for the institution to find out who you are as a person. It allows them to identify your communication skills, confidence, and composure when you are under pressure, which is what a management school is all about!

It goes beyond what's in your resume and your past academic records and digs deep into your analytical skills, your general awareness, and how quickly you can think on your feet. The interviewers carefully analyze all these metrics and more, and then you're assessed on whether you fit into their institution.

It is imperative to cover the most critical aspects of a personal interview-

- Personality-based questions
- Work experience
- General awareness
- Academics
- Extra-curricular activities

Additionally, one should be calm and be prepared for anything the interviewer throws at them. They do not expect you to know everything under the sun but will assess you on your positive attitude and your ability to handle an uncertain situation when it arises. Remember, the institution is looking for future leaders, and hence, these situations and how you manage them might be differentiating factors when it comes to the final selection.

The 5 'MUST DO's' for the personal interview:

1. Personality-based questions:

Questions in this section check whether your values and motivations align with the institute's vision. These questions are subjective, and there is no right or wrong answer. What is important is how well you can frame these answers and build them into a story.

This section will major cover the following areas:

- **Strengths:** Try to give examples from your life or quote instances where you exhibited these strengths and how they have helped you.
- **Weaknesses:** Do not try to make up any 'smart' weaknesses, and also avoid points that paint you in an extremely negative picture. Ensure to add what you are doing to overcome your weaknesses.
- **Family Background:** Try highlighting if there is anything that could catch the interviewer's interest and help you drive the interview. If you come from a business family, be thorough about the nature and size of the business, target customers, challenges faced, etc. Be prepared to answer as to why you are not joining the business immediately. If you come from a non-business family, have some contextual knowledge about the profession of your family members.



- **Achievements:** This can include scholastic, co-curricular, and extracurricular awards or positions that you have obtained. If you wish to highlight anything personal as your achievement, make sure to include the context that makes it an achievement. Use the **STAR approach** to explain briefly.

Lastly and most importantly, the **WHY MBA** question. It showcases that you have clarity of thought about where you stand right now and where you want to reach. Remember that MBA is the ‘means to an end’ and not the end itself. Interviewers want to see how committed you are to your goal and how will MBA help you reach there. Be prepared with alternative career plans in case there is a follow up question on ‘what if you are not selected?’. Try to weave a story around the skills you already have and how MBA will add/aid towards the end goal.

Also, try to have contextual knowledge about your undergraduate college, the city you come from, your hobbies and interests, etc. You will have to find the right balance between the answer sounding mechanical (prepared and rehearsed too many times) or made up on the spot.

2. Academics

This is an essential aspect of your preparation. It will showcase your ability to absorb and understand concepts from your previous education and how you have applied them in your professional career (for people with work experience). This section becomes even more critical for freshers as they've just come out of college and are expected to know the important concepts. The institution does not expect you to remember everything from your course but will question you on the basics. Also, you and the interviewer might have had the same educational background; in this case, the interviewer might even go into some depth about the subject. The critical thing is to remain calm and think before you answer. The **10-second rule** applies massively in interviews. Also, it is **okay to say NO** and accept that you do not know the answer. The interviewers are experienced enough to know if you are lying. It also shows your honesty and willingness to learn.

***Pro tip:** Have an answer prepared for 'Which is/are your most/least favorite subjects from undergrad or postgrad and why?' Make sure you also have good knowledge and conceptual understanding of your favourite subjects.*

3. Work experience

For those with work experience, questions will be about your profile and your role in the team. It is advised to know about your employer, the important financial figures (revenue for the year, Profit, etc.), the current market scenario of the industry, the competitors, and significant new developments and trends in the industry. You should be prepared for your major learnings, both technical (software, systems, applications, industry expertise) and behavioral (leadership, time management, problem-solving, client-facing). You can be asked why you are not continuing in your current job (this can be aligned with your why MBA answer). You might also be given situational questions like how you solved a crisis at your job and what it taught you. You can follow the **STAR approach** to answer behavioral questions like these.



S- Situation – Describe the situation/crisis at hand.

T- Task – What was your duty/role in the crisis?

A- Action – What steps did you take, and how did you take them to solve the crisis?

R – Result – What result came out of the action taken, and what it taught you?

This is a structured method for answering behavioral questions. Furthermore, it can be applied to other aspects of the interview, like personality-based questions or while solving a situation-based question.

Pro Tip – *Work experience allows you to discuss your leadership skills and how you managed a team. Make sure you inculcate them in your answers.*

4. General awareness

This section of the interview can be tricky. General Awareness encompasses everything, and you're bound to miss one thing or another. What is important here is that you cover major trending topics about the economy, politics, international news, and your domain (e.g., if you mention that you like finance, then the stock market, financial news, etc.). Read as much as you can. Newspapers help you stay updated about current trends, and you must make it a habit of reading them. Some suggestions for newspapers – Mint (Finance and economics), editorial sections for The Indian Express, and The Hindu.

Pro tip: Again, as questions will be primarily objective, it is okay to say NO if you do not know something. Even if you're guessing, try and make an educated guess rather than answering blatantly. Also, when discussing current affairs, form your own opinion and discuss it only when asked.

5. Extra-curricular activities

Above the scope of academics and work experience, the institution also aims to look for students with all-around exposure to arts, sports, and other extracurricular activities as it showcases their talent and ability to multi-task. If you have professionally participated in a sport or art, try to make sure you narrate and link it with what you learned in life, what the activity taught you, how it changed you as a person, and what qualities you've gained from it. Make sure you know your activity in depth, as the interviewer might ask you multiple questions about the same. Even if you state a particular hobby, for example – Reading Non-fiction, or playing football, be ready to answer questions like 'Who's your favorite non-fiction writer and why'? 'What are the dimensions of a football field'? 'How many goals were scored in the 2022 football World Cup?' etc. In short, be thorough with your Hobbies as they are your interests, and you should be curious about them.

Pro tip: Extracurricular activities showcase your attitude and curiosity, so try to explain those characteristics through real-life examples and how you bring something different to the table.



Bonus Section

Abstract

You cannot really prepare for this section. The interviewer might ask you to solve a puzzle, do a guesstimate, or even ask you mathematical questions like probability. The only advice we can give you is not to panic, have a calm mind and fresh perspective, and try to answer the questions to the best of your abilities. Instinctive thinking will greatly help and do not let a wrong answer affect the rest of the interview.

General tips for the interview:

- Always prepare some good questions to ask the interviewer. Questions about the course and college, in general, will reflect how eager you are to join the institute.
- Prepare your introduction very carefully and creatively, as it is highly likely that it's the first question you're asked. Try including and emphasizing interesting things about yourself, giving cues to the interviewer to ask more about those. This way, you can '**lead the interview**' and be confident about your answers.
- Interviews are a two-way journey. You and your interviewer are in a conversation and ensure it stays the same. Be yourself, and always remember to smile and greet the interviewer (DO NOT make mistakes like greeting good morning when it is post 11:59 AM; it showcases a lack of presence of mind).
- You must have a unique story to stand out from others. Make sure the interview is about what value addition you can do to the institution and how unique it is.
- Go through the website of IIM Shillong (<https://www.iimshillong.ac.in/>) and learn about the course and what it entails. It would be great if you were aware of the current developments at the institution.
- Know your city of residence and important facts like the CM of the state, population, etc. Also, read a little bit about Shillong and what the city offers.
- Examples are king – add examples for everything you say. What you say might not stick, but a good example is easy to remember and makes your candidature stand out.
- Get good sleep – 8 hours of sleep, and a refreshed body and mind, are non-negotiable for a good interview. Your CV is your bible. Know it inside out. Show your eagerness to learn. Even if you do not know an answer, tell the interviewer you will read about the topic later.



**Can you be the
voice of reason
in a room full
of opinions?**

GROUP DISCUSSION



The Group Discussion round is a critical component of the admission process. It is designed to evaluate a candidate's ability to work within a team, communicate ideas persuasively, and maintain professional decorum while navigating diverse viewpoints. This round provides insights into a candidate's leadership potential, social skills, and emotional intelligence under pressure.

What is a Group Discussion?

A Group Discussion is a formal structured conversation among a group of participants on a specific topic. Unlike a debate, which is competitive, a GD is a cooperative process where participants aim to explore various facets of a subject, ranging from current affairs and business case studies to abstract concepts, to reach a holistic understanding or consensus.

Objectives of the Group Discussion round

The GD round aims to:

1. **Assess interpersonal skills:** Evaluate how well candidates interact, listen, and respond to others in a group setting.
2. **Test leadership potential:** Observe who can steer the conversation, manage transitions, and encourage quiet participants without being overbearing.
3. **Gauge knowledge depth:** Check the candidate's ability to provide factual data, relevant examples, and logical reasoning related to the topic.
4. **Observe problem-solving and negotiation:** Assess the ability to handle disagreements maturely and guide the group toward a common goal.
5. **Evaluate clarity and impact:** Look for the ability to express complex ideas simply and convincingly.

How does the Group Discussion round work?

- **Topic assignment:** A group is given a topic or a short case study. Topics can be knowledge-based or abstract.
- **Preparation time:** The group is usually given 2–5 minutes to collect their thoughts and jot down key points.
- **Discussion phase:** The group is allotted 10-12 minutes to discuss the topic. Every member must speak and manage the flow of the discussion.
- **Evaluation:** The panel evaluates participants based on content, body language, group behaviour, and communication style.

Tips for success in the Group Discussion round:

- **Stay calm:** Take deep breaths and stay composed while receiving the topic.
- **Be an active listener:** Show engagement by nodding and referencing points made by others; this demonstrates respect and teamwork.



- **Structure your contribution:**

1. *Initiate (Optional):* If you have a strong grip on the topic, open the discussion to set the framework.
 2. *Analyse:* Provide 2–3 unique perspectives (social, economic, legal, or political) rather than repeating what has been said.
 3. *Summarise:* If the discussion is ending, help the group conclude by highlighting the main points of agreement.
- **Quality over quantity:** Speaking the most does not equate to being the best. Focus on making 3–4 high-impact entries.
 - **Maintain professional body language:** Keep an upright posture, make eye contact with the whole group (not just the evaluators), and use hand gestures moderately.
 - **Practice regularly:** Enhance your impromptu speaking skills by practicing with a wide range of topics.
 - **Stay updated:** Keep yourself informed about current events, business trends, and global issues.
 - **Maintain confidence:** Even if unsure about the topic, deliver with confidence and composure.

Sample GD topics

Business and management

- The 4-Day work week: Pros, challenges, and its impact on organizational productivity.
- Ethical dilemmas in business: Balancing short-term profit with long-term corporate social responsibility.
- Quick commerce boom in India: Is it a sustainable business model or a wasteful luxury?
- The future of work: Managing the transition between permanent jobs and the growing gig economy.
- Corporate governance: The impact of top-level leadership transitions on company culture and stock market stability.
- Startup survival: Lessons learned from the downfall of previously high-valued “unicorns”.

Technology and innovation

- AI Governance Guidelines 2025-2026: How should governments regulate the rapid advancement of artificial intelligence?
- The “AI bubble”: Is current investment in AI sustainable, or are we headed for a market correction?
- Cybersecurity in the digital era: Protecting national and corporate infrastructure from sophisticated cyber-warfare.
- Blockchain beyond cryptocurrency: Exploring its potential in supply chain, healthcare, and voting systems.
- Green tech transition: Is India ready for mass adoption of Electric Vehicles (EVs) by 2030?

Current affairs and global economics

- The Trump tariff wars: Assessing the macro-economic and sector-specific impact of new U.S. trade policies on India.
- De-dollarization: The feasibility and impact of alternative currencies in global trade.



- India at 100: Formulating a vision for 2047—economic hurdles and opportunities.
- Digital Public Infrastructure (DPI): Can India's UPI model serve as a global benchmark for developing nations?
- One Nation, One Election: Analysing the administrative benefits versus the democratic challenges.

Social and environmental issues

- The gender unemployment gap: Addressing the systemic barriers to women's participation in the Indian workforce.
- Digital addiction: The impact of social media and “doom-scrolling” on the mental health of Gen Z.
- Climate change responsibility: Should developed nations bear a higher financial burden for global mitigation?
- NEP 2020: Is the National Education Policy effectively bridging the gap between degrees and skill development?
- Urbanisation vs. sustainability: Can India build smart cities without sacrificing its environmental greenery?

Abstract and creative topics

- “Straight roads do not make skilful drivers.”
- “Data is the new oil, but privacy is the new gold.”
- “Innovation without ethics is a dangerous engine.”
- “The louder you speak, the less you are heard.”
- “Shadows of yesterday shape the light of tomorrow.”

Idioms and proverbs

- “A bird in the hand is worth two in the bush.” (On risk-taking vs. stability)
- “Brevity is the soul of wit.” (On communication and impact)
- “Every cloud has a silver lining.” (On finding opportunity in crisis)
- “Don't count your chickens before they hatch.” (On business forecasting and realism)

Please note that this is not a comprehensive list; these are merely example topics.

TOPICS IN NEWS

Economy & Business

- **India as the 4th Largest Economy:** India surpassed Japan to become the world's fourth-largest economy by nominal GDP, as per a government release.
- **GDP base year revision:** A new GDP series with a base year of 2022-23 is scheduled for release in February 2026, aiming to integrate better administrative data like GST and e-Vahan.
- **The "AI surge":** India is organizing a major Artificial Intelligence Summit in February 2026, highlighting a national shift toward AI governance and supercomputing clusters in partnership with the UAE.
- **Electronics manufacturing hub:** India is on track to reach its ambitious target of a \$300 billion electronics ecosystem by the end of FY 2025-26, driven largely by PLI schemes and investments from global giants like Apple.
- **Renewable energy leap:** By July 2025, India achieved roughly 50% of its installed electricity capacity from non-fossil fuel sources, reaching this Paris Agreement milestone five years ahead of schedule.

Geopolitics & International Relations

- **US-India trade tensions:** Late 2025 saw a downturn in relations due to 50% tariffs imposed by the Trump administration on certain Indian exports, largely over strategic disagreements and failure to reach a trade deal.
- **India-UAE strategic partnership:** Bilateral trade crossed \$100 billion in 2025, with a new target set to double it to \$200 billion by 2030. Key initiatives include the "House of India" in Abu Dhabi and the launch of the Jaywan card.
- **Balancing act:** India to host a string of high-profile summits in early 2026, including the BRICS and AI Impact Summit, while navigating the complex diplomatic waters of the Quad and its relationship with the Global South.
- **Neighbourhood dynamics:** 2025-26 remains a period of adjustment in relations with Bangladesh and Nepal following significant political shifts in those nations in 2024.

Sports

- **Women's cricket revolution:** The Indian Women's Cricket Team won their first-ever ICC World Cup in 2025, marking a historic shift in the domestic sports landscape.
- **Athletics milestone:** Neeraj Chopra finally breached the elusive 90m barrier at the Doha Diamond League in 2025, setting a new national record of 90.23m.
- **Chess dominance:** 19-year-old Divya Deshmukh became the FIDE Women's World Cup Champion in 2025, while D. Gukesh continued his reign as World Champion.



TOPICS IN NEWS - Continued

- **Squash World Cup:** India claimed its maiden Squash World Cup title in December 2025, defeating Hong Kong China in the final.
- **First international ice hockey medal:** The Indian women's Ice Hockey Team secured a landmark Asia Cup Bronze in 2025, India's first major international success in winter sports.
- **Saina Nehwal retirement:** In January 2026, India's first global badminton superstar, Saina Nehwal, officially confirmed her retirement from professional sports.
- **Badminton World Championships 2026:** India will host the BWF World Championships in August 2026, a significant milestone for the country's hosting capabilities in non-cricket sports.

Space & Technology

- **Human spaceflight:** Indian astronaut Shubhanshu Shukla's mission to the International Space Station (ISS) in 2025 marked a major step for India's human space ambitions.
- **Space sector funding:** The ₹1,000-crore Venture Capital Fund for India's space sector was formally operationalised in November 2025 through a contribution agreement between IN-SPACe and SIDBI Venture Capital Limited.
- **First uncrewed Gaganyaan test:** ISRO has scheduled the first orbital test flight of the Gaganyaan mission, a precursor to India's first manned space mission.

Special Achievements

- **World's highest tunnel:** The Shinku La Pass Tunnel is under construction to connect Himachal and Ladakh, set to become the highest tunnel in the world.
- **World's largest renewable energy park:** Massive projects in Gujarat and Rajasthan are transforming desert landscapes into the largest solar and wind energy clusters globally.
- **India's largest greenfield expressway:** The Delhi-Mumbai Expressway, spanning 1,350 km and costing roughly ₹1,00,000 crore, is nearing full completion in 2025-26.
- **Most expensive Indian share:** As of January 2026, MRF Ltd. remains India's most expensive stock, trading at around ₹1.47 lakh per share.
- **Record semiconductor investment:** India approved 10 major semiconductor projects with a total committed investment of ₹1.60 lakh crore as of August 2025.
- **India's first indigenous antibiotic (Nafithromycin):** In October 2025, India announced the development of Nafithromycin, its first indigenously discovered antibiotic designed to treat drug-resistant respiratory infections.

TOPICS IN NEWS - Continued

World News

- **Global UPI expansion:** India's Unified Payments Interface (UPI) was integrated with several international platforms, including expansion into the UAE through the Jaywan card and a bilateral trade target of \$200 billion by 2030.
- **Trump tariff wars:** Late 2025 and early 2026 are marked by trade tensions as the U.S. imposed significant tariffs, impacting global trade dynamics.
- **Global AI governance:** India released its AI Governance Guidelines 2025, joining the global effort to regulate ethical AI and mitigate job displacement risks.
- **Green hydrogen mission:** India's aggressive push into green hydrogen and sustainable transport is being used as a blueprint for other developing nations.
- **Davos 2026:** The World Economic Forum's 56th meeting began on January 19, 2026, focusing on "Innovation-led growth" and "Inclusive development" in a contested world.
- **The rare earth standoff:** China weaponised its near-monopoly on rare earth elements in late 2025 by imposing stringent export controls on 17 critical minerals and processing technologies in direct retaliation to U.S. tariffs.

India in January 2026: Executive News Brief

- The 8th Pay Commission effectively began its tenure on January 1, 2026, marking the start of a 10-year cycle to revise salaries and pensions for over 1.1 crore central employees.
- Prime Minister Modi laid the foundation for the ₹6,957-crore Kaziranga Elevated Corridor to protect wildlife while enhancing regional connectivity in the Northeast.
- India's trade with Australia reached a historic milestone on January 1, 2026, as 100% of Indian goods exports became eligible for zero-tariff entry under the ECTA pact.
- 11 Indian tech giants, including PhonePe and Zepto, have lined up IPOs for 2026 to raise a collective ₹36,700 crore.
- Indian bullion markets witnessed a historic two-week rally as gold breached ₹1.55 lakh and silver surged 35% to ₹3.25 lakh.

Watchlist

To excel in interviews and Group Discussions, move beyond the headlines and analyse the ripple effects of these five themes: a) **Union Budget 2026-27** b) **AI revolution** c) **Stock market volatility** d) **Sustainability** e) **Trade dynamics**.

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FINANCE

NIVESHAK
The Finance and Investment Club





INTRODUCTION

Finance is the management, creation, and study of money. It involves directing resources in the form of credit, loans or invested capital to those businesses that can use them most effectively or have the greatest need for them. To finance their operations, consumers, businesses, and governments frequently lack the cash on hand to spend. They need to raise capital, then. As a result, they must borrow money or sell shares. On the other side, investors and savers build money that, if used wisely, could provide interest or dividends.

CAREER OPPORTUNITIES

- **Investment Banking** – Investment Banker, Sales, and Trading, Investment Strategist Hedge Funds – Hedge Fund Manager (mostly like portfolio managers but operating to generate very high alpha)
- **Private Equity Firms** – Investment Bankers (looking for an investment in a private company and earning returns by its superior performance)
- **Venture Capital Firms** – Portfolio Manager (investing early in start-ups to reap benefits later)
- **Commercial Banking** – Loan Officer, Credit Analyst, Branch Manager, etc.
- **Asset Management Firms** - Portfolio Manager, Equity Research Analyst, Alternate investments Manager
- **Corporate Finance** – Tax Analyst, Financial Analyst, Treasurer, Chief Financial Officer, etc. (taking care of investing, financing, and dividend decisions of a company)

TYPES OF BUSINESSES

- **Sole Proprietorship** – An entity that a single person controls. The majority of businesses in India are sole proprietorships. They don't require any registrations and can be set up in less than ten days. The sole proprietorship has no separate legal identity; hence, the entire liability falls on the shoulders of the owner.
- **Partnership Firm** – The partnership firm is the extension of a sole proprietorship where two or more people come together to work. The partnership requires an agreement that is to be written out in a partnership deed, which is not compulsory. The maximum number of partners allowed is 50. The partners have unlimited liability and can share profits in an agreed-upon ratio.
- **Limited Liability Partnership** – LLPs in India are governed by the LLP Act 2008, where partners have limited liability because the LLP and partners are considered separate legal entities and, therefore, can function irrespective of changes in partners. LLPs were introduced to address the problems with general partnership business firms by reducing compliance and regulations. There is no cap on the maximum number of partners, but at least one of them should be an Indian resident,



and the liability of each partner is limited to the contribution made by the partner.

- **Private Limited Company** – According to the Companies Act 2013, a 'private company means a company having a minimum paid-up share capital as may be prescribed by its articles –
 - Restricts the right to transfer its shares.
 - Except in the case of One Person Company, limits the number of members to 200.
 - Prohibits any invitation to the public to subscribe to any securities of a company.

Many firms choose this form of business because it gives the advantages of a separate legal entity and continuous existence. Also, since companies don't have any public involvement, disposing of and selling the business is relatively hassle-free.

- **Public Limited Companies** – According to the Companies Act 2013, a public company is a company that is not private. A minimum of 7 members are required to start a public limited company that gets listed on a stock exchange. The liability is limited to the extent of shares held by shareholders. Firms choose to go public to take advantage of the huge capital resources present in the open market.
- **One Person Company** – This means a company that has only one member, who is a resident of India, and a nominee is necessary for registration. The OPC was introduced by the government to facilitate budding entrepreneurs to manage their businesses alone.
- **Cooperative Society** – It is a voluntary association of individuals who come together with the purpose of working together for mutual help and self-help. Popular examples are Amul and Lijjat Papad.

BOOKKEEPING

Bookkeeping involves recording a company's daily financial transactions. This enables the companies to track all information on their books to make key operating, investing, and financing decisions.

ACCOUNTING

According to the American Institute of Certified Public Accountants [AICPA], "Accounting is the art of recording, classifying and summarising in a significant manner and terms of money, transactions, and events, which are, in part at least, of a financial character and interpreting the result thereof."

While accounting and bookkeeping are sometimes synonymous, there is a fundamental difference between the two. While bookkeeping is limited to the recording of transactions, accounting is much broader in scope, and in addition, bookkeeping includes summarising, analyzing, interpreting, and communicating the results to interested parties.

ACCOUNTING PRINCIPLES

Accounting principles are the rules that an organization follows when reporting financial information. These uniform sets of rules or guidelines are developed to ensure uniformity and ease of understanding of the accounting information. Thus, they form the basis upon which the complete suite of accounting standards has been built:

- **Business entity principle:** According to this principle, a business is considered as a unit separate and distinct from its owners, creditors and, managers, and others. In other words, transactions are recorded from the firm's perspective and not from its owners.
- **Accrual principle:** This principle states that revenue and expenses are recorded as and when the transaction takes place and not when cash is actually received or paid.
- **Going concern principle:** This is the concept that a business will remain in operation for a long period in the future. This means that you would be justified in deferring the recognition of some expenses, such as depreciation, until later periods. Otherwise, you would have to recognize all expenses at once and not defer any of them.
- **Conservatism principle:** According to this principle, you should record expenses and liabilities as soon as possible, but record revenues and assets only when you are sure that they will occur. In other words, conservatism is the policy of playing safe. For example, a Provision is made for all known liabilities and losses, even though the amount cannot be determined with certainty. Closing Stock is valued at cost price or realizable value, whichever is less.
- **Consistency principle:** This concept states that accounting principles and methods should remain consistent from one year to another. These should not be changed from year to year to enable the comparison between the financial statements of two accounting periods. For example, If the company charges straight-line depreciation, it can't shift to the written-down value method. However, it doesn't mean that the company can't change its accounting methods according to changed circumstances. It may do so by providing the effect of the change in method and justification for the same.
- **Cost principle:** This is the concept that a business should only record its assets, purchased at \$10,000, remaining at the same value in the balance sheet, irrespective of the market price.
- **Full disclosure principle:** The information on financial statements should be complete so that nothing is misleading. With this intention, important partners or clients will be aware of relevant information concerning your company. That is why, while the contingent liabilities have no monetary impact on the present status of the business, they're still shown in the notes of accounts to give a clear picture of the company.
- **Matching principle:** This is the concept that when you record revenue, you should record all related expenses at the same time. Thus, you charge inventory to the cost of goods sold while you record revenue from the sale of those inventory items. This is a cornerstone of the accrual basis of accounting. The cash basis of accounting does not use the matching principle.



- **Materiality principle:** This is the concept that you should record a transaction in the accounting records; if not, doing so might have altered the decision-making process of someone reading the company's financial statements.
- **Monetary unit principle:** Only those transactions and events are recorded in accounting that is capable of being expressed in terms of money. As a result, events such as strikes, the manager's resignation, etc., are not recorded.
- **Reliability principle:** It states that only those transactions that can be proven should be recorded. For example, a supplier invoice is solid evidence that an expense has been recorded. This concept is of prime interest to auditors who constantly search for evidence supporting transactions.
- **Revenue recognition principle:** This is the concept that you should only recognize revenue when the business has substantially completed the earnings process. So many people have skirted around the fringes of this concept to commit reporting fraud that a variety of standard-setting bodies have developed a massive amount of information about what constitutes proper revenue recognition.
- **Time period principle:** This is the concept that a business should report the results of its operations over a standard period. This may qualify as the most glaringly obvious of all accounting principles but is intended to create a standard set of comparable periods, which is useful for trend analysis.

Accounting Basis:

There are two major methods of accounting, namely—cash basis and accrual basis. The difference between these is based on when the company records a transaction in the books.

Cash accounting – In the case of a cash accounting system, revenue is recorded during the period when cash is received, and expenses are recorded when cash is actually paid. Thus, this system focuses on recording transactions only when there is an inflow or outflow of cash.

Accrual accounting – Contrary to cash accounting, in accrual accounting, revenue and expenses are recorded when the transaction takes place and not when cash is received or paid.

Golden Rules of Accounting

1. **Debit the receiver, credit the giver** – This rule is based on personal accounts which relate to people (natural or artificial). Example – Ram bought flowers, so Ram is the receiver and will be debited.
2. **Debit what comes in, credit what goes out** – This rule applies to real accounts which relate to assets, liabilities, and equity. Example – A company purchases furniture, which is an asset for cash; hence furniture has come in, so it will be debited, and cash has gone out, so cash a/c will be credited.
3. **Debit all expenses and losses, credit all income and gains** – This rule applies to nominal accounts, including revenue, expenses, gains, and losses. For example – Company pays salaries to employees, and since salaries are an expense, hence salary a/c will be debited.

TYPES OF REVENUE AND EXPENSES

OPERATING REVENUE

Operating Revenue is a firm's Revenue from its core business operations. Operating Revenue (sometimes wrongly, 'revenue') is used interchangeably with 'Sales.'

For a cotton farmer, selling cotton to a textile industry is considered Operating Revenue for the farmer. Say the same farmer has a plot of land that he has provided on rent to a shopkeeper. The rental income from the shopkeeper is 'Revenue' for the farmer, but not 'Operating Revenue.'

For a bank, the interest earned on a car loan is the operating revenue.

NON-OPERATING REVENUE

Non-operating revenue refers to all other sources of revenue for a firm that is not from its core operational functions. Non-operating revenue can be classified into multiple sub-categories depending upon the industry a firm is operating in. Some of the common sub-categories of non-operating revenue are as follows:

Interest Income – Interest earned via investments such as Fixed Deposits, T-bills, Government bonds, Gold Loans, and Corporate Bonds are interest income for a firm whose core operation does not involve earning interest. For a bank, income from these sources would be operating revenue.

Rental Income – Income earned from rental properties owned by a firm is known as rental income. For a real estate agent, this would be their operating revenue.

Dividend Income – Investments such as equity shares provide shareholders with a dividend. A firm's income from dividends earned by investing in other companies is dividend income.

EXPENSES

Expenses can be classified in multiple ways, but the most common classifications are –

- a. Operating vs Non-operating expenses
- b. Fixed vs Variable expenses

Operating Vs. Non-operating expenses

Expenses incurred in a firm's core operations are classified as operating activities.

For a manufacturing firm, rent, salaries, wages, utilities, office supplies, etc., would be classified as Operating expenses. The raw materials used fall under a separate category called 'Cost of Goods Sold' or 'Cost of Materials Consumed.'

Non-operating expenses

Expenses incurred and not used in a firm's general operations are classified as non-operational expenses. These include expenses such as depreciation, amortization, loss on sale of an asset, restructuring expenses, etc.



TYPES OF FINANCIAL STATEMENTS

Financial Statements are summarised statements of accounting data prepared at the end of the accounting process, i.e., after preparing a Trial Balance by an enterprise. Thus, these serve as a medium for communicating accounting information to relevant stakeholders. These include-

- Balance Sheet
- Statement of Profit & Loss
- Cash Flow Statement

Balance Sheet

- It shows the financial position of an enterprise at a given point in time.
- All the assets, liabilities, and equity (i.e., personal and real accounts) are finally recorded in the balance sheet.

Statement of Profit & Loss

- It shows the financial performance of an enterprise during a given time.
- All the expenses and incomes (i.e., nominal accounts) are finally recorded in the P&L statement.

Cash Flow Statement

The cash flow statement is a detailed summary of a firm's cash inflows and outflows during a particular period. The statement helps the investors understand how the company's operations are running, where the money is coming from, and how the money is being spent. It comprises three sections:

Cash flow from operating activities - Cash flow from operating activities refers to the inflow and outflow of cash from the regular ongoing business activities during a given period. The operating activities include wage payments, receipts from the sale of goods and services, rent payments, etc. This part of the cash flow statement considers the net income (calculated under the net income) and adds back all the non-cash expenses like depreciation (since no cash outflow is involved in such transactions). In addition to this, any increase in the assets or decrease in the liabilities results in a decrease in the cash flow from operations. In contrast, a decrease in assets or an increase in liabilities leads to an increase in the cash flow from operations.

1. Cash flow from investing activities- Cash flow from investing activities refers to cash inflow and cash outflow from activities that are non-operating in nature and are outside the normal scope of business. This involves items classified as assets under the example- the purchase of the building is long-term investment.

2. Cash flow from financing activities – This section involves items classified as liabilities and equity in the Balance Sheet and includes the payment of dividends as well as issuing payment of debt or equity. For example- Cash received from the issuance of common stock.

1. Why do we prepare a cash flow statement? Doesn't the statement of Profit & Loss already tell us about the performance of the company?

While the P&L tells us about the profitability of the company, the cash flow statement tells us about the cash flow position of the company, which is important from the liquidity and solvency perspective.

Moreover, it is not necessary that the company which is profitable may also have cash.

E.g., If the company makes sales of \$100,000 on credit, based on the accrual concept, it will be recorded in the Statement of P&L. However, these credit sales have not generated cash for the company till now.

Hence Cash flow statement allows us to investigate these finer aspects.

Similarly, a company may make a payment of prepaid insurance, i.e., insurance for next year. As a result, the cash will decrease, but the profits will remain the same as this transaction relates to the next accounting period and hence will be recorded in the statement of P&L in that period.

2. What is the effect of depreciation on all three financial statements?

- Statement of Profit & Loss:** Depreciation is considered as an expense, and hence it will be subtracted from the Statement of P&L.
- Balance Sheet:** Here, the depreciation will be subtracted from the concerned asset, and the net value of the asset will appear on the balance sheet.
- Cash Flow Statement:** Since depreciation is a non-cash expense so while preparing a cash flow statement, it will be added back to the net profits.

Basis for comparison	GAAP	IFRS
Full Form	Generally Accepted Accounting Principle	International Financial Reporting Standard
Explanation	Set of accounting guidelines used to prepare financial statements	Universal business language for companies for reporting financial statements
Basis	Rules – rigid in nature	Principles - flexible in nature
Inventory Valuation	FIFO, LIFO, Weighted Average Method	LIFO is not allowed. The rest of the methods are allowed.
Development Cost	Treated as an expense	Capitalized only if conditions like technical feasibility, innovation, intention to sell, etc., are met
Reversal of inventory	Not Allowed	Permissible, if conditions are met

RATIO ANALYSIS

Ratio analysis consists of the calculation of ratios from financial statements and is a foundation of financial analysis. A financial or accounting ratio shows the relative magnitude of selected numerical values taken from those financial statements.

The numbers in financial statements need to be put into context so investors can better understand different aspects of the company's operations. Ratio analysis is one method an investor can use to gain that understanding.

LIQUIDITY RATIOS

The terms' liquidity' and 'short-term solvency' are used synonymously.

Liquidity or short-term solvency means the ability of the business to pay its short-term liabilities. The inability to pay off short-term liabilities affects its credibility as well as its credit rating.

a) Current Ratio

The current ratio is one of the best-known measures of short-term solvency. It is the most common measure of short-term liquidity.

The main question this ratio addresses is: "Does your business have enough current assets to meet the payment schedule of its current debts with a margin of safety for possible losses in current assets?" In other words, the current ratio measures whether a firm has enough resources to meet its current obligations.

Current Ratio = Current Assets/Current Liabilities

b) Quick Ratio

The Quick Ratio is sometimes called the "acid-test" ratio and is one of the best measures of liquidity.

Quick Ratio = (Cash and cash equivalent + Marketable securities + Accounts receivable) / Current liabilities.

Or

Quick Ratio = (Current assets - Inventory) / Current liabilities

The Quick Ratio is a more conservative measure of short-term liquidity than the Current Ratio. It helps answer the question: "If all sales revenues should disappear, could my business meet its current obligations with the readily convertible quick funds on hand?"

(B) LEVERAGE RATIOS

The leverage ratios may be defined as those financial ratios which measure the long-term stability and capital structure of the firm. These ratios indicate the mix of funds provided by owners and lenders and assure the lenders of the long-term funds about Periodic payment of interest during the period of the loan.

Repayment of principal amount on maturity.



a) Debt Ratio

$$\text{Debt Ratio} = \text{Total Debt} / \text{Total Assets}$$

Total debt or total outside liabilities include short- and long-term borrowings from financial institutions, debentures/bonds, deferred payment arrangements for buying capital equipment, bank borrowings, public deposits, and any other interest-bearing loan.

Interpretation

This ratio is used to analyze the long-term solvency of a firm. A ratio greater than one would mean a greater portion of company assets are funded by debt and could be risky.

b) Debt to Equity Ratio

$$\text{Debt to Equity Ratio} = \text{Total Debt} / \text{Shareholders' Equity}$$

A high debt-to-equity ratio here means less protection for creditors; a low ratio, on the other hand, indicates a wider safety cushion (i.e., creditors feel the owner's funds can help absorb possible losses of income and capital). This ratio indicates the proportion of debt funds in relation to equity. This ratio is very often used for making capital structure decisions, such as the issue of shares and/or debentures. Lenders are also very keen to know this ratio since it shows the relative weights of debt and equity. The debt-equity ratio is the indicator of a firm's financial leverage.

c) Interest Coverage Ratio

This ratio shows how the ability of the company to meet its interest payments from its operating income. The higher the ratio, the better position a company is in to meet its interest obligations.

The more the debt, the higher will be the interest expense. That means the company must have a higher EBIT to cover it.

$$\text{Interest Coverage Ratio} = \text{EBIT (1-tax rate)} / \text{Interest Expense}$$

As a rule of thumb, investors should not own a stock or bond with an interest coverage ratio under 1.5. An interest coverage ratio below 1.0 indicates the business is having difficulties generating the cash necessary to pay its interest obligations for a company in a situation where its sales decline and the subsequent decrease in its net income, a high-interest obligation can be a cause of concern. An excessive decrease in the net income would result in a sudden and equally excessive decline in the interest coverage ratio, which should send up red flags for any conservative investor.

(C) ACTIVITY RATIOS

a) **Inventory Turnover Ratio**

It measures the number of times an enterprise sells and replaces its inventory, i.e., no. of times inventory was converted into sales during this period.

$$\text{Inventory Turnover} = \text{Cost of Goods Sold} / \text{Average Inventory}$$

Since it measures how fast a company sells inventory, A low turnover implies weak sales and possibly excess inventory, also known as overstocking. It may indicate a problem with the goods being offered for sale or be a result of less marketing. On the other hand, a high ratio implies either strong sales or insufficient inventory, which may lead to a loss in business as the inventory is too low.

$$\text{Days of Inventory on Hand (DIO)} = 365 / \text{Inventory Turnover Ratio}$$

It shows the number of days it takes from buying the raw material to selling the produced goods. Thus, a lower DIO indicates the inventory efficiency of the company and is desirable.

b. **Receivables Turnover Ratio**

It shows how quickly trade receivables are converted into cash and cash equivalents and, thus, efficiency in the collection of amounts due against trade receivables.

$$\text{Receivables Turnover} = \text{Net Credit Sales} / \text{Average Receivables}$$

A high ratio is better as it shows that debts are collected more promptly, and the company has a high proportion of quality customers that pay their debts quickly.

However, a high ratio can also suggest that a company is conservative when it comes to extending credit to its customers. No doubt, a conservative credit policy can be beneficial since it could help the company avoid extending credit to customers who may not be able to pay on time; however, it might also indicate that such a policy might be driving away potential customers.

A low receivables turnover ratio might be due to an inadequate collection process, bad credit policies, or unfinancially viable or creditworthy customers.

$$\text{Debt Collection Period or Days of Sales Outstanding (DSO)} = 365 / \text{Receivables Turnover ratio}$$

The average collection period is the amount of time it takes for a business to receive payments owed by its clients.

The way we have the receivables turnover ratio for the debtors, the **accounts payable ratio** is used to quantify the rate at which the company pays off its suppliers (creditors).



Payables Turnover Ratio = Net Credit Purchases /Average Payables.

Days of Payables Outstanding (DPO) =Number of Days in period / Payables Turnover ratio

c. Fixed Asset Turnover

The fixed asset turnover ratio is an efficiency ratio calculated by dividing a company's net sales by its net property, plant, and equipment (property, plant, and equipment - depreciation). It measures how well a company generates sales from its property, plant, and equipment. A higher ratio implies that management is using its fixed assets more effectively.

(D) PROFITABILITY RATIOS

a) Operating Margin:

The operating profit ratio is also calculated to evaluate the operating performance of the business.

Operating Profit = Operating Profit/Total Revenue

Where, Operating Profit = Sales – Cost of Goods Sold (COGS) – Expenses

The operating profit ratio measures the percentage of each sale in rupees that remains after the payment of all costs and expenses except for interest and taxes. This ratio is followed closely by analysts because it focuses on operating results. Operating profit is often referred to as earnings before interest and taxes or EBIT.

b) Net Profit Ratio/ Net Profit Margin

It measures the relationship between the net profit and sales of the business. It can be calculated as:

The Net Profit Ratio finds the proportion of revenue that finds its way into profits after meeting all expenses. A high net profit ratio indicates positive returns from the business.

Net Profit Ratio= Net Profit / Total Revenue

(E) RETURN RATIOS

a) Return on Assets (ROA)

Return on Assets = Net Income/Total assets

The profitability ratio measures the relationship between net profits and assets employed to earn that profit. This ratio measures the profitability of the firm in terms of assets employed in the firm. Based on various concepts of net profit (return) and assets, the ROA may be measured as follows:

Return on Assets = Net Income/Total assets

b) Return on Equity (ROE)

Return on Equity measures the profitability of equity funds invested in the firm. This ratio reveals how profitably the firm has utilized the owners' funds. It also measures the percentage return generated to equity shareholders. This ratio is computed as follows:

$$\text{ROE} = (\text{Net Profit after taxes} - \text{Preference dividend (if any)}) / \text{Total Shareholders' Equity}$$

Return on equity is one of the most important indicators of a firm's profitability and potential growth. Companies that boast a high return on equity with little or no debt can grow without large capital expenditures, allowing the owners of the business to withdraw cash and reinvest it elsewhere.

c) Return on Capital Employed (ROCE)

ROCE is a profitability ratio that calculates a business's profits using the capital employed.

$$\text{ROCE} = \text{EBIT} / \text{Capital Employed}$$

When a company's ROCE is higher than the cost of capital, the company has efficiently utilized the capital to generate profits. Companies should strive to achieve an ever-increasing ROCE over the years since it indicates that the business is stable and is an attractive investment option for investors.

d) Return on Invested Capital (ROIC)

ROIC is a profitability ratio that measures the returns investors earn from the capital invested in a company. It shows how efficiently the company uses the funds provided by the investors to generate income for the business.

$$\text{ROIC} = (\text{PAT} - \text{Pref Dividend}) / \text{Invested capital}$$

The invested capital is a subset of employed capital, and it is the percentage of capital actively invested in the business.

e) Du Pont Analysis

The DuPont identity is an expression that shows a company's return on equity (ROE) can be represented as a product of three other ratios: the profit margin, the total asset turnover, and the equity multiplier.

DuPont identity tells us that ROE is affected by three things:

- Operating efficiency, which is measured by net profit margin.
- Asset use efficiency, which is measured by total asset turnover; and
- Financial leverage, is measured by the equity multiplier.

$$Net Profit Margin = \frac{Net Income}{Sales}$$

$$Asset Turnover = \frac{Sales}{Total Assets}$$

$$Equity Multiplier = \frac{Total Assets}{Shareholders Equity}$$

Combine this together and with some simple algebra, you can see how the Sales and Total Assets cancel each other out resulting in ROE.

$$ROE = \frac{Net Income}{Sales} \times \frac{Sales}{Total Assets} \times \frac{Total Assets}{Shareholders Equity}$$

Thus, if the shareholders are dissatisfied with the lower ROE, the company, with the help of the DuPont Analysis formula, can assess whether the lower ROE is due to low-profit margin, low asset turnover, or poor leverage. Five-Step Du Pont Analysis:

Similarly, a much deeper analysis would be:

Tax Burden	Interest Burden	EBIT Margin	Total Asset Turnover	Financial Leverage
$\frac{NI}{EBT}$	$\frac{EBT}{EBIT}$	$\frac{EBIT}{revenue}$	$\frac{revenue}{average assets}$	$\times \frac{average assets}{average equity}$

(E) MARKET RATIOS

a) Price to Earnings Ratio (P/E ratio)

Considered one of the important ratios, this gives information about the amount that the investors are willing to invest in the company to earn \$1.

PE Ratio = Market Price per share/Earnings per share

This is why the P/E is sometimes referred to as the price multiple because it shows how much investors are willing to pay per dollar of earnings. If a company was currently trading at a P/E multiple of 20x, the interpretation is that an investor is willing to pay \$20 for \$1 of current earnings.

In general, a high P/E suggests that investors expect higher earnings growth in the future than companies with a lower P/E (logically, that is why the prices are high, leading to a high ratio). A low P/E can indicate either that a company may currently be undervalued or that the company is doing exceptionally well relative to its past trends.

The inverse of the P/E ratio is the earnings yield.

- **Absolute P/E:** The numerator of this ratio is usually the current stock price, and the denominator may be the trailing EPS (TTM), the estimated EPS for the next 12 months (forward P/E), or a mix of the trailing EPS of the last two quarters and the forward P/E for the next two quarters. When distinguishing absolute P/E from relative P/E, it is important to remember that absolute P/E represents the P/E of the current period. For example, if the price of the stock today is \$100, and the TTM earnings are \$2 per share, the P/E is $50 = (\$100/\$2)$.
- **Relative P/E:** The relative P/E compares the current absolute P/E to a benchmark or a range of past P/Es over a relevant time period, such as the past ten years. The relative P/E shows what portion or percentage of the past P/Es the current P/E has reached. The relative P/E usually compares the current P/E value to the highest value of the range, but investors might also compare the current P/E to the bottom side of the range, measuring how close the current P/E is to the historic low. The relative P/E will have a value below 100% if the current P/E is lower than the past value (whether the past high or low). If the relative P/E measure is 100% or more, this tells investors that the current P/E has reached or surpassed the past value.

b) Price to Book Ratio (P/B Ratio)

$$\begin{aligned} \text{P/B Ratio} &= \text{Market Capitalisation} / \text{Total Book Value}; \text{ or} \\ &= \text{Market Price Per Share (MPS)} / \text{Book Value Per Share (BPS)} \end{aligned}$$

Where Book Value = Total Assets – Total Liabilities

The book value refers to the amount the shareholders would receive if the company were to shut down immediately, liquidate, and pay off all its liabilities. The amount that remains is the book value.

A low ratio (less than 1) could indicate that the stock is undervalued (i.e., a bad investment), and a higher ratio (greater than 1) could mean the stock is overvalued (i.e., it has performed well).

- **Earnings per Share (EPS):**

It refers to the amount of net income that each shareholder is entitled to.

$$\text{EPS} = (\text{Net Income} - \text{Preferred Dividend}) / \text{Average No. of Equity Shares}$$

A related term you'll most commonly find is diluted EPS, which gauges a company's quality of EPS assuming all convertible securities (such as outstanding stock options, convertible debentures, convertible preferred shares, warrants, etc.) have been exercised.



Diluted EPS = (Net Income – Preferred Dividend) / (Average No. of Equity Shares + Dilutive Shares)

c) Dividend Pay-out Ratio:

It is the percentage of earnings paid to shareholders in dividends.

Dividend Pay-out Ratio = Total Dividends Paid / Net Income

$$= \text{Dividend per share} / \text{EPS}$$

d) Retention Ratio:

Like Dividend Pay-out Ratio, is the Retention Ratio, which shows the percentage of earnings a company reinvests in the business either for growth, to pay off debt, or to add to its reserves.

Retention Ratio = (Net Income – Total Dividends Paid)/Net Income

BASIC STOCK MARKET TERMS

Share market: Anywhere you can buy or sell shares. All stock exchanges across India are part of the Indian share market. Any shares that you buy or sell outside the exchanges are also part of this share market.

Stock exchange: An exchange refers to a place or an electronic market where various securities are traded. i.e., one of the many stock exchanges in the country or worldwide where shares of stocks are bought and sold. The existing stock exchanges in the country are the National Stock Exchange of India (NSE) and the Bombay Stock Exchange (BSE).

NSE and BSE: National Stock Exchange (NSE) which was incorporated in 1992, is one of the leading stock exchanges in India, based in Mumbai. Bombay Stock Exchange (BSE) was incorporated in 1875 and is in Mumbai.

Nifty 50: It is the benchmark stock market index that represents the weighted average of 50 of India's largest companies listed on the NSE.

Sensex: It is the benchmark stock market index that represents the weighted average of 30 of India's largest companies listed on the BSE.

Over the counter: If you trade a security that is not listed in a stock exchange, you are making an over-the-counter trade.

Stock: Stock is a general term used to refer to a certificate indicating ownership in a company.

Share: A share is a stock certificate of a particular company. So, if an investor says that she owns 100 stocks - she is most likely referring to shares from 100 different companies. On the other hand, if she says she is buying 100 shares, she is referring to shares of a single company.

Bull market: When stock prices in a market are generally rising, it is called a bull market.

Bear market: The exact opposite of a bull market is a bear market - when the stock prices in the market are generally falling, it is called a bear market.

Order: It is a show of intent to buy or sell shares in a given price range. For example, you may place an order to buy up to 100 shares of Company A at a maximum price of Rs. 80 per share.

Bid: Your bid is the amount that you are willing to pay for a share.

Ask: Ask is the price at which you are willing to sell a share.

Bid-ask spread: This is the difference between the amount people are willing to spend to buy a share and the amount at which the shareholders are willing to sell a share. A trade can only happen when this spread is resolved. That is if the lowest price at which a share for Company A is being sold is Rs. 40, and the highest price someone is willing to pay for such a share is Rs. 38 - no trade can happen. The trade can only happen when the bid and ask prices match.

Market order: An order to sell/buy shares at the market price is called a market order. It is advisable to avoid placing market orders as the trade price can be very volatile.

Limit order: An order to sell shares above a set price or buy shares below a set price is called a limit order. You should always use limit orders to trade shares.

Day order: An order that is good only till the end of the trading day is called a "day order." If the order does not get executed by the time the market closes, it will be cancelled.

Good-till-cancelled order: An order that will stay open until it is either executed or manually cancelled. Such orders may stand for weeks if no shares are available to trade in the price range specified. For example, if you place a TC order to buy a share of Company A for Rs. 50 or less, and the share is currently trading at Rs. 70. If it takes the share to hit Rs. 50 price points a week later, the order will be executed then. If it were a day order, it would have been cancelled at the end of the trading day itself.

Liquidity: Liquidity refers to how easily a stock can be sold off. A share that can be sold off quickly, i.e., has high trade volumes, is said to be highly liquid.

Trading volume: The number of shares traded on a given day is called trading volume.

IPO/Initial Public Offering: The first time a company offers its share for trading on a stock exchange. Typically, you buy shares from the previous owner of the share and not the company directly. In the case of an IPO, you get to buy the shares directly from the company.

EMERGING TRENDS

- 1. Fintech:** The use of technology to provide financial services, such as mobile banking, peer-to-peer lending, and digital currencies.
- 2. Sustainable finance:** The integration of environmental, social, and governance (ESG) factors into investment decisions to promote long-term sustainability.
- 3. Impact investing:** Investing in companies, projects, and funds with the intention of generating a measurable social or environmental impact alongside a financial return.
- 4. Quantitative easing:** Central banks buy government bonds or other securities to inject money into the economy and increase the money supply.
- 5. Digital currencies and blockchain technology:** The use of digital currencies such as Bitcoin and blockchain's underlying technology in financial transactions.
- 6. Cybersecurity:** protecting against cyber threats to financial systems, including fraud and hacking.
- 7. Digital Identity:** The growing importance of digital identity, including online verification methods and digital identity use in financial transactions.
- 8. Automation and Artificial Intelligence:** The increasing use of automation and AI in financial services, including robo-advisors, algorithmic trading, and fraud detection.
- 9. Big data analytics:** Examining large and complex data sets to uncover hidden patterns, unknown correlations, and other useful information.
- 10. Algorithmic trading and high-frequency trading:** The rise of algorithmic and HFT trading in the Indian context.

SUSTAINABILITY IN FINANCE

In recent years, sustainability and finance in India have become deeply interconnected, reflecting the nation's growing recognition of environmental and social sustainability as critical pillars of economic growth. Sustainability in this context refers to the ability to meet present needs without jeopardizing the resources and opportunities available to future generations.

Within the financial sector, sustainability is increasingly linked to the integration of environmental, social, and governance (ESG) factors into investment decisions, lending practices, and financial products. This approach, often referred to as sustainable or responsible investing, seeks to balance financial returns with environmental and social impact. By supporting companies committed to ESG principles, investors and institutions aim to promote resilience and long-term value creation.

Growth of Sustainable Investment Products

India now offers a diverse range of sustainable financial products:

- **Green Bonds:** Financing environmentally beneficial projects, including renewable energy, sustainable agriculture, and clean transportation.
- **Socially Responsible Investment (SRI) Funds:** Focused on companies with robust ESG performance and ethical practices.
- **Impact Investments:** Targeting measurable environmental or social outcomes alongside financial returns.

The Indian government and regulatory bodies, particularly the Securities and Exchange Board of India (SEBI), have amplified efforts to promote ESG integration:

- In 2021, SEBI introduced mandatory ESG disclosures for the top 1,000 listed companies based on market capitalization under the Business Responsibility and Sustainability Reporting (BRSR) framework.
- By 2024, SEBI expanded the scope of ESG reporting to include mid-sized firms and introduced assurance requirements for ESG disclosures, ensuring greater reliability and transparency in reporting.

Sustainable Banking and Finance

Banks and financial institutions in India are increasingly embedding sustainability into their lending and financing activities:

- **ESG-Based Lending:** Incorporating ESG criteria in credit risk assessments to prioritize financing for sustainable projects.
- **Green and Sustainable Loan Products:** Supporting clean energy, water conservation, and other environmentally friendly initiatives.
- **Sustainability-Linked Loans (SLLs):** Offering reduced interest rates tied to the borrower's achievement of specific ESG milestones.

Advancements in ESG Evaluation

The importance of ESG factors has been further emphasized through:

- **Enhanced ESG Metrics:** Rating agencies now use comprehensive frameworks to evaluate companies' ESG performance, considering risks such as climate change, resource scarcity, and regulatory compliance.
- **Technology Integration:** Advanced technologies like AI and blockchain are being employed to monitor ESG compliance and ensure transparency in reporting.
- **Investor Engagement:** Institutional investors are actively engaging with companies to improve their ESG practices, reflecting a shift toward stewardship.



Challenges and Opportunities

While sustainable finance in India has grown significantly, challenges remain:

- **Data Standardization:** There is a need for uniform ESG metrics and benchmarks across industries.
- **Awareness Gaps:** Many mid-sized firms and SMEs struggle to align with ESG principles due to resource constraints.
- **Greenwashing Risks:** Increased regulatory scrutiny is required to prevent false claims about sustainability efforts.

Despite these challenges, India's financial sector is witnessing an acceleration in ESG-aligned investments, driven by global investor demand and domestic policy initiatives.

Outlook for Sustainability in Finance:

The integration of ESG factors into investment and corporate strategies continues to gain momentum in 2024.

India's commitment to sustainability is underscored by:

- Its target to achieve net-zero carbon emissions by 2070, aligned with global sustainability goals.
- The introduction of tax incentives for green investments under the Union Budget 2024.
- Expanded support for public-private partnerships (PPPs) in renewable energy and sustainable infrastructure.

In summary, India's financial landscape in 2024 is defined by the increasing alignment of finance and sustainability, with ESG factors becoming a cornerstone of investment decisions. The growing emphasis on sustainable practices positions India as a global leader in sustainable finance, fostering a resilient and inclusive economic future.



COMMON QUESTIONS THAT ARE ASKED

1. Why finance? What distinguishes financial management from accounting? What are the many financial branches?
2. What is: 1. WACC, 2. Beta, 3. CAPM Model, 4. FCFF 5. FCFE
3. What inspired you to pursue a career in finance?
4. What is Ind AS? How is it different from AS?
5. What are your long-term career goals in finance?
6. Can you give an example of when you had to make a difficult financial decision?
7. How do you prioritize and manage your workload in a fast-paced financial environment?
8. Can you explain the Modern Portfolio Theory to someone without a financial background?
9. PE Ratio: What Is It? How does it help? Can you help me with other market multiples
10. Describe the 2008 subprime crisis. What caused the event?
11. Are you aware of the recent SME IPOs? What regulatory changes were made and why?
12. Describe the idea of a one-person company. Is an audit required for the same?
13. What are your views on China's dumping of goods policy and how do you think India should tackle this issue?
14. Why did China need to release an economic stimulus package?
15. Can you explain a financial statement and its components?
16. How do you manage and analyze large amounts of financial data?
17. Indian M&A transactions recently. What drove that transaction, and why?
18. How do you handle financial conflicts or disagreements within a team?
19. Can you give an example of how you have improved financial performance in a previous role?
20. What do you understand by Leverage? What are the different types of Leverage a firm has?
21. What do you understand by Debt-Equity ratio? Is a higher debt-equity ratio beneficial to a company?
22. What was the RBI's reasoning for delaying rate cuts even though the United States went ahead with it?
23. What is the Difference between Fintech and Banks?
24. What is the difference between NBFCs and Banks?
25. Will Artificial Intelligence (AI) have a positive or negative impact in the Finance sector?



भारतीय प्रबंध संस्थान शिलांग
Indian Institute of Management Shillong

MARKETING

MARKATHON

The Marketing Club



The "father of modern marketing," Philip Kotler, defines marketing as "**the science and art of exploring, creating, and delivering value to satisfy the needs of a target market profitably.**" Marketing, in other words, is the process of identifying, anticipating, and satisfying customer needs and desires through creating and promoting a product or service.

Marketing is a dynamic and ever-changing field that includes various activities such as market research, product development, branding, advertising, and sales. It necessitates a thorough knowledge of consumer behaviour, market trends, and the competitive landscape. It also entails utilizing various tools and techniques such as market segmentation, positioning, targeting, and differentiation to reach and engage target audiences effectively.

Marketing is critical for businesses of all sizes and industries because it allows them to understand and meet their customer's needs, build relationships, and create long-term loyalty. It is a critical driver of business growth and success, and its significance will only grow as the digital age transforms how we interact with customers and markets.

MARKETING OVER THE YEARS

- **Production Orientation Era (1800s-1920s):** This era highlighted a tunneled focus on mass production. Companies thought that customers are willing to pay for products that are cheap and readily available. Thus, business efforts were primarily geared toward increasing the quantity rather than the quality of the output. Manufacturers followed the principle of mass production to lower costs and more sales. When it comes to marketing, businesses focused their efforts on promoting low prices and beating their competitors.
- **Sales Orientation Era (1920s-1940s):** As more companies join the field, the sales tactics become even more competitive. Generally, mass-produced products were already the norm. Back then, companies cared more about sales volume rather than customer satisfaction. This ushered an idea that consumers will want to buy a company's products if they are enticed through eye-catching sales promotions. The Sales Orientation was an era when companies heavily rely on marketing promotions to sell products that companies made.
- **Marketing Orientation Era (1940s-1970s):** It was around the 1940s when industries realized that focusing only on their business needs often leaves customers unsatisfied. At this stage, businesses' marketing tactics include identifying what customers need and effectively customizing activities that address these needs. Hence, the marketing concept was born. It revolves around the idea that reaching the business goals relies on understanding the needs of target customers first. Additionally, it concerns providing them with the desired satisfaction than its competitors.



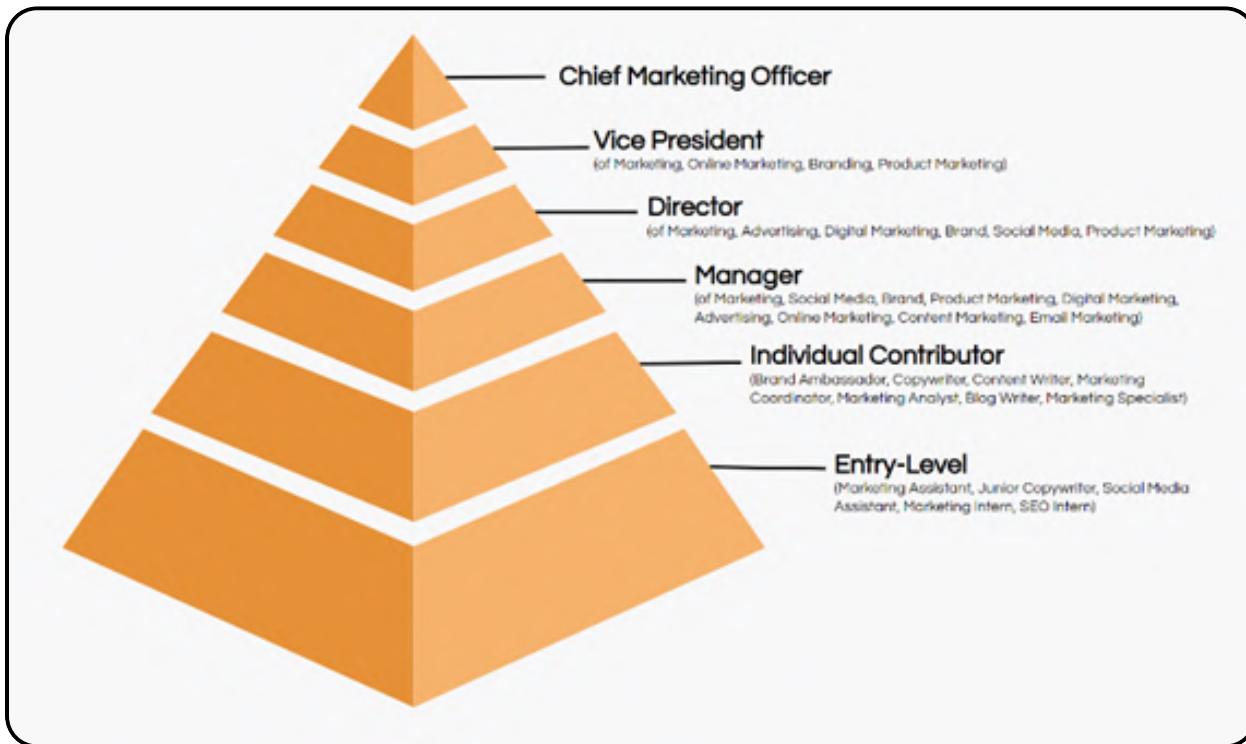
- **Societal Orientation (1970s-Present):** In this era, a marketing theory called societal marketing came into existence. It's a concept that emphasizes an organization's responsibility to develop strategies that positively impact the consumers' well-being and the environment. It stemmed from a conflict of interest between satisfying the customers' short-term needs with society's long-term welfare. During this phase, companies shifted their goals to provide a better-quality lifestyle while ensuring that the environment is not polluted. They don't just create high-quality products; they were environmentally friendly, too.
- **Digital marketing (1990s-Present):** Digital marketing opened the doors of opportunities for better traffic and exposure for products or services. From the early 90s to today, almost half of the world's population is online. Businesses' have since then moved on to digital platforms to effectively reach their target market.

CAREER OPPORTUNITIES

Marketers are responsible for planning, creating, and executing marketing campaigns to increase their company's reach and potential customer pipeline. The marketing industry in India offers various job prospects, including brand management, market research, digital marketing, advertising, and sales positions.

- Brand management entails creating and implementing marketing strategies for a particular product or brand.
- Market research involves collecting consumer preferences and behavior data to create effective strategies.
- Digital marketing involves using digital tools and strategies to attract and engage customers, including search engine optimization (SEO), pay-per-click (PPC) advertising, social media marketing, content marketing, email marketing, and others.
- Professionals in business development and sales are accountable for promoting and selling products or services to customers. Sales professionals are responsible for cultivating client connections, identifying new business prospects, negotiating deals in various industries, and managing and creating sales strategies.
- Advertising professionals are responsible for ad campaign management which involves copywriting, creating visual concepts, coordinating with media outlets, and identifying the best media channels for reaching target audiences.

KEY ROLES OFFERED IN SALES AND MARKETING:



MARKETING - KEY TERMS

- 4Ps versus 7Ps of Marketing
- Philip Kotler
- Sales
- Marketing versus Sales
- Marketing versus Advertising
- Consumer
- Consumer versus Customer
- Favourite Advertisement and why
- Favourite Brand and why
- CGI in marketing as a recent trend
- Guerrilla Marketing
- Digital Marketing and the strategies it encompasses
- TP Branding
- B2B versus B2C Marketing basics
- D2C Marketing
- Word-of-mouth Marketing
- Buyer Persona CTR (Click-through rate)
- Ansoff Matrix Conversion Rate CRM (Customer Relationship Management)
- SEO User Experience (UX)
- Examples of famous brands and their parent companies
- Differentiation Price discrimination PoD versus PoP



MARKETING TERMINOLOGIES

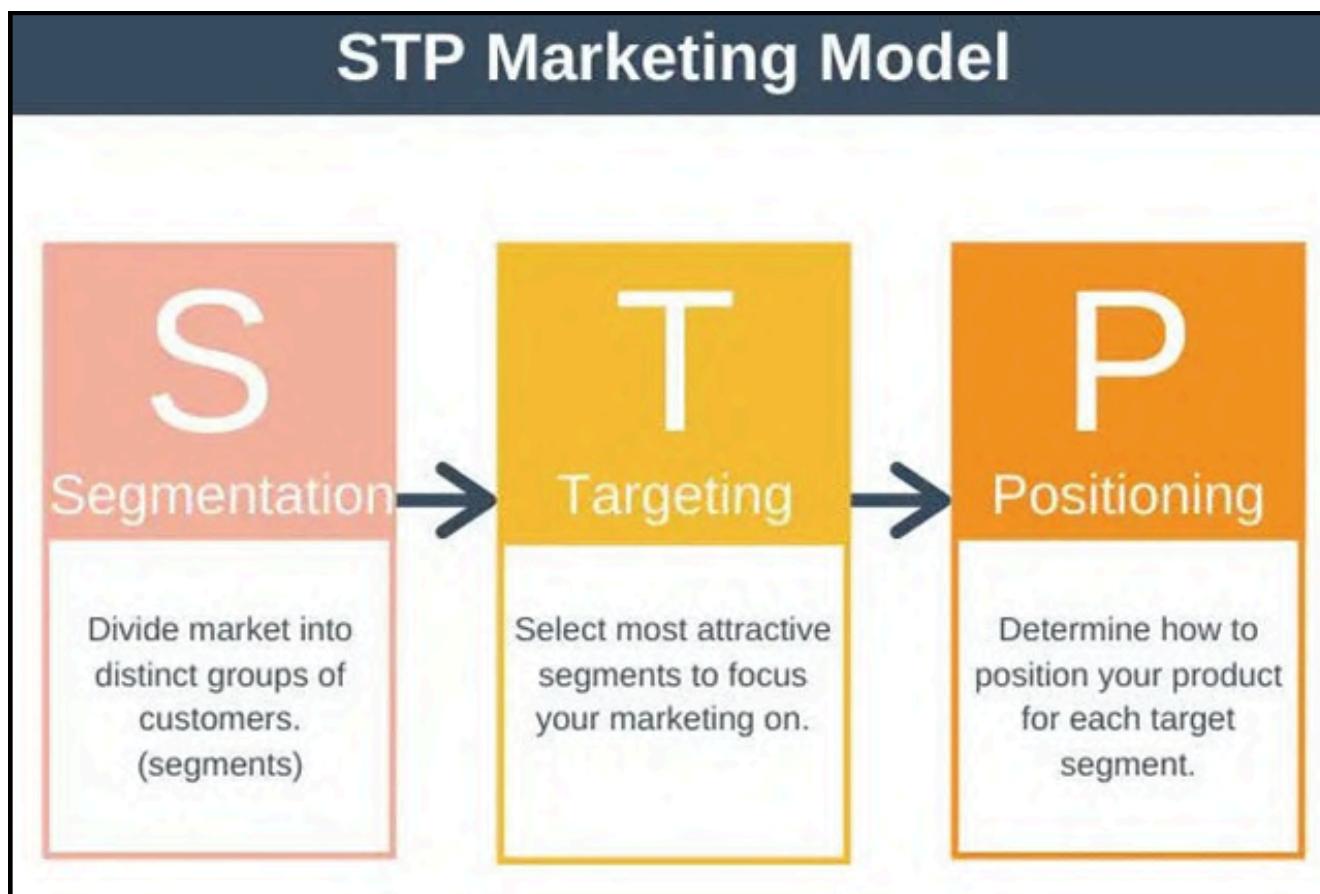
- **Needs:** These are basic requirements of people that arise due to a state of deprivation. They pre-exist in the market, waiting to be tapped by marketers and converted into the form of a product or service. Example: Need for food and transportation. Also, read about 'Maslow's Need Hierarchy' Theory.
- **Wants:** These refer to preferences or desires for a '**specific satisfier**' to fulfil a need. Marketers' role is to influence these wants in favor of their own brand. Example: Starbucks Coffee and Mercedes Car. (*Contd. reference*)
- **Demand:** In simple terms, demand is a consumer's want for a product or service backed by their ability to buy the same. It refers to the quantity customers are willing to buy, backed by purchasing power. Marketers utilize this information to make strategic product development, pricing, and distribution decisions. Example: So, even if you want to purchase a premium coffee brand or a luxurious mode of transportation, your actual demand may be Nescafe or local coffee shops, Volvo Cars (affordable).
- **Consumer VS Customer:** In marketing, a customer is a person or organization that buys a product or service from a business. A consumer is a person who ultimately uses or consumes the product or service. While the terms are often used interchangeably, the differentiation in their usage lies in transaction and consumption. A mother buys baby food for her son. The mother is a customer here, whereas the son is the consumer. The two entities may be the same person in some instances. This distinct connotation helps firms target their marketing efforts accordingly.
- **Upselling:** A sales technique in which a business encourages customers to purchase a more expensive product or upgrade their current purchase. It is a way for companies to increase revenue by offering additional, higher-value products or services to customers who have already expressed interest in purchasing.
- **Cross-Selling:** A sales strategy where a business attempts to sell additional products or services to an existing customer to increase the value of their buying basket. This can be achieved by offering complementary products or services or creating bundled packages. For example, a clothing store might use cross-selling to encourage customers to purchase matching accessories or shoes along with their chosen clothing.
- **Above-the-line (ATL):** Marketing It may also be known as '**mass marketing**' and refers to traditional advertising forms that reach a wider audience. It is often used to build brand awareness, create a general interest in a product or service, or establish a company's reputation. Examples: television, radio, newspapers, and billboards.
- **Below-the-line (BTL):** Marketing It refers to activities targeted directly at a specific audience and is often used to build brand awareness and generate leads. Examples: Direct mail, sampling, product demonstrations, word-of-mouth, and others.



- **Through-the-line (TTL) Marketing:** It utilizes a combination of both ATL and BTL tactics to reach consumers at different touchpoints and create a cohesive brand experience. This approach allows for a more integrated and efficient use of resources and the ability to track and measure the effectiveness of different campaigns.
- **Inbound Outbound Sales:** Inbound sales is a strategy where a company attracts customers through various marketing efforts, such as content marketing, search engine optimization, and social media. On the other hand, outbound sales is a strategy where a company actively reaches out to potential customers through various channels, such as cold calling, emailing or direct mail. In short, Inbound sales is a pull strategy where the customer is coming to you. Outbound is a push strategy where the salesperson proactively reaches out to the customer.
- **Dark Stores:** These, also known as "**dark retail**" or "**dark fulfilment centers**," are physical retail stores that are closed to the public but are used solely for online order fulfilment and delivery. They are typically located in areas with high population density and are used to speed up delivery times, reduce costs, and increase the efficiency of online order fulfilment.
- **Marketing Myopia:** It is a term coined by Theodore Levitt in 1960 in which he argues that companies will do better in the long run if they concentrate on meeting customers' needs rather than just selling products. It refers to a narrow or short-sighted perspective on business wherein a company loses sight of the needs of its customers against short-term sales or immediate profits. For example, PVR should perceive itself as in the "**entertainment business**" rather than just in "**movies**".
- **Top-Of-Mind Awareness (TOMA):** It measures how easily a brand or product comes to mind when consumers are asked to recall brands or products in each category. It is a key metric in marketing and advertising, reflecting a strong correlation with brand loyalty.
- **Integrated Marketing Communication (IMC):** The American Marketing Association defines IMC as "**a planning process designed to assure that all brand contacts received by a customer or prospect for a product, service, or organization are relevant to that person and consistent over time.**"
- **Touchpoints:** These refer to the various points of interaction that a customer encounters with the company.
- **Call to action (CTA):** It describes a specific action or behavior that an audience or consumer desires. It is typically used in advertising and marketing materials, such as website pages, email campaigns, and social media posts, to encourage a viewer or reader to take a specific action, such as making a purchase, signing up for a newsletter, or visiting a website. Examples of CTA are "**Sign up now**", "**Learn more**", "**Download here**," and so on.
- **Go-To-Market (GTM):** It refers to the strategy and plan for introducing a new product or service to the market and making it successful. It includes the analysis of target customers, product positioning, channels through which the product will be sold, and a relevant promotion plan.

- **Customer Relationship Management (CRM):** It is a strategy and set of processes used to manage interactions with current and potential customers. It involves using technology to organize, automate, and synchronize sales, marketing, customer service, and technical support.
- **Unique selling proposition (USP):** It is a statement that defines the unique benefit or advantage that a company's product or service offers to its customers. A USP can be a specific product feature, a benefit it provides, or a unique aspect of the company's approach to doing business.
- **Anchoring:** It refers to the psychological technique of providing a reference point for consumers to compare the value of a product or service. It is used to influence the perceived value of an item by providing a benchmark or comparison point. For example, a store might offer a \$50 item for \$25, but only for a limited time, to create a sense of urgency and make the deal seem more valuable.
- **Behavioral economics:** It is a field of study combining psychology and economics insights to understand how and why people make decisions. It examines how cognitive biases and emotions influence decision-making, often leading to outcomes that deviate from the predictions of traditional economic models.

IMPORTANT CONCEPTS OF MARKETING:



Segmentation, Targeting and Positioning:

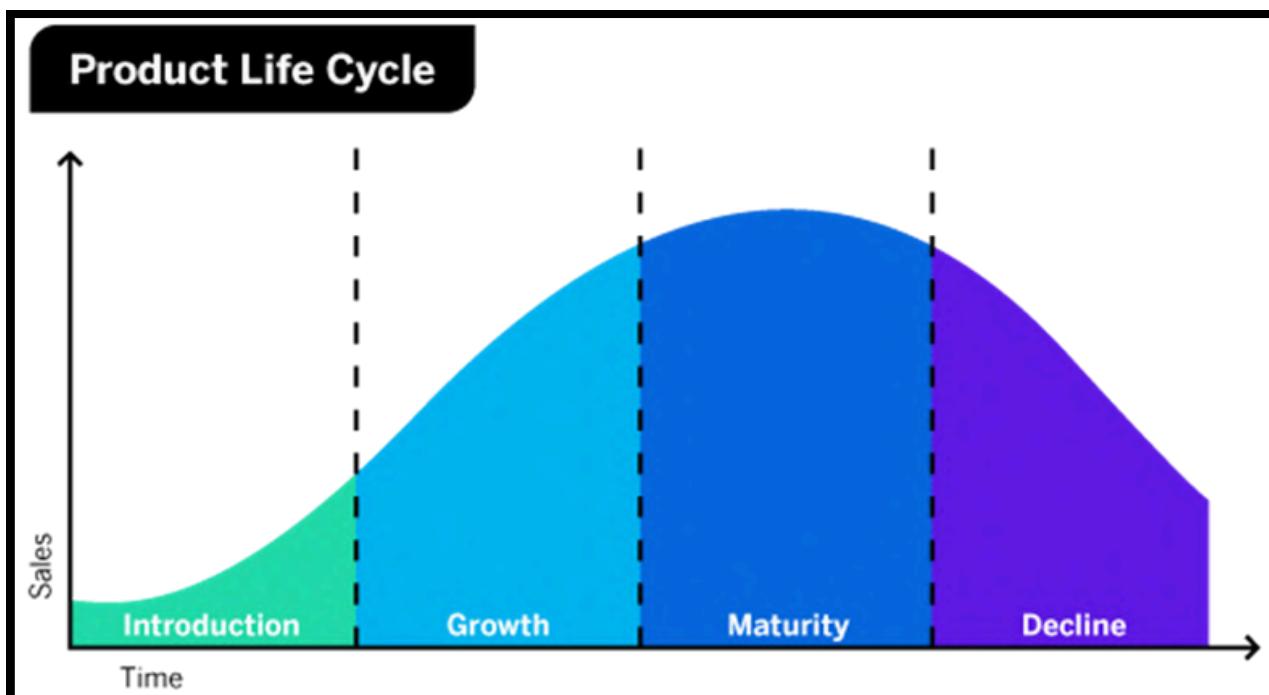
Segmentation	Targeting	Positioning
<p>This involves dividing the market into segments. This can be based upon various criteria upon which we can classify groups of people who can buy the product. E.g., Market for cars can be classified income wise, i.e., a group of people who can afford a 1 lakh car, some people can afford a 5-lakh car and some 20 lakhs and so on.</p>	<p>This involves deciding which group of the market we are targeting, i.e., for whom are we creating this product/service?</p>	<p>This involves positioning the product/service based on the target market. So, with the positioning per a target segment, the product will attract that set of customers.</p>

MARKETING MIX:



7Ps OF MARKETING:

- **Product** — This signifies the product or the service the company is bringing to the market, its key features, its USP's (Unique Selling propositions).
- **Place** — This signifies the placement of the product/service. It includes where the product will be visible to the consumers and where they can buy it.
- **Price** — This signifies the pricing strategy of the product. It includes at what price point the product/service will be sold to the target segment.
- **Promotion** — This involves the strategy with which the company will attract customers and promote its product in various media (print, TV, social).
- **People** — The '**people**' element of the 7Ps involves anyone directly, or indirectly, involved in the business-side of the enterprise. People who are involved in selling a product or service, designing it, managing teams, representing customers etc.
- **Process** — This includes the delivery of your service in front of the customer. It basically talks about the 'ease of doing business' and repeatedly delivering the same standard of service.
- **Physical Evidence** — Physical evidence often takes two forms: evidence that a service or purchase took place and proof or confirmation of the existence of your brand. Physical evidence brings a brand to the forefront of the game, and set it apart from your competitors by showing you as professional, authentic and informed.



PRODUCT LIFE CYCLE:

	Introduction	Growth	Maturity	Decline
Sales	Low	Rapidly Rising	Peak	Declining Sales
Market Growth	High	High	Low	Low
Profits	Negative	Rising	High	Declining
Customers	Innovators	Early Adopters	Middle Majority	Laggards
Competitors	Few	Increasing	Stable	Declining
Strategy	Gain Market Share	Increased Promotions	Economies of Scale	Harvest or Divest
Management	Entrepreneurial	Professional	Administrative	Asset Stripper

5 C's analysis provides an in-depth look at the key drivers affecting your organization. It also assists you in making informed decisions about reaching your target audience or outperforming your competitors.

- **Company:** Focus on many of the internal factors related to the marketing and sales of your products, long-term objectives, and strategies to gain a competitive edge.
- **Customers:** People who buy your products or interact with your services and form your target audience.
- **Competitors:** The climate, or context, section concentrates on external factors that aren't controlled by your business.
- **Collaborators:** Every individual or organization that works to create, produce, promote or sell your products or services
- **Climate:** The climate, or context, section concentrates on external factors that aren't controlled by your business.



Customer Life Cycle - CLC:

A customer journey represents the overall path an individual takes from awareness to consideration and conversion. It describes the progression of steps a customer goes through when researching, considering, purchasing, using, and remaining loyal to a product or service.





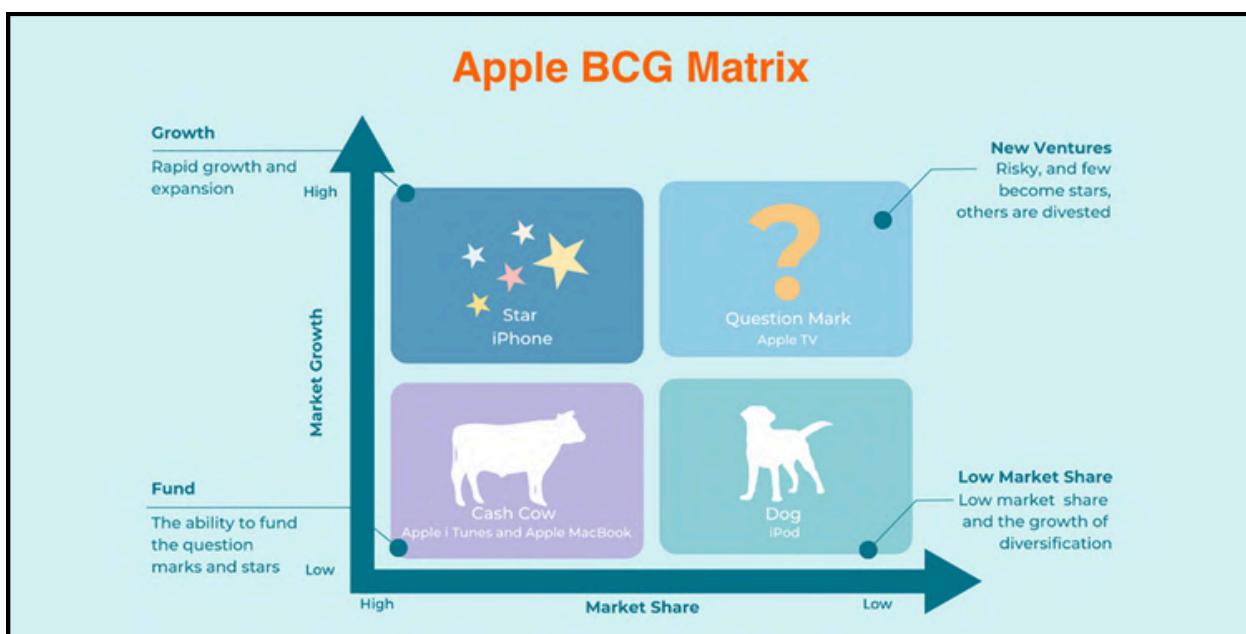
BCG MATRIX:

The growth share matrix was built on the logic that market leadership results in sustainable superior returns. Ultimately, the market leader obtains a self-reinforcing cost advantage that competitors find difficult to replicate. These high growth rates then signal which markets have the most growth potential.

The matrix reveals two factors that companies should consider when deciding where to invest— company competitiveness, and market attractiveness—with relative market share and growth rate as the underlying drivers of these factors.

Each of the four quadrants represents a specific combination of relative market share, and growth:

- Low Growth, High Share. Companies should milk these “cash cows” for cash to reinvest.
- High Growth, High Share. Companies should significantly invest in these “stars” as they have high future potential.
- High Growth, Low Share. Companies should invest in or discard these “question marks,” depending on their chances of becoming stars.
- Low Share, Low Growth. Companies should liquidate, divest, or reposition these “pets.”



PUSH VS PULL MARKET:

Content Marketing Distribution: Pull vs Push

Categories	Pull Marketing	Push Marketing
Social Media	Posts	Advertising
Email	Content	Promotional blast Advertising List Rental
Search	Organic	Paid
Referral Marketing	WOM including social shares	N/A
Rating and Reviews	Ratings and Review Sites	N/A
Product	Product Use (including logos & shopping bags)	Location signage & Flyers Product Endorsements
Content Curation	Showcase content in a contextually relevant way	N/A
Guest Posts	Content articles	Advertisorial (Paid Promotion)
Co-creations	Roundup posts Interviews	Influencer Programs
Live Events	Demonstrations Meetings	Conference Presentations Sponsorships etc.
Other	N/A	Advertising on non-Social Media Non-Search platforms

ANSOFF MATRIX:

Ansoff Matrix is a model useful for companies looking for expansion. The Ansoff Matrix provides a route for the expansion using product and market as parameters.



If the company chooses to move ahead with the same product portfolio within the same market, it is seen to take the route of Market Penetration. In such a situation, the role of extensive promotional strategies and product rebranding becomes critical.

The route of Product development is taken when the company wants to launch new product categories into the existing market.

Similarly, when the company chooses to expand into newer markets with the same product portfolio, it is taking the route of Market Development.

When the company chooses to introduce new products in new markets, it is called Diversification and this, of all options is the riskiest and the costliest one.

PORTER'S FIVE FORCES:

Porter's Five Forces is a model that identifies and analyses five competitive forces that shape every industry and helps determine an industry's weaknesses and strengths.

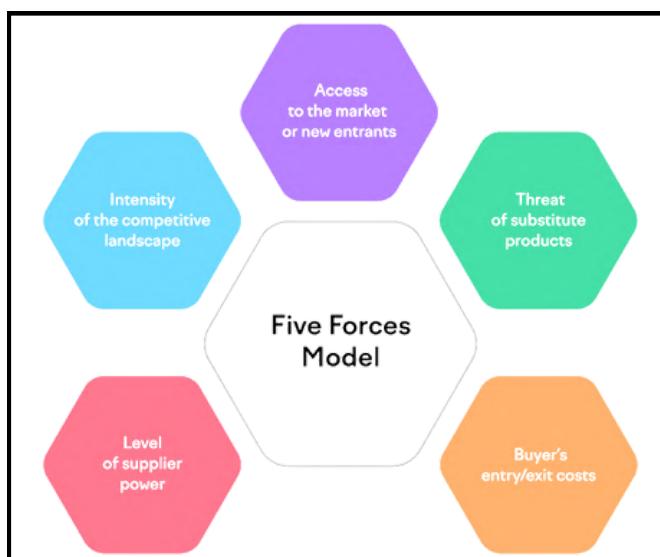
Five Forces analysis is frequently used to identify an industry's structure to determine corporate strategy.

Porter's model can be applied to any segment of the economy to understand the level of competition within the industry and enhance a company's long-term profitability.

The Five Forces model is named after Harvard Business School professor, Michael E. Porter.

Porter's 5 forces are:

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

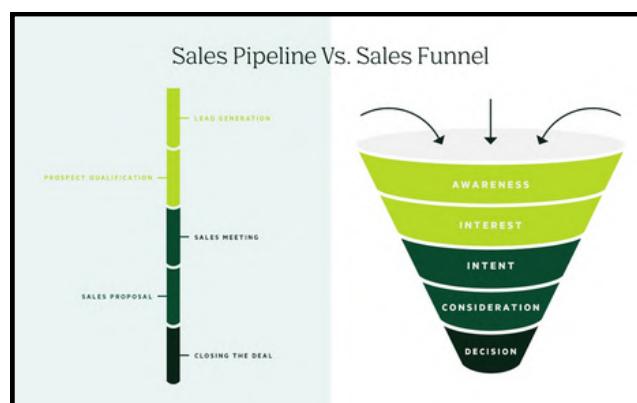


Marketing Strategies

- **Competition in the Industry:** The first of the Five Forces refers to the number of competitors and their ability to undercut a company. The larger the number of competitors, along with the number of equivalent products and services they offer, the lesser the power of a company.
- **Potential of New Entrants Into an Industry:** A company's power is also affected by the force of new entrants into its market. The less time and money it costs for a competitor to enter a company's market and be an effective competitor, the more an established company's position could be significantly weakened.
- **Power of Suppliers:** The next factor in the Porter model addresses how easily suppliers can drive up the cost of inputs. It is affected by the number of suppliers of key inputs of a good or service, how unique these inputs are, and how much it would cost a company to switch to another supplier. The fewer suppliers to an industry, the more a company would depend on a supplier.
- **Power of Customers:** The ability that customers have to drive prices lower or their level of power is one of the Five Forces. It is affected by how many buyers or customers a company has, how significant each customer is, and how much it would cost a company to find new customers or markets for its output.
- **Threat of Substitutes:** The last of the Five Forces focuses on substitutes. Substitute goods or services that can be used in place of a company's products or services pose a threat. Companies that produce goods or services for which there are no close substitutes will have more power to increase prices and lock in favourable terms. When close substitutes are available, customers will have the option to forgo buying a company's product, and a company's power can be weakened.

SALES FUNNEL:

A sales funnel works to turn visitors into leads and leads into customers. Basically, it is derived from critical consideration of various important touchpoints of CLC. It illustrates the idea that every sale begins with many potential customers and ends with a much smaller number of people who make a purchase. Hence, every business must carefully design a strategy for each funnel stage to retain as many people as possible.





AIDA MODEL

The AIDA Buyer's Journey



DIGITAL MARKETING:

The term digital marketing refers to the use of digital channels to market products and services in order to reach consumers. This type of marketing involves the use of websites, mobile devices, social media, search engines, and other similar channels. Digital marketing became popular with the advent of the internet in the 1990s. Digital marketing involves some of the same principles as traditional marketing and is often considered a new way for companies to approach consumers and understand their behaviour.

Companies often combine traditional and digital marketing techniques in their strategies. But it comes with its own set of challenges, including implicit bias. This form of marketing is different from internet marketing, which is exclusively done on websites.

The following are eight of the most common avenues that companies can take to boost their marketing efforts. Keep in mind that some companies may use multiple channels in their efforts.

Website Marketing: A website is the centrepiece of all digital marketing activities. A website should represent a brand, product, and service in a clear and memorable way.

Pay-Per-Click Advertising: Pay-per-click advertising enables marketers to reach Internet users on a number of digital platforms through paid ads. The most popular platforms are Google Ads and Facebook Ads.

Content Marketing: The goal of content marketing is to reach potential customers through the use of content. The tools of content marketing include blogs, eBooks, online courses, infographics, podcasts, and webinars.

Email Marketing: Email marketing is still one of the most effective digital marketing channels. Many people confuse email marketing with spam email messages, but that's not what email marketing is all about. This type of marketing allows companies to get in touch with potential customers and anyone interested in their brands.

Social Media Marketing: The primary goal of a social media marketing campaign is brand awareness and establishing social trust. As you go deeper into social media marketing, you can use it to get leads or even as a direct marketing or sales channel. Promoted posts and tweets are two examples of social media marketing.

Affiliate Marketing: With affiliate marketing, influencers promote other people's products and get a commission every time a sale is made or a lead is introduced. Many well-known companies like Amazon have affiliate programs that pay out millions of dollars per month to websites that sell their products.

Video Marketing: There are several video marketing platforms, including Facebook Videos, Instagram, and even TikTok to use to run a video marketing campaign. Companies find the most success with video by integrating it with SEO, content marketing, and broader social media marketing campaigns.

SMS Messaging: Companies and non-profit organizations also use SMS or text messages to send information about their latest promotions or give opportunities to willing customers.

SEO (Search Engine Optimization): It is the process of making changes to your website to make it more visible when customers use search engines like Google, Bing, and others to look for products or services related to your business.



SEM (Search Engine Marketing): It is a digital marketing strategy used to increase the visibility of a website in search engine results pages (SERPs). It is also referred to as paid search or pay-per-click (PPC).

SMM (Social Media Marketing): It is the use of social media platforms on which users build social networks and share information. It aims to build a company's brand, increase sales, and drive website traffic.

Bounce Rate: Bounce Rate is the percentage of visitors that leave a webpage without taking action, such as clicking on a link, filling out a form, or making a purchase.

Cost per acquisition (CPA): Also known as (CPC) Cost Per Conversion, it is a growth marketing metric that calculates the aggregate cost of a user's conversion producing action. $CPA = \text{Total Advertising Cost} / \text{Total Number of Conversions}$.

Click-Through Rate (CTR): It is used to gauge how well your keywords and ads, and free listings, are performing. CTR is the number of clicks your ad receives divided by the number of times your ad is shown clicks/impressions = CTR.

Lifetime value (LTV): Customer lifetime value is the total worth of a customer to a business over the whole relationship period.

Net Promoter Score (NPS): NPS stands for Net Promoter Score. It's a customer satisfaction benchmark that measures how likely your customers are to recommend your business.

A/B Testing: A/B testing is a marketing strategy that pits two different versions of a website, landing page, advert, email, and popup, against each other to see which is most effective. Example: testing two different Google ads to see which drives more responses.

Conversion Rate: Conversion rates are mainly used in digital marketing to evaluate performance of website traffic, marketing campaigns and conversions. To calculate a conversion rate, the number of conversions is divided by the total number of visitors on the website/ad.

Sustainable Marketing: It is an approach to marketing that considers the environmental and social impact of a company's products or services. It considers the needs of both the present and future generations. Some other strategies that contribute to similar ideologies are:

Cause Marketing: It is a marketing method wherein businesses align themselves with social issues or beliefs that are important to them and design a campaign accordingly. Brands use this strategy to bring awareness to a cause and show social responsibility. For example, Myntra's 2019 Fashion Upgrade campaign in collaboration with Goonj

Social Marketing: It is an approach used to develop activities and campaigns aimed at changing or maintaining people's behaviour for the benefit of individuals and society as a whole, i.e., the "common good". For example, health hazard labels on cigarette packets(anti-smoking), recycling of cans/bottles (Coca-Cola), accessible services for the disabled (McDonald's), or advocacy against gender discrimination (Hero).

DEMARKETING: It is a process in which a company develops strategies to reduce the demand for a product. While traditional marketing often encourages customers to purchase more products, demarketing aims to limit a product's reach due to a shortage in supply, minimize harm to people, or maintain exclusivity. Examples: Patagonia's "Don't buy this jacket" campaign and Amazon Prime's Diwali commercial that encouraged people against binge-watching their favourite shows and instead spending time with their family and loved ones.

BRIEF CASE STUDY FEATURING MARKETING CAMPAIGNS

1. Burger King's "Whopper Detour" (2018)

Burger King launched a geofencing campaign offering a Whopper for just \$0.01, but customers had to order it through their app near a McDonald's location. This clever tactic boosted app downloads by 1.5 million and reinforced Burger King's cheeky, competitive branding while showcasing the power of location-based marketing.

2. Old Spice's "The Man Your Man Could Smell Like" (2010)

Old Spice transformed its image with this humorous campaign targeting women buying products for their partners. The witty ads, featuring Isaiah Mustafa, went viral, generating over 105 million YouTube views in days and boosting sales by 125%, making Old Spice a household name among younger audiences.

3. ALS Association's "Ice Bucket Challenge" (2014)

The ALS Ice Bucket Challenge invited participants to dump ice water on themselves or donate to ALS research. It went viral globally, involving celebrities and raising \$115 million for the ALS Association. The campaign's organic spread highlighted the power of user-generated content for a cause.

4. Coca-Cola's "Happiness Machine" (2010)

In this guerrilla campaign, Coca-Cola placed vending machines dispensing surprises like flowers and pizzas on college campuses. Capturing genuine reactions, the campaign's viral videos showcased Coca-Cola as a brand spreading joy, garnering millions of views and reinforcing its emotional connection with consumers.

5. IKEA's "Bookbook" Ad (2014)

To promote its print catalog, IKEA humorously parodied tech product launches in its "Bookbook" ad. Showcasing the catalog as a high-tech innovation (despite being a book), the campaign amassed over 18 million YouTube views, cleverly blending humor with brand positioning.

6. Red Bull's "Stratos" Project (2012)

Red Bull sponsored Felix Baumgartner's record-breaking space jump from 128,000 feet. The event, watched live by 8 million viewers, perfectly aligned with Red Bull's extreme sports branding. It became one of the most talked-about campaigns, elevating the brand's global appeal.

7. Tiffany & Co.'s "Will You?" Campaign (2015)

This campaign, featuring a same-sex couple in its engagement ads, was a bold move for Tiffany & Co. It celebrated modern love and inclusivity, resonating with younger, progressive audiences, and earned widespread acclaim for its progressive stance.

8. Google's "Year in Search" (Ongoing)

Google's annual "Year in Search" videos highlight global searches, reflecting significant cultural moments. Emotional and data-driven, these campaigns connect deeply with audiences, showcasing Google as more than a search engine but a recorder of humanity's shared experiences.

9. Zomato's Billboards (2019)

Zomato used quirky, relatable one-liners on billboards across India, like "Order something that feels like a hug." The humor resonated with millennial audiences, making the campaign viral and reinforcing Zomato's brand identity as approachable and fun.

STP (Segmentation, Targeting, Positioning):

- **Segmentation:**

- Demographic: Age groups (kids, adults, seniors), income levels, health-conscious individuals.
- Psychographic: Health and wellness enthusiasts, taste-driven customers, convenience seekers.
- Behavioral: Frequency of consumption (daily or occasional), brand loyalty, purchase patterns.
- Geographic: Urban and rural areas worldwide, with a focus on emerging markets.

- **Targeting:**

- Urban families, health-conscious consumers, and children in both developed and developing markets.

- **Positioning:**

- "Good food, Good life" – Delivering nutritious, tasty, and high-quality food products for every stage of life.



Marketing Mix (7Ps):

- **Product:**
 - Wide range: Infant nutrition (Cerelac), dairy products (Milkmaid), beverages (Nescafé), confectionery (KitKat), culinary products (Maggi).
- **Price:**
 - Competitive pricing strategy for mass appeal.
 - Premium pricing for specialized products (e.g., Nespresso).
- **Place:**
 - Extensive distribution network including urban supermarkets, rural stores, and online platforms.
- **Promotion:**
 - TV ads (Maggi: "2-Minute Noodles"), social media campaigns and health awareness initiatives.
- **People:**
 - Skilled R&D teams and customer service teams ensuring customer satisfaction.
- **Process:**
 - Efficient supply chain management, sustainability practices, and quick product delivery.
- **Physical Evidence:**
 - Distinctive packaging, in-store branding, and product certifications

Product Life Cycle:

- **Introduction:** Plant-based products like Nestlé Harvest Gourmet.
- **Growth:** Maggi's increasing penetration in rural markets.
- **Maturity:** Flagship products like Nescafé and KitKat with consistent demand.
- **Decline:** Older SKUs phased out in favor of healthier alternatives.

5Cs (Company, Customers, Collaborators, Competitors, Context):

1. **Company:**
 - Focused on innovation, sustainability, and customer-centric approaches.
2. **Customers:**
 - Families, working professionals, and health-conscious consumers globally.
3. **Collaborators:**
 - Retailers, e-commerce platforms, farmers, and logistic partners.
4. **Competitors:**
 - Unilever, ITC, Mondelez International, PepsiCo.
5. **Context:**
 - Rising demand for health-conscious products, regulatory compliance, and economic fluctuations.



Customer Life Cycle:

1. Awareness:

- Advertising campaigns and promotional activities.

2. Consideration:

- Product trials, recipe ideas (e.g., Maggi recipes).

3. Purchase:

- Available at competitive prices in stores and online.

4. Retention:

- Loyalty programs, new product launches, and sustained engagement through social media.

5. Advocacy:

- Encouraging reviews and word-of-mouth promotion.

BCG Matrix:

1. Stars:

- Maggi, Nescafé (High growth, high market share).

2. Cash Cows:

- KitKat, Nestlé Milk (High market share, low growth).

3. Question Marks:

- Plant-based products (Low market share, high growth).

4. Dogs:

- Aging product lines phased out.

Pull vs. Push Strategy:

• Pull:

- Advertising campaigns, influencer marketing, customer loyalty programs to create demand.

• Push:

- Retail promotions, bulk deals to retailers, incentives for distributors to stock Nestlé products.

Ansoff Matrix:

1. Market Penetration:

- Promoting Maggi through affordable pack sizes for rural markets.

2. Market Development:

- Expanding Nescafé to new geographies.

3. Product Development:

- Introducing sugar-free KitKat and plant-based products.

4. Diversification:

- Entry into health-tech or fitness products.



Porter's Five Forces:

1. Threat of New Entrants:

- Moderate: High entry costs, but niche brands pose threats.

2. Bargaining Power of Suppliers:

- Low: Nestlé has strong supplier relationships.

3. Bargaining Power of Customers:

- Moderate: Numerous alternatives available.

4. Threat of Substitutes:

- High: Local competitors and private-label products.

5. Industry Rivalry:

- Intense: Competing with ITC, Unilever, and PepsiCo.

Sales Funnel:

1. Awareness:

- Advertising campaigns across TV, digital, and print.

2. Interest:

- Product sampling, content marketing (e.g., recipes, health tips).

3. Desire:

- Highlighting unique selling points like taste and health benefits.

4. Action:

- Discounts, offers, and seamless purchase options.

AIDA Model:

Attention:

- Vibrant advertisements and innovative product packaging.

Interest:

- Highlighting health benefits and product versatility.

Desire:

- Testimonials, celebrity endorsements, and real-time reviews.

Action:

- Discounts, online purchasing, and subscription options.



COMMONLY ASKED QUESTIONS (CAQs)

1. What do you think are the essential skills for a career in marketing?
2. What do you mean by a target market?
3. How has COVID affected the marketing industry?
4. Tell us about a company who you feel is not doing marketing up to their desired level?
5. What can you, as a future manager suggest to them?
6. How different is digital marketing in comparison to traditional marketing?
7. Take a discontinued product like Cadbury Bytes, and describe how you will market it today?
8. What do you mean by inbound marketing?
9. What is the use of numbers and analytics in a field like marketing?
10. You have 2 products: toothpaste (short sales cycle) and furniture (long sales cycle). How will you sell them and what differences exist in each of these cases?
11. What is the future of marketing, given rapid developments in the tech space?
12. As a marketing graduate, you may initially work as an ASM. Do you think you possess what the role entails?
13. Why are you interested in a career in marketing?
14. Describe how your competencies are suitable for Marketing.
15. What is the difference between customer and consumer?
16. What is the difference between need, demand, and want?
17. What is the difference between B2B, B2C and D2C Marketing?
18. What are some Sales Promotion techniques?
19. How do you stay up to date with general marketing knowledge and trends?
20. Which is your favourite advertisement or brand campaign, and why?
21. How do you measure a successful campaign?
22. Can you name a company that failed in its marketing strategy?
23. Can you name a product that failed and if you were to launch it now, how would you do it?
24. Tell us about a recent marketing controversy.
25. Are you aware of the rules set up by the Government for influencer marketing?
26. How do you envision Metaverse evolving brand marketing strategies in the future?
27. Which brands have recently created a presence in the Metaverse in any manner?
28. If you were to setup your brand in Metaverse, how would you do it?
29. Name five essential elements of a marketing campaign
30. What is the difference between Online Marketing and Digital Marketing?
31. How do you think Social Media Marketing is shaping business?



- What is branding and brand management according to you?
- What are your thoughts about CRM?
- Design a 'GTM - Go to Market' strategy for a new startup in the sustainable fashion industry.
- Name a few outstanding marketers in the business.
- Can you name 5 IndianCMOs?
- What is your take on the role of 'Ethics' in Marketing?
- Are you aware of the ASCI Code?
- Do you think Generative AI can replace the role of marketers?
- Which brands do you dislike and why?
- What is Customer Value Proposition (CVP)?
- Prepare questions related to your work experience in the marketing domain.
- Are you aware of the ASCI Code?
- Do you think Generative AI can replace the role of marketers?
- Which brands do you dislike and why?
- What is Customer Value Proposition (CVP)?
- Prepare questions related to your work experience in the marketing domain.

GENERAL TIPS

- Try to show why are you really interested in the domain/course.
- Try to relate concepts to any of your professional or personal experience.
- Focus on the current marketing trends that will be relevant in the future.

EXTRA SOURCES

- https://www.instagram.com/madovermarketing_mom/
- <https://www.instagram.com/marketingmind.in/>
- <https://www.youtube.com/user/coldfusion>
- <https://www.ipay88.com/5-best-market-challenger-strategies-that-you-need-to-know/>



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ECONOMICS

Ekonनीति
The Economics and Public Policy Club





INTRODUCTION TO MICROECONOMICS

Microeconomics is a branch of economics that studies the behaviour and decision-making processes of individual agents, such as consumers, firms, and markets. It examines how these entities allocate scarce resources to meet their needs and desires. After the interactions are analysed between the buyers and sellers in various markets, microeconomics provides us with a framework to understand the dynamics of how price formation takes place.

Definition and Scope

Microeconomics delves into specific aspects of the economy at a smaller scale than macroeconomics, which focuses on the economy.

It investigates questions like:

- How do consumers decide what to buy?
- How do firms determine the prices of their goods and services?
- How do resources flow within a market?

Importance of Microeconomics

Microeconomics plays a crucial role in various aspects of decision-making:

- 1. For Businesses:** Firms use microeconomic principles to determine optimal pricing strategies, production levels, and resource allocation. For example, understanding consumer demand helps companies design products that meet market needs.
- 2. For Governments:** Policymakers rely on microeconomics to craft regulations, taxation policies, and subsidies. By analysing market inefficiencies, they can address issues like monopolies or environmental concerns.
- 3. For Individuals:** Consumers make choices about spending and saving based on the principles of microeconomics, balancing their budgets while maximizing satisfaction.

DEMAND AND SUPPLY

Demand

Definition: Demand represents the quantity of a good or service that consumers are willing and able to purchase at different price levels, during a specific period.

Law of Demand

The Law of Demand states that there is an inverse relationship between the price of a good and the quantity demanded, keeping all other factors constant (*ceteris paribus*). As prices decrease, demand typically increases, and vice versa.



Determinants of Demand

1. **Price of the Good:** The primary factor influencing demand. Lower are the prices more will be the demand for that product.
2. **Income of Consumers:** Higher income increases purchasing power, & therefore raising demand for normal goods while reducing demand for inferior goods.
3. **Tastes and Preferences:** Shifts in consumer preferences directly impact demand.
4. **Prices of Related Goods:** Demand is affected by substitutes (goods that can replace each other) and complements (goods consumed together).
5. **Expectations:** If consumers expect prices to rise in the future, then the current demand may increase.

Supply

Definition: Supply refers to the quantity of a good or service that producers are willing and able to offer at different price levels over a specific period.

Law of Supply

The Law of Supply states that there is a direct relationship between the price of a good and the quantity supplied, ceteris paribus (keeping all other things constant). As prices rise, producers are incentivized to supply more of that good.

Determinants of Supply

1. **Cost of Production:** Higher production costs reduces the supply, while lower costs increases it.
2. **Technology:** Advancements in technology can enhance productivity, thereby increasing supply.
3. **Prices of Related Goods:** If a producer can switch to more profitable goods, the supply of the current good may decrease.
4. **Government Policies:** Taxes, subsidies, and regulations significantly influence supply of that good.
5. **Expectations:** If producers expect higher future prices, current supply may decrease.

Market Equilibrium

Market equilibrium is the point at which the quantity demanded equals the quantity supplied, resulting in a stable price for a good or service.

Interaction of Demand and Supply

At equilibrium, the market clears, meaning there is no excess demand or surplus supply. Prices naturally adjust to reach this balance. For example:

- If demand exceeds supply (shortage), prices tend to rise, encouraging producers to supply more and consumers to demand less.
- If supply exceeds demand (surplus), prices tend to fall, prompting producers to reduce supply and consumers to increase demand.



EFFECTS OF SHIFTS

Increase in Demand:	Shifts the demand curve rightward, raising the equilibrium price and quantity.
Decrease in Demand:	Shifts the demand curve leftward, lowering the equilibrium price and quantity.
Increase in Supply	Shifts the supply curve rightward, reducing the equilibrium price but increasing quantity.
Decrease in Supply	Shifts the supply curve leftward, raising the equilibrium price but reducing quantity.

THEORY OF CONSUMER BEHAVIOUR

Understanding consumer behaviour is central to microeconomics, as it explains how individuals make decisions to maximize satisfaction within their budget constraints.

Utility Theory

Total Utility vs. Marginal Utility:

- **Total Utility (TU):** The total satisfaction a consumer derives from consuming a certain quantity of goods or services.
- **Marginal Utility (MU):** The additional satisfaction gained from consuming one more unit of a good or service.

Law of Diminishing Marginal Utility: As more units of a good are consumed, the additional utility derived from each subsequent unit decreases, holding other factors constant.

Indifference Curve Analysis

Indifference Curves:

- Represent combinations of two goods that provide the same level of satisfaction to a consumer.
- Indifference curves are downward sloping and convex to the origin, reflecting diminishing marginal rates of substitution.

Budget Constraints:

- Represent the combinations of goods a consumer can afford given their income and the prices of goods.



Optimal Choice:

- The point where the budget line is tangent to the highest possible indifference curve represents the consumer's optimal choice, maximizing utility.

Consumer Surplus

Definition:

The difference between what a consumer is willing to pay for a good and what they actually pay.

Significance:

- Indicates the economic benefit to consumers in a transaction.
- Helps measure market efficiency and the welfare impact of policy changes.

THEORY OF PRODUCTION AND COSTS

Production Function

Describes the relationship between inputs (labor, capital) and output.

- **Short Run:** Period where at least one input is fixed. Example: A factory with fixed machines but variable labor.
- **Long Run:** Period where all inputs are variable, allowing firms to adjust scale.

Law of Diminishing Returns

In the short run, adding more of a variable input to fixed inputs eventually results in smaller increases in output.

Returns to Scale

Long-run concept where increasing all inputs proportionally leads to:

- **Increasing Returns to Scale:** Output increases by a greater proportion than inputs.
- **Constant Returns to Scale:** Output increases in the same proportion as inputs.
- **Decreasing Returns to Scale:** Output increases by a lesser proportion than inputs.

Costs

- **Fixed Costs:** Do not change with output (e.g., rent).
- **Variable Costs:** Change with output (e.g., raw materials).
- **Total Costs:** Sum of fixed and variable costs.
- **Marginal Costs:** Cost of producing one additional unit.

Short-Run vs. Long-Run Cost Curves

- **Short-run:** Costs with some inputs fixed.
- **Long-run:** Costs with all inputs variable, allowing for optimization.

Economies of Scale

Cost advantages as production scale increases, due to factors like specialization and bulk purchasing.

TYPES OF MARKETS

Market Structure	Nature	Numbers of Firms	Barriers to entry	Examples
Perfect Competition	Homogeneous products, price takers	Very large number	No barriers	Agricultural Markets (wheat, rice, etc.)
Monopolistic Competition	Differentiated products, some price control	Large number	Low barriers	Restaurants, Clothing
Monopoly	Unique product, price maker	One firm	Very high barriers	Indian Railways, Google
Oligopoly	Interdependence, price rigidity	Few large firms	High barriers	Telecom, Automobile

INTRODUCTION TO MACROECONOMICS

Gross Domestic Product (GDP):

GDP measures the total monetary value of all final goods and services produced within a country during a specific period.

GDP serves as a key indicator of economic health, influencing policy decisions and investment.

Two Types of GDP:

Nominal GDP: Calculated at current market prices without accounting for inflation.

Real GDP: Adjusted for inflation, offering a more accurate reflection of economic growth.

Gross Domestic Product (GDP) measures the total economic output of a country and can be calculated using three main approaches:

Production Method, Expenditure Method, and Income Method.

1. PRODUCTION APPROACH (VALUE-ADDED METHOD)

This method calculates GDP by summing the value added at each stage of production across all sectors.

Definition:

Value-added is the difference between the value of goods produced and the cost of intermediate goods used in production.

Formula:

$$\text{GDP} = \text{Gross Output} - \text{Intermediate Consumption}$$



2. EXPENDITURE APPROACH:

This method calculates GDP by summing up all expenditures made in an economy. It reflects the demand side of the economy.

Formula:

$$GDP = C + I + G + (X - M)$$

Where:

- C: Consumption expenditure by households.
- I: Investment expenditure by businesses
- G: Government spending on goods and services.
- (X - M): Net exports (exports minus imports).

3. INCOME APPROACH

This method calculates GDP by summing up all incomes earned in the production process, highlighting the distribution of earnings in an economy.

Formula:

$$GDP = W + R + I + P + T$$

Where:

W: Wages and salaries (labor income).

R: Rent (income from land).

I: Interest (income from capital).

P: Profits (income from entrepreneurship).

T: Taxes minus subsidies.

Inflation- Inflation is defined as the persistent rise in the price level in the economy. The Consumer Price index (CPI) is used to measure inflation.

Consumer Price Index (CPI) - The consumer price index is based on the concept of a basket of goods. It measures the difference in the price level of the weighted average basket of goods and services purchased by the households compared to the base year.

Wholesale Price Index (WPI) - The wholesale price index captures the change in the price level at a wholesale level, i.e., at stages before the retail level. The base year used for computing the WPI in India is 2011-12.



Core Inflation: Core inflation reflects a change in the price of goods and services included in the basket of goods except for food and energy/fuel.

Headline Inflation: The total inflation in an economy, including all goods and services, as measured by indices like CPI or WPI, without excluding volatile items like food and energy.

Demand-Pull vs. Cost-Push Inflation

Demand-Pull Inflation

Occurs when aggregate demand exceeds aggregate supply, causing prices to rise. Key drivers include:

Increased Consumer Spending: Higher wages or tax cuts boost demand for goods.

Government Spending: Infrastructure or welfare programs raise demand.

Low Interest Rates: Encourages borrowing and investment.

Export Growth: Increased foreign demand reduces domestic supply, raising prices.

Impact: Drives economic growth initially, but prolonged demand-pull inflation can overheat the economy, leading to persistent price increases.

Cost-Push Inflation

Arises when production costs rise, forcing businesses to increase prices. Major causes include:

Higher Input Costs: Price hikes in raw materials (e.g., oil, metals) affect production.

Wage Growth: Labor shortages or union demands increase production expenses.

Supply Chain Disruptions: Natural disasters or geopolitical tensions raise costs.

Currency Depreciation: Makes imports more expensive, driving up costs for businesses.

Deflation: Deflation refers to a decrease in the general price level in an economy.

Disinflation: Disinflation refers to an increase in inflation at a decreasing rate.

Recession: Recession refers to a significant decline in a country's economic activity. It is said to occur when a country's GDP declines for at least two consecutive quarters.

Depression: Depression is defined as a sustained long-term decline in the economic activity of a country. The decline in economic activity lasts for several years. The common rule of thumb for depression is a 10 percent decline in the GDP.

Stagflation: Stagflation is defined as an economic situation where economic growth is slow and is accompanied by high unemployment and inflation levels.

Balance of Payments (BoP)

Definition:

The Balance of Payments (BoP) is a systematic record of all economic transactions between the residents of a country and the rest of the world during a specific period. It reflects a country's economic position and its ability to pay for imports or attract foreign investment.

Components of BoP:

1. Current Account:

- **Trade in Goods:** Exports and imports of tangible products.
- **Trade in Services:** Services like IT, tourism, and financial services.
- **Net Income from Abroad:** Earnings from foreign investments or wages minus payments to foreign investors.
- **Current Transfers:** Remittances, foreign aid, and gifts.

2. Capital Account:

- **Foreign Direct Investment (FDI):** Long-term investments in physical assets.
- **Portfolio Investment:** Investments in financial assets like stocks and bonds.
- **Other Investments:** Bank loans, deposits, and trade credits.
- **Reserve Assets:** Managed by the central bank, these include foreign currency reserves used to stabilize the domestic currency.

INTERPLAY OF COMPONENTS:

A BoP surplus indicates more money flowing into the economy than out, while a deficit signals the opposite.

Persistent imbalances can impact currency value and economic stability.

Types of Policies

Monetary Policy:

Controlling the supply of money in the economy through the central bank to encourage economic growth or curb inflation.

Expansionary Monetary Policy: This policy involves increasing the money supply to stimulate economic growth.

The central bank achieves this by purchasing bonds in the open market, which injects cash into the economy.

Contractionary Monetary Policy: This policy reduces the money supply to curb inflation. The central bank does this by selling bonds, thereby withdrawing money from circulation.

Instruments:

- **Open Market Operations (OMOs):** Buying or selling bonds to control the money supply.
- **Change in Reserve Requirements:** Adjusting the amount of reserves commercial banks must hold, influencing their lending capacity.
- **Discount Rate:** The rate at which the central bank lends to commercial banks. A higher discount rate reduces the money supply by increasing borrowing costs; a lower rate boosts it.

Fiscal Policy:

Government use of tax revenue and expenditure policies to influence the economy.



TYPES:

Expansionary Fiscal Policy: Aimed at increasing aggregate demand by boosting household and business spending, typically during a recession. This can involve tax cuts or increased government spending.

Contractionary Fiscal Policy: Focuses on reducing aggregate demand to control inflation, such as through higher taxes or reduced government spending.

Tools:

Changes in Government Spending: Investing in areas like health, welfare, education, infrastructure, and capital goods.

Changes in Taxation: Modifying personal and corporate tax rates, altering tax exemptions, and offering tax incentives.

- **Automatic Stabilizers:** Mechanisms like progressive taxation and increased payments during economic downturns that naturally counteract economic fluctuations.
- **Multiplier Effect:** Expansionary fiscal policies can lead to a greater than proportionate increase in GDP, while contractionary policies can result in a larger than proportionate decrease in GDP.

Budget Terms:

Gross Domestic Product (GDP): The total market value of all finished goods and services produced within a country over a specific period.

Direct Tax: Taxes directly paid to the government by individuals and corporations.

Indirect Tax: Examples include GST, where the seller collects and pays the tax to the government. The buyer is considered an indirect taxpayer because the seller collects the tax amount during each sale and remits it to the government.

MACROECONOMIC MODELS:

IS-LM, AD-AS Models

1. IS-LM Model:

- **Definition:** The IS-LM model is a macroeconomic tool used to analyze the relationship between interest rates (r) and the level of income (Y) in an economy. It shows the equilibrium in the goods market (IS curve) and the money market (LM curve).
- **IS Curve:** Represents the goods market equilibrium, showing combinations of income and interest rates where the total spending (investment + consumption) equals total output. A downward sloping IS curve indicates an inverse relationship between interest rates and output; as the interest rate decreases, investment increases, leading to higher output.
- **LM Curve:** Represents the money market equilibrium, showing combinations of income and interest rates where the demand for money equals the supply. An upward-sloping LM curve reflects the direct relationship between income and interest rates; higher income leads to greater demand for money, which in turn increases interest rates.

Application: The intersection of the IS and LM curves determines the equilibrium interest rate and output level. Shifts in the IS curve (due to changes in fiscal policy) or the LM curve (due to changes in monetary policy) can move the equilibrium point, affecting the economy's overall output and interest rate.

2. AD-AS Model (Aggregate Demand-Aggregate Supply Model):

Definition: The AD-AS model is used to explain short-run fluctuations in an economy. It shows the relationship between the aggregate price level and the total quantity of goods and services demanded or supplied.

Aggregate Demand (AD): Represents the total demand for goods and services in an economy at different price levels. A downward-sloping AD curve indicates an inverse relationship between the price level and the total output demanded; as the price level decreases, consumers and businesses increase their spending.

Aggregate Supply (AS):

- **Short-run Aggregate Supply (SRAS):** Slopes upward, reflecting the stickiness of wages and prices in the short run. As output increases, firms can hire more labor and produce more at the prevailing wage level.
- **Long-run Aggregate Supply (LRAS):** Vertical at the full employment level of output, indicating that in the long run, the economy's output is determined by its resources and technology rather than the price level.
 - **Application:** The intersection of the AD and AS curves determines the economy's equilibrium output and price level. Shifts in the AD curve (due to changes in fiscal or monetary policy) can lead to inflationary or deflationary gaps. Shifts in the AS curve (due to factors like technological advancements or labor market changes) can change the economy's potential output.

◦ **Policy Implications:**

- **Expansionary Policy:** Used to combat recession by shifting the AD curve rightward, increasing output and employment.
- **Contractionary Policy:** Used to combat inflation by shifting the AD curve leftward, reducing output and employment.
- **Supply-Side Policies:** Aim to shift the LRAS curve rightward by improving technology, increasing productivity, or investing in education and infrastructure, thus increasing the economy's potential output.

By understanding these models—IS-LM and AD-AS—economists can analyze and predict the effects of fiscal and monetary policies on the economy, making them essential tools for economic decision-making.

Types of Reserve Bank of India (RBI) Rates

1. **Repo Rate (Repurchase Rate):**

- **Definition:** The rate at which commercial banks can borrow money from the RBI by selling their securities with an agreement to repurchase them at a later date. It is a tool used by the RBI to manage short-term liquidity in the banking system.



- **Impact:** A reduction in the repo rate lowers the cost of borrowing for commercial banks, making it cheaper for them to lend to businesses and consumers. Conversely, an increase in the repo rate raises borrowing costs, which can help control inflation.
- **Use in Monetary Policy:** The repo rate is a key policy tool for controlling inflation and stabilizing the economy. The RBI adjusts the repo rate based on its assessment of the economy's inflationary pressures and liquidity conditions.

2. Reverse Repo Rate:

- **Definition:** The reverse repo rate is the rate at which the RBI borrows money from commercial banks. It is the opposite of the repo rate and is used to absorb liquidity from the banking system.
- **Impact:** An increase in the reverse repo rate makes it more attractive for banks to deposit excess funds with the RBI, thereby reducing liquidity in the economy. A lower reverse repo rate encourages banks to lend more.
- **Use in Monetary Policy:** The reverse repo rate influences the banking sector's liquidity. By adjusting this rate, the RBI can control the flow of funds within the economy, thereby influencing interest rates and economic activity.

3. Cash Reserve Ratio (CRR):

- **Definition:** The CRR is the percentage of a bank's net demand and time liabilities (NDTL) that must be maintained in liquid cash with the RBI. It is used as a liquidity management tool by the central bank.
- **Impact:** An increase in the CRR requires banks to keep more cash with the RBI, reducing the amount available for lending, thus tightening liquidity. A decrease in the CRR releases funds into the banking system, making more money available for loans and boosting economic activity.
- **Use in Monetary Policy:** The CRR is adjusted by the RBI to control inflation and influence the money supply. It acts as a tool to manage systemic liquidity and stabilize interest rates.

4. Statutory Liquidity Ratio (SLR):

- **Definition:** The SLR is the minimum percentage of a commercial bank's net demand and time liabilities (NDTL) that must be maintained in the form of cash, gold, or other securities before granting credit to the public.
- **Impact:** A higher SLR requirement restricts the amount of funds available for banks to lend, which can curb inflation. A lower SLR increases the funds available for lending and investment.
- **Use in Monetary Policy:** The SLR helps manage liquidity in the banking system and influences the amount of credit available in the economy. It is used to control inflation and credit expansion.



Marginal Standing Facility (MSF):

- **Definition:** The MSF rate is the rate at which banks can borrow overnight funds from the RBI against the collateral of government securities when they have exhausted their limits under the repo facility.
- **Impact:** An increase in the MSF rate acts as a ceiling for the overnight borrowing rates in the money market. It is typically higher than the repo rate and serves as an emergency source of funds for banks.
- **Use in Monetary Policy:** The MSF rate provides an additional channel for managing liquidity, especially during tight liquidity conditions. It helps banks manage short-term liquidity mismatches.
- By understanding these different RBI rates—repo rate, reverse repo rate, CRR, SLR, and MSF—economists and policymakers can effectively manage the money supply, control inflation, and maintain overall economic stability.

IMPORTANT TERMS

Fiscal Deficit Simply put, a fiscal deficit is a gap or deficit in the government's nonborrowed receipts (income) compared to its outlays. The difference between the total government expenditure and nonborrowed receipts is the fiscal deficit if the outlays exceed its receipts (nonborrowed). It is usually presented as a percentage of the nation's GDP.

- **Exchange Rate:** An exchange rate determines the cost of exchanging one currency for another and impacts international trade and money transfers.
- **Fixed exchange rate:** A fixed exchange rate occurs when a nation links the value of its currency to another widely used good or currency. In international trade, the dollar is the most widely used currency. The U.S. dollar is the current benchmark for most fixed exchange rates. A nation may also peg its currency to that of its principal trading partners.
- **Floating exchange rate:** The supply and demand of currencies in the foreign exchange market set a floating exchange rate. Since the international currency market's supply and demand factors are allowed to operate freely, it is also known as the "free exchange rate."

Government Policies

1. Energy Policy

- **Definition:** Framework to ensure energy security, sustainability, and access through various energy sources.
- **Current Status:** Focus on renewables (solar, wind), expansion of nuclear power, and reducing fossil fuel dependence under initiatives like the National Energy Policy and COP26 commitments.



2. Education Policy

- **Definition:** Guidelines for improving education access, quality, and infrastructure.
- **Current Status:** The National Education Policy (NEP) 2020 emphasizes holistic learning, digital education, and a flexible curriculum, with gradual implementation across India.

3. SEZ (Special Economic Zone) Policy

- **Definition:** A policy to establish duty-free zones to boost exports, attract FDI, and generate employment.
- **Current Status:** SEZs are underperforming due to global economic shifts, but reforms like the DESH Bill are in discussion to revitalize zones for broader economic impact.

4. Transportation EV Policy

- Definition: Policies to promote Electric Vehicles (EVs) to reduce emissions and reliance on fossil fuels.
- Current Status: Programs like FAME-II and state-level subsidies are accelerating EV adoption, with a focus on charging infrastructure and manufacturing incentives.

5. Hydrogen Policy

- **Definition:** A framework to develop green hydrogen as a clean fuel alternative for energy and industrial use.
- **Current Status:** The National Green Hydrogen Mission aims to make India a global hydrogen hub by 2030 through investments and production incentives.

6. Neighbourhood Policy

- **Definition:** India's diplomatic strategy to maintain peaceful, cooperative relations with neighboring countries.
- **Current Status:** The Neighbourhood First Policy emphasizes trade, connectivity, and security cooperation, but challenges persist with China and Pakistan.



COMMONLY ASKED QUESTIONS (CAQs)

1. What is the current GDP of the Indian Economy?
2. What are the different methods used to calculate GDP?
3. Which economic indicator is the most reliable according to you?
4. How are inflation, unemployment, GDP, and currency exchange rates interconnected?
5. What is the current Repo rate, CRR, and SLR, and how does that impact the economy?
6. If given an option, would the banks prefer a CRR hike or an SLR hike?
7. To reach the ambitious \$7 trillion target by 2030, India needs a sustained real GDP growth of 7-8%. Given the current global trade volatility and tariff shocks, what structural reforms should India prioritise to maintain this momentum?
8. What steps has the Indian Government taken to promote sustainability and reduction in carbon emissions?
9. What is the impact of currency depreciation on imports and exports?
10. How can the RBI intervene and curb Rupee depreciation if required?
11. Has India saved capital because of the oil purchased from Russia? If yes, how much?
12. How has the Rupee performed against the currencies of other economies?
13. How does a change in the Repo Rate help curb inflation?
14. What is the crowding-out effect, and how is it related to government spending?
15. How does cash inflow into the country affect the currency rate?
16. What is the difference between FDI and FII?
17. What is a recession?
18. What is meant by inferior goods?
19. Explain the price elasticity of demand.
20. What is a liquidity trap?
21. What is stagflation?
22. What do you mean by fiscal policy?



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HUMAN RESOURCES



Introduction To Human Resources

In today's fast-paced business world, HR is no longer just a support function—it's a strategic partner which plays an important role in driving organizational success. Human Resources (HR) refers to the department within an organization responsible for managing employee life cycles, including recruitment, onboarding, training, performance management, and employee engagement. It bridges the organization's strategic goals and those who contribute to achieving them.

Some Key Differences

Recruitment Vs Selection

Recruitment	Selection
The first stage — introduces the role to suitable candidates	Second stage — in-depth analysis of each candidate
Positive process — the aim is to attract as many candidates as possible	Negative process — the aim is to reject candidates from the list until you're left with just a few
A more straightforward process — recruiters must simply create an appropriate job description and publish it in the right places	A more complex process involving various tests and phases — recruiters must carefully scrutinize each application to identify the best candidates
It only involves communicating vacancies — no contractual relationship is established	Involves the creation of a contractual agreement between the company and the successful candidate

Training Vs Development

Training	Development
Focuses on equipping employees with specific skills & knowledge for a role	Focuses on overall capabilities & prepares employees for future responsibilities
Designed with a specific timeframe & objectives in mind	A long-term process that spans the entire length of a career
Content is often group or role-specific for teams & departments	Content is unique & personalized for each employee
Success is measured through job performance	Success is measured through long-term growth & career progression

TYPES OF HR ROLES

1) HR Generalist

HR generalists work in organizations in various functions such as recruiting, learning & development, onboarding, compensation and benefits, diversity and inclusion, legal issues, personnel policies, and procedures in HR. Generalist roles exist across various sizes of organizations, such as-

- **Entry-level HR Generalist job titles:** HR Assistant, HR Coordinator
- **Mid-career (requiring at least 1-3 years' experience) HR Generalist job titles:** HR Generalist, HR Manager
- **Advanced (requiring 5+ years' experience) HR Generalist job titles:** HR Business Partner, Chief Human Resources Officer (CHRO)

2) HR Specialist

HR specialists support large organizations in specialized functions within the HR domain. HR specialists use vast knowledge of their specific functions and experience to focus on a particular area of work. Specialist roles usually exist in large organizations. Examples of HR Specialist roles are:

- Talent Acquisition Specialist
- Human Resources Information Systems (HRIS) Manager
- Chief Diversity Officer
- Onboarding Specialist
- Compensation Analyst

3) Talent Acquisition Role

The Talent Acquisition role involves sourcing and recruiting non-technical professionals for a dynamic environment.

Key responsibilities include:

- Collaborate with hiring managers to understand hiring needs and develop effective recruitment strategies for technical and non-technical positions.
- Identify talent pools using various sourcing techniques, including job portals, social media, networking events, and industry-specific forums.
- Review resumes, screen candidates, and conduct initial phone interviews to assess qualifications and cultural fit.
- Track and maintain accurate candidate data and recruitment metrics, providing regular reports and insights to the Hiring Manager.
- Collaborate with cross-functional teams to streamline processes and enhance candidate experience.
- Stay updated on industry trends, emerging technologies, and talent market dynamics to offer insights and guidance to hiring managers.



4) HR Business Partner (HRBP)

HRBPs work closely with business leaders to align HR strategies with organizational goals. They serve as strategic advisors, providing insights on workforce planning, performance management, and change initiatives. HRBPs play a vital role in driving business success through effective people management.

5) Diversity, Equity, and Inclusion (DEI) Specialist

DEI Specialists focus on creating a diverse and inclusive workplace where all employees feel valued. They design initiatives to promote equity, fairness, and representation across various levels of the organization, fostering a culture of belonging.

Common HR Frameworks

MBTI – Myers Briggs Type Indicator

MBTI (alternatively Jungian function theory) is a framework that utilizes four functions further subdivided into two each. These eight sub-functions are called '*cognitive functions*'. The use of this model and knowledge of cognitive functions that form personality types can help individuals, teams, and organizations to accentuate strengths and curb weaknesses. It can help them understand how one's as well as others' values and beliefs are formed as per the cognitive framework to enable better interaction & collaboration and enable people to determine their path of growth.

The following are the 16 personality combinations under MBTI -

ISTJ Responsible, sincere, analytical, reserved, realistic, systematic. Hardworking and trustworthy with sound practical judgment.	ISFJ Warm, considerate, gentle, responsible, pragmatic, thorough. Devoted caretakers who enjoy being helpful to others.	INFJ Idealistic, organized, insightful, dependable, compassionate, gentle. Seek harmony and cooperation, enjoy intellectual stimulation.	INTJ Innovative, independent, strategic, logical, reserved, insightful. Driven by their own original ideas to achieve improvements.
ISTP Action-oriented, logical, analytical, spontaneous, reserved, independent. Enjoy adventure, skilled at understanding how mechanical things work.	ISFP Gentle, sensitive, nurturing, helpful, flexible, realistic. Seek to create a personal environment that is both beautiful and practical.	INFP Sensitive, creative, idealistic, perceptive, caring, loyal. Value inner harmony and personal growth, focus on dreams and possibilities.	INTP Intellectual, logical, precise, reserved, flexible, imaginative. Original thinkers who enjoy speculation and creative problem solving.
ESTP Outgoing, realistic, action-oriented, curious, versatile, spontaneous. Pragmatic problem solvers and skillful negotiators.	ESFP Playful, enthusiastic, friendly, spontaneous, tactful, flexible. Have strong common sense, enjoy helping people in tangible ways.	ENFP Enthusiastic, creative, spontaneous, optimistic, supportive, playful. Value inspiration, enjoy starting new projects, see potential in others.	ENTP Inventive, enthusiastic, strategic, enterprising, inquisitive, versatile. Enjoy new ideas and challenges, value inspiration.
ESTJ Efficient, outgoing, analytical, systematic, dependable, realistic. Like to run the show and get things done in an orderly fashion.	ESFJ Friendly, outgoing, reliable, conscientious, organized, practical. Seek to be helpful and please others, enjoy being active and productive.	ENFJ Caring, enthusiastic, idealistic, organized, diplomatic, responsible. Skilled communicators who value connection with people.	ENTJ Strategic, logical, efficient, outgoing, ambitious, independent. Effective organizers of people and long-range planners.

Maslow's Hierarchy of Needs

Maslow's Hierarchy of Needs is a theory of psychology that attempts to explain human motivation. Maslow posits that humans have different levels or stages of needs based on their current life situation and do not move on to higher-level needs before the lower-level ones are fulfilled. While Maslow never used a pyramid to depict his theory, the pyramid illustration is widely used to explain his theory and is popular. A human being is said to be fulfilled once all needs are satisfied.



Emotional Intelligence

Emotional Intelligence is the ability to understand and manage one's emotions in positive and effective ways, which can be used to communicate in a better manner with people, resolve conflict and handle stress. According to Daniel Goleman, the five components of Emotional Intelligence are-

1. Self-awareness
2. Self-regulation
3. Motivation
4. Empathy
5. Social skills

Self-awareness refers to the ability to understand oneself and one's own emotions, whereas self-regulation is concerned with exercising control over negative aspects of one's emotions. Motivation implies the willingness to channel and use one's emotions positively. Empathy is the ability to understand and relate to other people's emotions. Lastly, social skills deal with a person's ability to communicate and interact effectively, form connections, and build social networks.

Big 5 Model

The Big 5 model is a grouping of personality traits under the umbrella of psychological trait theory. The Big 5 model identifies five factors which are as follows-

1. Openness to New Experiences (Openness and Intellect)

- High: Curious and open-minded
- Low: Conservative and focused
- High: Organized and dutiful
- Low: Messy and careless

2. Conscientiousness (Industriousness and Orderliness)

- High conscientiousness: Organized, detail-oriented, disciplined, and reliable.
- Low conscientiousness: Spontaneous, less structured, and prone to procrastination.

3. Extraversion (Assertiveness and Enthusiasm)

- High: Outgoing, go with the flow
- Low: Reserved, less likely to go with the flow

4. Agreeableness (Politeness and Compassion)

- High: Friendly, easygoing, and empathetic
- Low: Straightforward, able to negotiate for oneself

5. Neuroticism (Volatility and Withdrawal)

- High: Nervous, anxious, able to see red flags early
- Low: Stress-resistant, less likely to see red flags early



7 BASICS OF HR



1) Recruitment and Selection - Although these terms are often used together, there is a difference between them. Recruitment involves getting the maximum number of potential candidates on board for the interview and other processes through advertisements and announcements about the job vacancy. On the other hand, the selection is concerned with carefully screening the candidates to identify and select the most appropriate candidate for the job role.

2) Performance Management – This step follows recruitment and selection. Performance management is keeping track of the efficiency of the employees to help them become the best version of themselves. Under this system, employees are provided feedback on their pre-specified roles and responsibilities to reach their best performance.

3) Learning and Development – The internal and external environment of the Company is changing rapidly; thus, it is the organization's responsibility to ensure that its employees continually learn, grow, and adapt to these changes. Learning and Development help employees to reskill and upskill. An employee should be provided with enough resources to equip them with changing processes, technology, and methods.

4) Succession Planning – It refers to having a contingency pool of candidates with the required skills and abilities to fill a vacant position quickly. Although an organization should have the necessary pool of candidates to fill any vacant job position, succession planning is usually done for senior-level management positions. For example, if a crucial manager quits their position, the organization should have a replacement body to fill that position to avoid losses.

5) Compensation and Benefits – Fairly compensating employees for their services is crucial in attracting and retaining them. It is one of the most critical functions of an HR Department. Although salary hikes, additional benefits, and other perquisites should be provided to employees to motivate them, all these should be done considering the budget and the company's profitability.

6) Human Resource Information System – It is a tool to facilitate all the HR Functions discussed above. For example, recruiters use ATS or Application Tracking System for recruitment and selection procedure, LMS or Learning Management System for learning and Development, etc. When all these Information Systems are integrated into one system, it is referred to as the Human Resource Information System.

7) HR Data and Analytics – HR today has leaped to be more data-driven. HRIS, or Human Resource Information System, works as a data entry system. HRIS handles a lot of data, and proper analysis and tracking of such data provide valuable insights, which can then be used to make more informed decisions.

ATTRITION RATE

Employee Attrition Rate or Churn Rate is the resignation or retirement of a certain percentage of the current employee base without the intention of filling up the vacant position thus created. Attrition, in general terms, means weakness and thus carries a negative connotation. However, attrition in a company or a firm is not always necessarily disadvantageous and can have certain benefits.

Attrition is the opposite of retention. If the company does not correctly anticipate the attrition rate, it can prove to be quite costly for the company. Cost increases more so in the case of skilled jobs. If old and skilled employees start leaving the company, that is a bad sign of productivity and advancement for the company. Although the terms attrition and turnover are often used interchangeably, there is a difference in context. Attrition talks about the number of employees who leave, and their vacant position is not filled; however, turnover talks about employees who leave and their positions are replaced with new staff.

9 Box Grid

A very useful tool in the talent management area of HR is dividing employees into nine groups based on their performance and potential metrics. The employee's current performance and efficiency are considered, and the employee's future working potential and expected display of efficiency are considered. It helps the organization's management to develop different approaches for different kinds of employees. High-performing employees, for instance, are always desired in a team. In contrast, low-performing employees are given extra attention, and effort is made to increase their competency through the tool of Learning and Development.



Sustainability and Human Resource Management

Sustainability has been defined in various ways. There are many definitions of sustainability provided by renowned writers and authors that incorporate multiple dimensions. But to define it, "Sustainability refers to all the acts directed towards meeting the needs of the present generation without compromising upon the needs of the future generation." It requires an individual, a group of people, or even an organization to be responsible for their actions. ESG framework includes Environmental, Social, and Governance criteria for a sustainable environment. But HRM or Human Resource Management is equally important in creating a sustainable environment. In human resource management, "sustainability" describes human resources prioritizing a solid workplace culture and human and social outcomes over financial goals and performance.

Integrating HRM with sustainability provides the following advantages to the organization:

- An organization that practices sustainability is more likely to attract top talent. Employees today like to work with an organization that implements sustainable practices and prefers ethics over profits to create a better world. Thus, overall, it helps an organization build better teams.
- An organization that is sustainable in its activities automatically creates a competitive advantage. Competitors cannot duplicate the expertise acquired through the growth and development of personnel to prevent environmental damage.
- Practicing sustainability helps an organization develop a positive culture. Such practices strengthen the very roots of the organizations and help the HR Department to successfully implement other positive practices like DEI or Diversity, Equity, and Inclusion.

TRENDS IN HR

1) Hybrid Work and Remote Work Models

The shift to hybrid and remote work models has transformed the workplace. HR teams are now tasked with maintaining productivity and collaboration in a dispersed workforce. Companies are investing in virtual collaboration tools like Zoom, Microsoft Teams, and Slack to ensure seamless communication. Additionally, HR policies are being revised to include flexible work hours, work-from-anywhere policies, and home-office reimbursements to support this new normal.

2) HR Technology and Automation

Adopting HR technology reduces the time spent on repetitive administrative tasks. AI-driven tools now handle functions like resume screening, employee onboarding, and compliance tracking. For example, chatbots are being used to answer employee queries instantly, while RPA tools process payroll with minimal human intervention. This frees HR professionals to focus on strategic initiatives like leadership development and workforce planning.

3) The Rise of Gig and Contract Work

The gig economy is growing rapidly, with professionals preferring freelance and contract roles for flexibility. Companies are hiring gig workers for specialized roles that require short-term expertise. HR teams are adopting agile workforce management strategies and using platforms like Upwork and Freelancer to source talent while maintaining compliance with labor laws.

4) Gamification in Learning and Development

Gamification makes learning more engaging by incorporating game-like elements into training programs. Employees earn points, badges, and rewards for completing courses or achieving milestones. This approach not only boosts participation but also improves knowledge retention. Companies like Deloitte have successfully implemented gamified learning to enhance employee skills.



COMMON QUESTIONS THAT ARE ASKED:

1. Tell me about yourself.
2. What are your strengths and weaknesses?
3. Why do you want to pursue an MBA, and why now?
4. What are your short-term and long-term career goals?
5. How have your past experiences prepared you for an MBA?
6. Why do you want to join this specific college?
7. How does an MBA align with your career aspirations?
8. What specific skills do you hope to gain from this program?
9. Which specialization are you inclined toward, and why?
10. Can you describe a situation where you led a team successfully?
11. Can you explain your current job role and responsibilities?
12. What is your biggest professional achievement?
13. How have you added value to your organization or team?
14. How do you handle conflicts within a team?
15. Have you ever managed a difficult team member? How did you handle it?
16. What do you understand by organizational culture, and why is it important?
17. How would you retain employees in a high-attrition industry?
18. How would your colleagues describe your leadership or management style?
19. What are some of the key functions of HR?
20. What are the latest trends in HR that you know of?
21. What are the qualities of a Leader? What is the difference between a Leader and a Manager?
22. What are the three most important qualities in an HR manager, according to you?
23. Since workplace culture has changed drastically in the last few years, what is your definition of an ideal workplace culture?
24. Tell us two things you do not like about the world of HR.
25. Is there a difference between a group and a team? Do you consider yourself a team player?
26. Have you managed or led a group of individuals from diverse backgrounds? If so, could you tell us about your experience?
27. What is your view on the mass layoffs happening currently?
28. Give us three reasons why we should still be selecting you.



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ANALYTICS

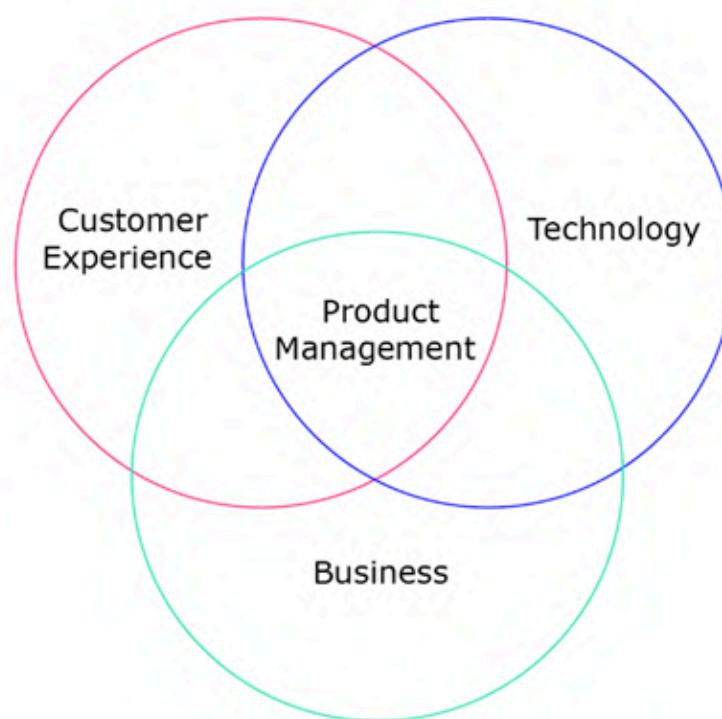
bITeSys 
The Systems and Analytics Club

PRODUCT MANAGEMENT

Product management includes the stewardship of a product from initial design to final stages of maintenance and sometimes beyond discontinuation. This position is often described as the "CEO" of the product, with a high degree of responsibility over a product's success. Such a role involves feature designing, prototyping and testing, and the most important part, user input into the design process, followed by its launch and continued maintenance.

Decision-making is at the very core of Product Management. Product Managers are constantly charting a complex landscape of choices, weighing factors in terms of cost, time, and resource constraints toward optimal solutions. This demands a highly structured mindset and the ability to dissect problems methodically by considering each development process step with precision.

Besides technical expertise, a good Product Manager must have great communication skills. The person interfaces the engineering teams, customers, and marketing departments. It has to explain the technical concept in simple terms to customers and, occasionally, to marketing departments with persuasive arguments. There should be a strong understanding of the user needs to understand and explain the problem to the other stakeholders involved.



At the end of the day, the ideal Product Manager has clear and structured logical thinking, decisive decision-making skills under pressure, a laser focus on user needs, superior communication abilities, and a strong foundational understanding of the technology that underpins his or her product.



DIFFERENT KINDS OF ROLES IN TECH AFTER MBA

MBA graduates can pursue a variety of roles in the IT industry, such as:

- **Project management roles**, where they can lead and oversee the execution of IT projects.
- **Product management roles**, where they can help shape the development and positioning of technology products for customers.
- **Business development roles**, such as IT Sales.
- **IT Consulting roles**, where they can use their business and IT knowledge to advise clients on technology strategy and implementation.

Since Product Management is commonly abbreviated as PM, it is often confused with Project Management and Program Management. To differentiate these roles, we can say that Product Managers are concerned with a product's 'What' and 'Why'. In contrast, Project and Program Managers are primarily concerned with the 'How' of a product/project.

ANALYTICS

Analytics analyzes data to make informed decisions. It analyzes data, finds patterns and trends, and predicts future occurrences using statistical methods. Analytics has applications in banking, healthcare, retail, and technology. Analytics may be used, for instance, in banking to spot fraudulent transactions and forecast market trends. By recognizing patterns in patient data, analytics can enhance patient outcomes in the healthcare industry. In retail, analytics may improve pricing and inventory management. In technology, analytics increase software and system performance.

Steps of Data Analysis

Broadly, five major steps help to direct the process of taking raw data and turning it into action. Though the specifics may differ according to the project, having a structured approach ensures efficiency and success.

1. Identify Business Questions

The first step of every data project is asking the right questions. Clearly defined goals will determine what needs to be solved and what the data can say. For example, one may know the type of data needed, the techniques involved, and how the results will be measured. This step, therefore, takes the appropriate amount of time to ensure that the rest of the process will be aligned and resource-efficient.

2. Gather and Store Data

The data is sourced from company records, machine data, or public datasets. Then, there are quantitative and qualitative data types. There is structured and numeric; qualitative data is unstructured, such as text and video. All this must be stored for future processing in well-organized, secure databases.



3. Clean and Prepare Data

Raw data usually does not come ready to be analyzed. Cleaning involves removing duplicate records and handling null values, including removing outliers, hence formatting to ensure data is of good quality and, therefore, prepared for sound analysis.

4. Analyze Data

Once the data is clean, analysis begins. Techniques can range from basic statistical methods to more complex approaches such as machine learning, deep learning, NLP, and computer vision. The choice of method is based on the project goals and the type of data.

5. Visualization and Communication of Results

The final step is translating the data insights into visual forms that stakeholders can easily understand. Tools that help develop great-looking charts and dashboards include Python (Matplotlib, Seaborn), R (ggplot2), Tableau, and PowerBI. Data storytelling—that is, the combination of the visuals with a narrative—is often used to drive decision-making

Importance of Data Quality: [What Is Data Quality? | IBM](#)

Data Analysis Terms: [Data Analysis Terms: A to Z Glossary | Coursera](#)

TYPES OF ANALYTICS

- **Descriptive analytics:** Descriptive analytics summarizes historical data in an intelligible fashion. Answering "What has happened?" and "What is the current situation?"
- **Diagnostic analytics:** This analytics digs into data to determine why something occurred. It answers queries like "Why did this happen?" and "What is the root cause of this problem?"
- **Predictive analytics:** Predictive analytics employs historical data, statistical models, and machine learning to anticipate future occurrences. It answers, "What will happen?" and "What is likely to happen in the future?"
- **Prescriptive analytics:** This analytics predicts the future and suggests actions. It answers questions like "What should we do?" and "What is the best course of action?"
- **Cognitive analytics:** This method analyzes text, pictures, and speech using natural language processing, machine learning, and AI. This answers queries like "What are people saying about this product/service?" and "How is the brand perceived in the market?".
- **Big Data analytics:** It analyzes huge, heterogeneous data sets. It solves complicated problems that standard analytics cannot.
- **Real-time analytics:** It processes and analyzes data in real-time. It makes rapid, situation-based choices.

BUSINESS APPLICATIONS OF ANALYTICS

- Customer Analytics: This is understanding customer behavior, preference, and lifetime value to increase satisfaction and retention. Companies use customer segmentation to target specific demographics, predict churn to prevent losing customers, and estimate Customer Lifetime Value (CLV) to focus on high-value customers.



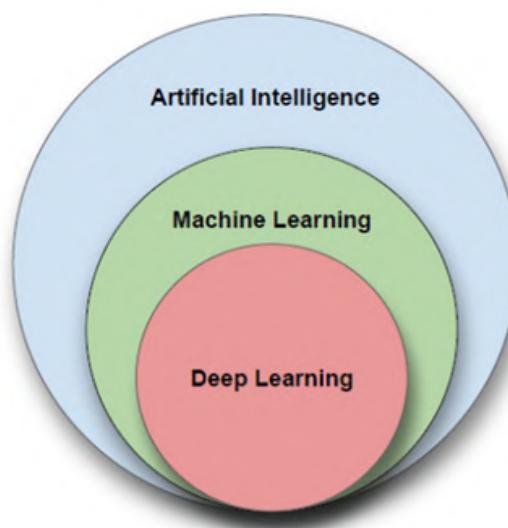
- For instance, a retailer can apply analytics to suggest products to the customer based on their purchase history and browsing habits.
- **Web Analytics:** Web analytics monitors website performance and user interactions to improve online experiences. It tracks traffic sources, user navigation patterns, and business bounce rates. With such data, companies can optimize conversion rates by identifying drop-off points. For instance, an e-commerce platform can analyze user behavior to know which products are popular and alter their marketing strategies to suit these preferences better.
- **Sales Analytics:** Sales analytics helps improve sales strategies by analyzing pipelines, regional performance, and product success. It can help discover bottlenecks in a sales funnel, point to high-performing territories, and show which products generate the most revenue. For example, a software company may want to analyze sales data, looking for patterns to speed up deal closures.
- **Marketing Analytics:** It measures whether marketing campaigns and channels have worked. Under this category comes subcategories like ROI tracking, customer acquisition cost, and campaign performance. An organization utilizes marketing analytics by discovering what type of digital ads delivers the most significant conversion results to distribute its marketing budget.
- **Pricing Analytics:** Help find the best pricing strategy concerning market demand, competition, and customers' willingness to pay. For instance, firms utilize price analytics to improve the pricing in sales promotions or when launching new products at competitive prices.
- **Product Analytics:** Analyzes customers' behavior with a product to improve features, usability, and performance. It tracks usage patterns, identifies pain points, and measures satisfaction. For instance, a software company may use product analytics to understand which features are most used and then update them first.
- **Operational Analytics:** This focuses on efficiency improvement through workflow, supply chain, and resource allocation analysis. It reduces costs, minimizes downtime, and optimizes the production process. For example, a manufacturing company may use operational analytics to understand inefficiencies in its assembly line and thus improve overall productivity.
- **Forecasting Analytics:** It makes projections based on historical data to forecast future trends and outcomes and thus enables businesses to act proactively. Applications are demand forecasting to optimize the inventory, financial forecasting to budget, and market trends to stay ahead of competitors. For instance, a food delivery company might forecast order volumes around holidays to ensure adequate staffing and resources.

Analytics plays an important role in any organization's decision-making process. It allows organizations to turn data into insights and action, providing them with a competitive advantage in the market. As an MBA student, it is important to understand the concepts and tools of analytics to make better decisions in your future career.

ARTIFICIAL INTELLIGENCE

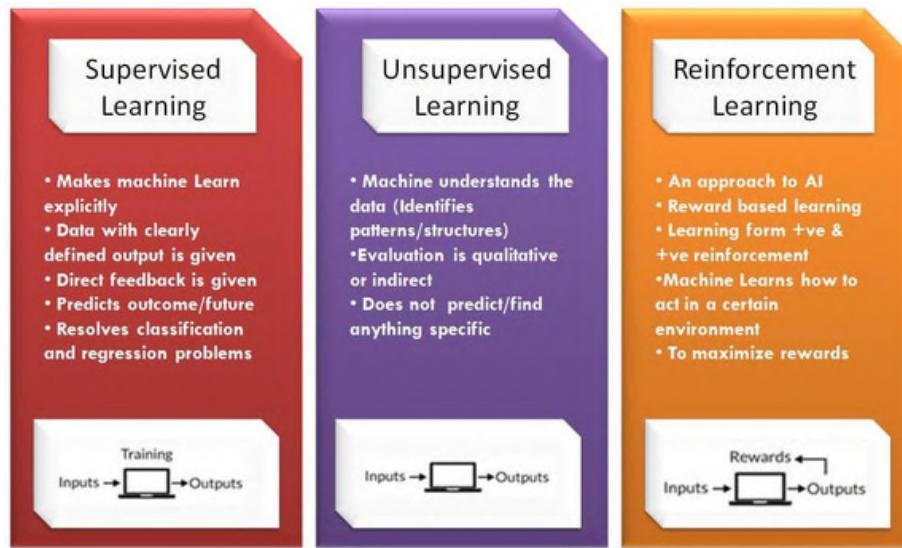
Why is AI important for an MBA graduate? The Gartner report 2023 reveals a shift of magnitude in the landscape of MBA since productivity and efficiency gains from AI alter the new skill set required of graduates. Indeed, as AI tools become the norm in all these roles, marketing, finance, and business research programs incorporate AI-focused coursework to make graduates capable of mining useful insights from complicated data. This ensures that MBA graduates remain at par with the growing demanding job environment, which requires AI literacy.

- **Artificial Intelligence:** Artificial Intelligence is the mechanism to incorporate human intelligence into machines through rules. It refers to the simulation of human intelligence in machines programmed to think and learn like humans. This can include understanding natural language, recognizing images, making decisions, and solving problems.
- **Machine Learning:** Machine Learning is the study/process that allows the system(computer) to learn automatically through experiences it had and improve accordingly without being explicitly programmed. ML is an application or subset of AI. ML focuses on developing programs so that they can access data to use it for themselves. The major aim of ML is to allow the systems to learn by themselves through experience without any human intervention or assistance.
- **Deep Learning:** Deep Learning is a sub-part of the broader family of Machine Learning which makes use of Neural Networks (similar to the neurons working in our brain) to mimic human brain-like behavior. DL algorithms focus on information processing patterns mechanism to identify the patterns like our human brain does and classify the information accordingly. DL works on larger sets of data when compared to ML, and the prediction mechanism is self-administered by machines.



DIFFERENT TYPES OF MACHINE LEARNING

There are three main types of Machine Learning: Supervised Learning, Unsupervised Learning, and Reinforcement Learning.



Supervised Learning

Supervised learning is where a model is trained on labeled data, meaning the desired output or "label" is provided with the input data. The model then makes predictions based on this input/output mapping. Examples include linear regression and support vector machines.

Business Application: Supervised learning is widely applied in predictive analytics, like customer churn prediction, fraud detection, and sales forecasting. For instance, banks apply supervised learning models to classify loan applications as approved or rejected based on historical data.

Unsupervised Learning

Unsupervised learning is when a model is given input data without corresponding output labels. The model must find patterns or relationships in the data on its own. Examples include k-means clustering and principal component analysis.

Business Application: Applications of unsupervised learning include market segmentation, anomaly detection, and recommendation systems. For example, e-commerce websites use clustering algorithms to group customers with similar purchasing behavior to personalize their marketing campaigns.

Reinforcement learning

Reinforcement learning is a type of machine learning where an agent learns to make decisions by interacting with its environment. The agent receives feedback in the form of rewards or penalties for its actions and learns to optimize its behavior over time. An example is a computer learning to play a game by trial and error.

Business Application: Reinforcement learning is applied in dynamic pricing, robotics, and supply chain optimization. For instance, ride-sharing companies like Uber use reinforcement learning to optimize driver allocation and pricing strategies based on real-time demand and supply data.

Understanding the definition of AI: AI-Definitions-HAI.pdf

Fun Read: AI is an existential threat – just not the way you think

NATURAL LANGUAGE PROCESSING (NLP)

Natural Language Processing (NLP) is a branch of artificial intelligence (AI) that focuses on the interaction between computers and human language. It involves the development of algorithms and models that enable computers to understand, interpret, and generate human language meaningfully.

Importance and Applications of NLP:

NLP has diverse applications across various domains, including:

Information Retrieval: Extracting relevant information from large volumes of text data.

Sentiment Analysis: Analyzing and understanding the sentiment or emotion expressed in text.

Text Summarization: Generating concise summaries of lengthy documents or articles.

Machine Translation: Translating text from one language to another.

Speech Recognition: Converting spoken language into text.

Chatbots: Building conversational agents for customer support and interaction.

Named Entity Recognition (NER): Identifying and classifying named entities such as names, organizations, dates, and locations in text.

NLP Fundamentals:

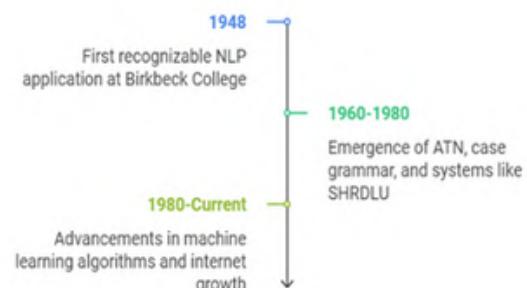
- **Syntax:** The structure of language, including grammar rules and sentence structure.
- **Semantics:** The meaning of words, phrases, and sentences in context.
- **Pragmatics:** The study of how language is used in real-world situations to convey meaning and achieve communication goals.
- **Tokenization:** Breaking down text into smaller units such as words or sentences for analysis.
- **Stemming and Lemmatization:** Techniques to reduce words to their root forms, improving consistency in text analysis.

Text Preprocessing in NLP:

Text preprocessing involves preparing raw text data for analysis by:



Evolution of Natural Language Processing



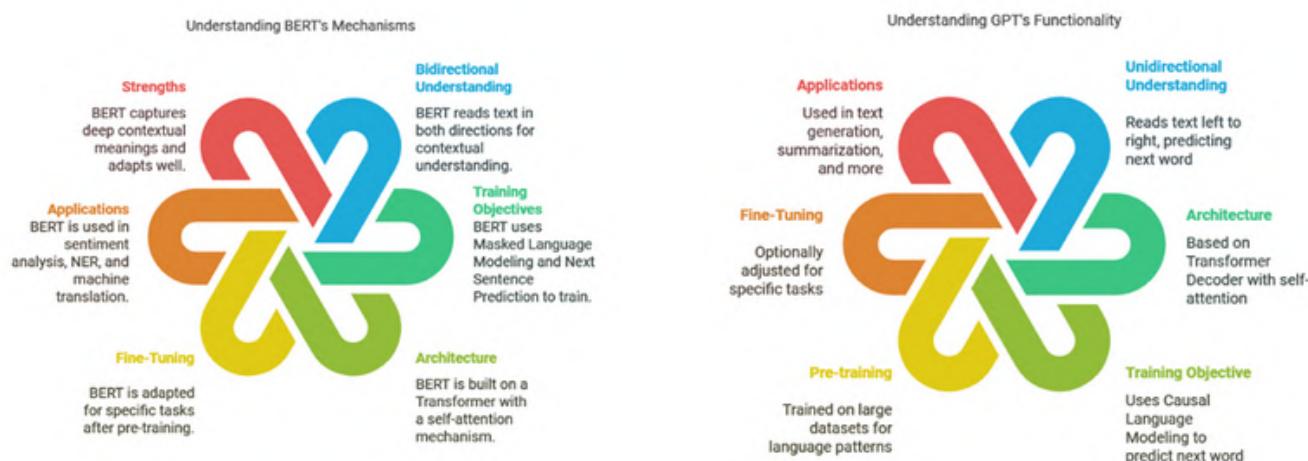
Feature Extraction in NLP

Transforming text into numerical features for modeling, using:

- **Bag of Words (BoW):** Representing text as word frequency matrices.
- **Term Frequency-Inverse Document Frequency (TF-IDF):** Weighting words based on their importance in a document and corpus.
- **Word Embeddings:** Dense vector representations capturing semantic relationships (e.g., Word2Vec, GloVe).

NLP relies on techniques from machine learning, deep learning, and linguistics. Common models and tools include transformers like GPT and BERT, libraries like NLTK (Natural Language Toolkit) and spaCy, and datasets for training models

HOW TRANSFORMER MODELS LIKE BERT AND GPT WORK



SUSTAINABILITY IN THE IT INDUSTRY:

There are several ways to practice sustainability in the IT industry, including:

Strategies for IT Sustainability



1. Energy Efficiency

- Implementing energy-efficient hardware and software is essential in reducing energy consumption.
- Using renewable energy sources to power data centers and other IT infrastructure significantly reduces carbon emissions.
- Cloud service providers who use renewable energy sources can help reduce the carbon footprint of organizations moving to the cloud.

2. Resource Conservation

- Reducing the use of natural resources through technologies such as virtualization and cloud computing helps optimize resource usage and cut down on waste.
- Virtualization allows multiple virtual machines to run on a single physical server, thereby reducing the need for additional hardware and conserving energy.

3. E-Waste Management

- Proper disposal of electronic waste and encouraging the recycling of old equipment can help minimize harmful environmental impact.
- IT organizations should implement robust e-waste programs and ensure responsible recycling, extending the lifecycles of devices to reduce emissions caused by frequent replacements.

4. Green Procurement

- Selecting products and services that have been developed with environmental and social responsibility in mind helps reduce the environmental impact of IT operations.
- This includes purchasing energy-efficient devices and hardware, as well as services from vendors who adhere to sustainability practices.

5. Telecommuting

- Encouraging remote work helps reduce the need for office space and the carbon emissions associated with daily commuting.
- It also reduces the energy consumed by office infrastructure and transportation.

6. Sustainable Software Development

- Adopting sustainable software development practices such as Agile, Scrum, and DevOps can help reduce the environmental impact of software development by improving efficiency and reducing unnecessary resource usage.
- In mobile app development, keeping energy efficiency in mind is crucial, as even small coding changes can lead to significant energy savings.

7. Sustainable Data Centre Design

- Designing energy-efficient data centers is key to reducing IT infrastructure's carbon footprint.
- Data centers should use renewable energy sources and aim to achieve a low Power Usage Effectiveness (PUE) ratio, which measures how efficiently energy is used to cool and power servers.

8. Sustainable Software Engineering

- Using sustainable software engineering practices such as Clean Code, SOLID principles, and Test-Driven Development (TDD) ensures that the software is not only functional but also maintainable, efficient, and resource conscious.
- Clean Code emphasizes simplicity and readability, which reduces the complexity and resource consumption over time.
- The SOLID principles guide developers to create modular, flexible software that is less resource intensive.
- TDD promotes writing tests before code, ensuring software is efficient and optimized from the start.

9. Optimizing UI/UX for Sustainability

- UI/UX design plays a significant role in sustainability. By making interfaces more intuitive and reducing unnecessary features, developers can lower energy consumption by users.
- For example, reducing the number of interactions needed to complete a task on a mobile app or optimizing screen refresh rates can help cut down on power usage.

10. GreenOps

- GreenOps is a new framework focusing on decarbonizing IT infrastructures by making sustainability-related decisions based on data.
- It includes practices like choosing energy-efficient servers, selecting regions powered by renewable energy for cloud operations, and ensuring the right cloud capacity is purchased to avoid over-consumption of resources.

BLOCKCHAIN

Blockchain: A Foundation of Trust and Transparency

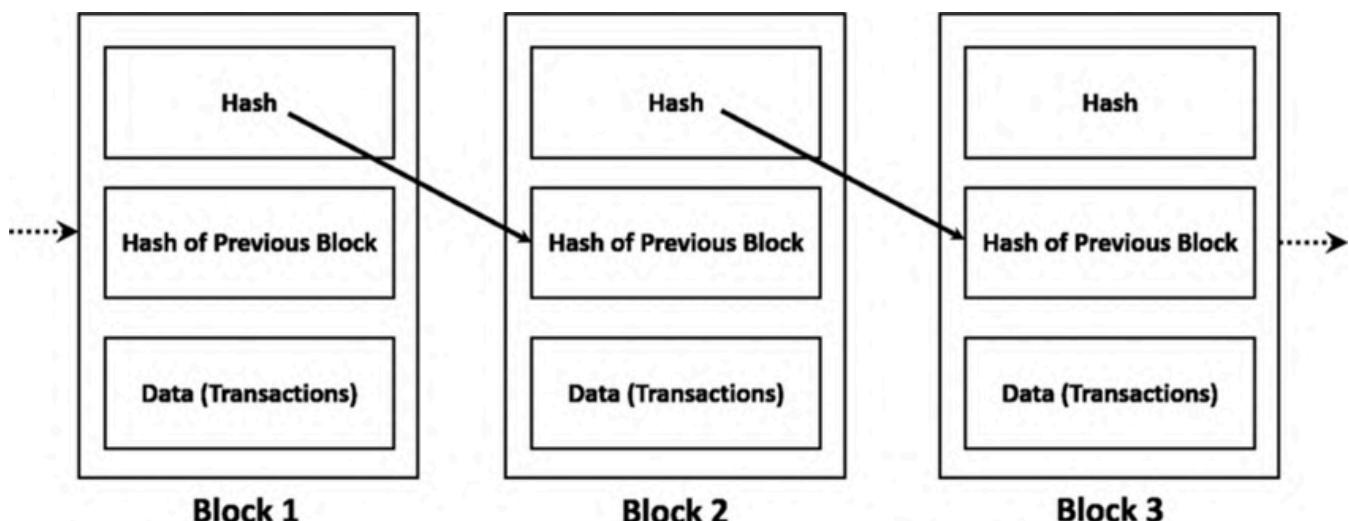
A blockchain is a distributed, immutable ledger. It's like a digital record of transactions, replicated and spread out across a network of computers. This distributed nature makes blockchain inherently resistant to tampering and single points of failure. Each block chronologically records a set of validated transactions with cryptographic links to the prior block, creating an impossible-to-break chain of trust.

Blockchain Structure: Blocks of Information

Understanding how a blockchain works starts with understanding the structure of a blockchain. A block consists of:

- **Block Header:** Identity of the block. It contains
- **Hash of the Previous Block:** This vital link connects the current block to its previous one and ensures the chain is in chronological order and that the information contained within cannot be altered.

- **Timestamp:** The timestamp records the block's creation date, adding yet another layer of security and verifiability.
- **Nonce:** A random number used in mining for solving complex mathematical problems to validate the blocks
- **Merkle Root:** The hash value that reflects all the transactions that appear within the block. This simple method simplifies the data verification process and guarantees data integrity.
- **Transactions:** A core component of the block, containing the actual data being recorded, such as cryptocurrency transaction or smart contract execution and other relevant data.



Hashing and Mining: The Blockchain's Integrity Protectors

Hashing functions contribute significantly to the blockchain regarding its integrity and security. They involve a one-way procedure for transforming any given data to a unique string of characters called a hash. Even an infinitesimally tiny change in the given input data will generate a drastically different hash, thereby defeating anyone's attempt at its change without being noticed.

The mining process generally consumes a lot of energy and locks in the blockchain. Miners, having specific hardware, compete in solving difficult mathematical problems. Whoever finds the solution first adds the next block to the chain and receives a reward in cryptocurrency. This process is responsible for securing the blockchain as well as the creation of new cryptocurrency units.

Consensus: The Power of Agreement

For a blockchain to function correctly, every node in the network must agree on one uniform version of the ledger. This agreement, or consensus, is reached through complex algorithms such as Proof-of-Work (PoW) or Proof-of-Stake (PoS).

- **PoW:** Miners use computational power to solve complicated puzzles, proving commitment to the network and protecting the blockchain. Bitcoin is a prime example of a PoW blockchain.
- **PoS:** This is a more energy-efficient process as participants "stake" their cryptocurrency holdings to validate transactions and secure the network. Ethereum has switched from PoW to PoS.

Smart Contracts: Automating Trust and Execution

Ethereum is one of the leading blockchain platforms that has expanded blockchain's capabilities beyond cryptocurrency transactions through the innovation of smart contracts. Smart contracts are self-executing contracts written in code that automatically enforce the terms of a contract when specific conditions are met. Imagine a digital escrow service where funds are released only when specific conditions are met, without needing a third-party intermediary. Smart contracts are revolutionizing industries by automating trust, streamlining processes, and reducing the potential for disputes.

Cryptocurrency: Digital Assets Powering the Blockchain

Cryptocurrencies, including Bitcoin and Ether (Ethereum's native cryptocurrency), are digital assets that use cryptography for security and operate outside of central banks. They are an integral part of many blockchain ecosystems, functioning as:

- **Reward for Miners:** Providing incentives to participants to secure the network.
- **Medium of Exchange:** Enabling transactions within the blockchain ecosystem.
- **Store of Value:** Like other traditional assets, such as gold, cryptocurrencies can be held as investments.

The Future of Blockchain: A World of Possibilities

Blockchain technology is developing quickly, and new applications and innovations are constantly appearing. It has tremendous potential to transform sectors like finance, supply chain management, healthcare, and governance. Once blockchain matures and becomes widely adopted, a great deal of transformation is expected to occur in how people interact and transact in the digital world.

EMERGING TRENDS

ARTIFICIAL INTELLIGENCE (AI) AND MACHINE LEARNING (ML)

AI and ML enable machines to learn from data and make autonomous decisions. These technologies are widely applied across various domains, including voice assistants, autonomous vehicles, predictive analytics, and fraud detection.

Impact:

AI and ML are revolutionizing industries by automating tasks, improving decision-making, and deriving insights from data. For instance, in healthcare, AI-powered applications can analyze vast amounts of patient data to identify patterns, enabling personalized medicine and more accurate diagnostics.



Market Size and Growth:

The global artificial intelligence market has entered a hyper-growth phase, with worldwide spending projected to reach \$2.52 trillion in 2026, a 44% year-over-year increase, driven primarily by a massive build-out of AI infrastructure and the shift toward mission-critical autonomous agents. This growth is fuelled by advancements in deep learning, natural language processing (NLP), and computer vision technologies.

Adoption Trends:

Developed countries are leading in AI adoption, with emerging markets rapidly catching up as investments in digital infrastructure and technology accelerate. Companies increasingly integrate AI into their core business processes to enhance efficiency and improve customer experiences.

Key Developments:

- **Generative AI:** Tools like ChatGPT and DALL-E are redefining content creation, enabling businesses to explore new marketing and customer engagement approaches.
- **Explainable AI:** Efforts are focused on making AI systems more transparent by revealing the decision-making process, which is essential for building trust and ensuring regulatory compliance.

5G TECHNOLOGY

5G, the fifth generation of mobile network technology, offers high-speed connectivity, low latency, and enhanced capacity. It facilitates seamless integration with devices and applications, driving advancements in IoT, AR/VR, smart cities, autonomous vehicles, and remote surgeries. Enhanced mobile broadband (eMBB) supports high-definition video streaming, online gaming, and virtual meetings.

Market Size and Growth:

The global 5G market is projected to reach \$667.90 billion by 2026, growing at an impressive Compound Annual Growth Rate (CAGR) of 122.3% from 2021 to 2026. This growth is driven by the increasing demand for faster internet speeds and the rising number of connected devices worldwide.

Adoption Trends:

Countries like the United States, China, and South Korea are at the forefront of 5G implementation, prompting other nations to accelerate their adoption strategies.

Long-Term Key Developments:

- **Network Slicing:** This technology allows operators to create multiple virtual networks from a single physical 5G network, optimizing performance for various applications.
- **Enhanced Mobile Broadband (eMBB):** eMBB offers ultra-high data rates and improved connectivity, essential for real-time streaming services and mobile applications.

INTERNET OF THINGS (IOT)

- The Internet of Things (IoT) refers to a network of interconnected physical devices embedded with technologies

that enable them to collect and share data over a network. These devices include sensors, appliances, and machinery that work together to gather and communicate information.

Impact:

IoT transforms industries into smarter and more efficient sectors, including smart homes, cities, and industrial processes. It enables real-time monitoring, predictive maintenance, and improved efficiency. For instance, smart homes optimize energy usage, while the Industrial IoT (IIoT) monitors equipment health, predicting failures before they occur.

Market Size and Growth:

Fueled by the rapid rollout of 5G and the integration of Edge AI across manufacturing, healthcare, and logistics, the global IoT market is projected to reach \$1.3 trillion in 2026. This growth is driven by a surge in connected devices, which are expected to exceed 21 billion units by the end of this year.

Adoption Trends:

IoT adoption is particularly strong in sectors benefiting from automation and data-driven decision-making. Key areas include smart city initiatives and industrial automation, where IoT drives significant efficiency improvements.

Key Developments:

- IoT Security:** As more devices become interconnected, ensuring the security of IoT networks is critical. Advanced encryption and robust security protocols are being developed to protect data and mitigate cyber threats.
- Edge Computing:** By processing data closer to the source, edge computing reduces latency and bandwidth usage, enabling faster and more efficient IoT applications.

AUGMENTED REALITY (AR) AND VIRTUAL REALITY (VR):

AR overlays digital information onto the physical world, while VR immerses users in virtual environments. These technologies are widely used in gaming, education, training, healthcare, and other applications.

Impact:

AR and VR enhance user experiences across diverse fields. For example, AR assists surgeons with real-time data during procedures, while VR enables virtual tours in real estate. These technologies are also transforming training and entertainment experiences.

Market Size and Growth:

Following a strategic pivot toward spatial computing, the global AR and VR market is projected to reach \$118.79 billion in 2026. This growth is fueled by a projected 87% rebound in hardware shipments and the rapid integration of 'Industrial Metaverse' solutions in manufacturing and healthcare.

Adoption Trends and Key Developments:

Adoption is high in gaming and entertainment, with growing interest in enterprise applications, including training, remote support, and virtual meetings.



- **Mixed Reality (MR):** Combines aspects of AR and VR to create immersive experiences for professional training and simulation.
- **5G Integration:** Enhances AR/VR applications with faster speeds and reduced latency for improved performance.

QUANTUM COMPUTING

Quantum computing uses quantum mechanics principles to build advanced computers capable of solving complex problems.

Impact:

Quantum computing promises breakthroughs in cryptography, materials science, and optimisation. For example, quantum computers can accelerate molecular structure research, expediting drug discovery and material development.

Market Size and Growth:

The quantum computing market is projected to reach \$64.98 billion by 2030, fueled by significant investments from technology giants and governments in quantum algorithms and hardware.

Adoption Trends:

Early adoption is primarily seen in research institutions and large corporations, with practical applications expected as the technology matures.

Key Developments:

- Quantum Supremacy: Companies like Google are demonstrating the potential of quantum devices to outperform classical computers.
- Quantum Cryptography: Offers secure communication methods leveraging quantum mechanics principles to counter cyber threats.

EDGE COMPUTING

Edge computing involves processing data closer to its source, reducing latency and bandwidth usage. It is essential for applications like autonomous vehicles, industrial automation, and smart cities that require real-time data processing.

Impact:

Edge computing improves the performance of critical systems by enabling real-time decision-making. For example, autonomous vehicles rely on edge computing for safety, and industrial applications use it for predictive maintenance and operational efficiency.

Market Size and Growth:

Driven by the convergence of 5G, Industrial IoT (IIoT), and the surge in Edge AI, the global edge computing market is projected to reach \$28.5 billion in 2026.



Adoption Trends:

Manufacturing, healthcare, and telecommunications are leading adopters, leveraging faster and more reliable data processing.

Key Developments:

- **IoT Integration:** Enhances IoT device functionality with real-time analytics and decision-making.
- **5G Synergy:** Boosts edge computing with faster and more reliable connectivity enabled by 5G networks

ROBOTIC PROCESS AUTOMATION (RPA)

RPA automates repetitive organizational tasks with high precision using software robots, such as data entry and transaction processing.

Impact:

RPA revolutionizes business operations by automating mundane tasks, allowing employees to focus on higher-value activities. For instance, automating invoice processing in finance reduces errors and saves time.

Market Size and Growth

The RPA market was valued at \$1.89 billion in 2020 and is projected to grow to \$13.74 billion by 2028, with a CAGR of 32.8%. Increased automation demand, improved productivity, and reduced operational costs drive growth.

Adoption Trends:

RPA is widely used in finance, healthcare, customer service, and other industries to streamline processes and improve service quality.

Key Developments:

- **Intelligent Automation:** Combines RPA with AI to enable more advanced automation solutions.
- **Scalability:** Develops scalable RPA solutions that integrate seamlessly into existing IT systems.

Cybersecurity Advancements

Evolving cybersecurity technologies focus on advanced threat detection, zero-trust architectures, and new encryption methods to protect data and infrastructure.

Impact:

Cybersecurity is critical for protecting sensitive information and maintaining trust in digital systems. AI-driven threat detection systems, for instance, can identify and mitigate cyber threats before they escalate.

Market Size and Growth:

Driven by the rise of AI-powered threats, the proliferation of IoT devices, and the shift toward zero-trust architectures, the global cybersecurity market is projected to reach \$248.28 billion in 2026.

Adoption Trends:

Industries handling sensitive data, such as finance, healthcare, and government, are adopting advanced



cybersecurity measures to safeguard their digital assets.

Key Developments:

- AI-Driven Threat Detection: Enhances security by identifying threats in real-time.
- Zero-Trust Architecture: Treats every network request as untrusted, improving overall security.

SUSTAINABLE TECHNOLOGY

Sustainable technology focuses on reducing environmental impact through innovations in renewable energy, waste management, and green manufacturing.

Impact:

Sustainable technologies help businesses and governments manage low carbon footprints, conserve resources, and promote environmental stewardship. Examples include renewable energy sources like solar and wind and green manufacturing practices that minimize waste and pollution.

Market Size and Growth:

The global sustainable technology market is projected to grow from \$8.79 billion in 2019 to \$36.6 billion by 2027, with a CAGR of 20.4%. This growth is driven by increased environmental awareness and regulatory pressures to adopt sustainable practices.

Adoption Trends:

High adoption rates are observed in energy, manufacturing, and transportation sectors, which are investing in alternative technologies to meet sustainability standards and demand for eco-friendly products.

Key Developments:

- **Circular Economy:** Designs products for durability, reusability, and recyclability, minimizing waste and resource use.
- **Energy Storage:** Advances in battery technology improve the efficiency of renewable energy usage.

INDUSTRY CLOUD PLATFORMS

Industry cloud platforms are specialized cloud services tailored to meet the unique needs of specific industries, such as healthcare, finance, and manufacturing. These platforms provide dedicated resources to improve efficiency, enhance compliance with industry regulations, and address distinct operational challenges.

Impact:

Industry cloud platforms save time and streamline processes by offering customized solutions to sector-specific problems. For example:

- Healthcare: Simplifies patient information management and improves care coordination.
- Finance: Delivers advanced analytics for risk management and regulatory compliance.

Market Size and Growth:

Driven by the race to operationalize 'Vertical AI' and meet stringent data sovereignty laws, the global industry

cloud platform market is projected to reach \$112.5 billion in 2026, a significant leap that reflects Gartner's prediction that over 70% of enterprises now use these specialized platforms.

Adoption Trends:

Adoption is particularly robust in sectors like healthcare, finance, and manufacturing, which benefit from domain-specific and enterprise-specific solutions designed to address their unique requirements.

Key Developments:

- **Regulatory Compliance:** Platforms are built to meet industry-specific regulations, minimizing risks and ensuring adherence to standards.
- **Tailor-Made Solutions:** Offers tools to address unique operational challenges, increasing productivity and streamlining workflows.

INTRODUCTION TO DATABASE MANAGEMENT SYSTEM

A Database Management System (DBMS) is a software system used to manage, store, and retrieve data efficiently in a structured format. It helps in organizing large amounts of data, ensuring that users can easily access, modify, and store data without direct interaction with the physical database.

Types of Databases

- Relational Databases: Use tables to store data and relationships between data entities (e.g., SQL databases like MySQL, Oracle).
- Non-Relational Databases: Store data in various formats like key-value pairs, documents, or graphs (e.g., NoSQL databases like MongoDB, Cassandra).

The main role of a DBMS is to ensure data consistency, integrity, and security while allowing users to manage data without dealing with low-level details.

ER Model (Entity-Relationship Model)

The ER model is used for database design and represents data relationships visually. It uses:

- Entities: Objects or things in the system, like "Student" or "Course".
- Attributes: Properties or details of entities, such as "Student Name" or "Course Code".
- Relationships: Associations between entities, such as "Student enrolls in Course".

An ER diagram visually represents entities, their attributes, and relationships, helping in designing databases efficiently by mapping real-world entities to a structured database schema.

Normalization and Denormalization

Normalization is the process of organizing a relational database to minimize data redundancy and dependency. The process involves breaking down tables into smaller tables and ensuring that each piece of data is stored only once.

The standard forms of normalization are:

- **1NF (First Normal Form):** Ensures that each column contains atomic values.
- **2NF (Second Normal Form):** Ensures that all non-key attributes are fully dependent on the primary key.



- **3NF (Third Normal Form):** Ensures that no transitive dependencies exist.
- **BCNF (Boyce-Codd Normal Form):** A stricter version of 3NF, ensuring that every determinant is a candidate key.

Denormalization is the process of combining tables to reduce the number of joins needed for querying. While it can improve performance in certain scenarios, it may increase redundancy and affect consistency.

SQL (STRUCTURED QUERY LANGUAGE)

SQL is a standard language for interacting with relational databases. It includes:

- DDL (Data Definition Language): Commands like CREATE, ALTER, DROP for defining and managing the database structure.
- DML (Data Manipulation Language): Commands like SELECT, INSERT, UPDATE, DELETE for manipulating data.
- DCL (Data Control Language): Commands like GRANT, REVOKE for controlling access to data.

INTRODUCTION TO DATA STRUCTURES AND ALGORITHMS(DSA)

Data Structures are ways to store and organize data efficiently, allowing for easier and faster access, modification, and manipulation. Common types include arrays, lists, stacks, queues, and trees.

Algorithms are step-by-step procedures or formulas for solving problems. They take input, process it, and provide output. The efficiency of an algorithm is often measured by its time and space complexity.

Time and Space Complexity

Time complexity refers to the amount of time an algorithm takes to complete as a function of the size of its input.

Space complexity refers to the amount of memory space an algorithm requires.

- Big O Notation is used to express time and space complexity, providing an upper bound on the performance.
- $O(1)$ – Constant time/space
- $O(n)$ – Linear time/space
- $O(n^2)$ – Quadratic time/space
- $O(\log n)$ – Logarithmic time

Data Structures

Stacks

A **stack** is a linear data structure that follows the Last In, First Out (LIFO) principle. Elements are added (pushed) and removed (popped) from one end, called the top.

- **Operations:**
- Push (add an element)
- Pop (remove the top element)
- Peek (view the top element)
- IsEmpty (check if the stack is empty)
- **Time Complexity:** $O(1)$ for push and pop



Queues

A queue is a linear data structure that follows the First In, First Out (FIFO) principle. Elements are added at the rear and removed from the front.

- **Operations:**

- Enqueue (add an element)
- Dequeue (remove an element from the front)
- Front (view the front element)
- IsEmpty (check if the queue is empty)
- **Time Complexity:** O(1) for enqueue and dequeue

Single Linked List

A single linked list is a collection of nodes where each node points to the next node in the sequence. It allows dynamic memory allocation.

Operations:

- Insert (at the beginning, middle, or end)
- Delete (at the beginning, middle, or end)
- Traverse (visit each element)

Time Complexity: O(1) for insertion and deletion at the beginning, O(n) for traversal

Doubly Linked List

A doubly linked list is similar to a single linked list, but each node has two pointers: one pointing to the next node and another pointing to the previous node.

- **Operations:**

- Insert (at the beginning, middle, or end)
- Delete (at the beginning, middle, or end)
- Traverse (in both directions)
- **Time Complexity:** O(1) for insertion and deletion at the beginning or end, O(n) for traversal

Binary Search Tree (BST)

A binary search tree is a tree where each node has at most two children, and the left child's value is smaller than the parent's value, while the right child's value is greater.

Operations:

- Insertion
- Deletion
- Search (efficient because of sorted nature)



Time Complexity:

- **Average case:** $O(\log n)$ for insertion, deletion, and search
- **Worst case:** $O(n)$ if the tree becomes unbalanced

Graphs

A graph is a collection of nodes (vertices) and edges, where edges connect pairs of nodes. Graphs can be directed (edges have a direction) or undirected.

Operations:

- Add a vertex or edge
- Depth-first search (DFS)
- Breadth-first search (BFS)

Time Complexity:

- DFS and BFS: $O(V + E)$, where V is the number of vertices and E is the number of edges

SORTING ALGORITHMS

Algorithm	Description	Time Complexity	Space Complexity
Bubble Sort	Compares adjacent elements and swaps them if they are in the wrong order, bubbling the largest element to the end.	Worst: $O(n^2)$ Best: $O(n)$	$O(1)$
Quick Sort	Picks a pivot and partitions the array into two sub-arrays—one with elements smaller than the pivot and one with larger elements, then recursively sorts the sub-arrays.	Average: $O(n \log n)$ Worst: $O(n^2)$	$O(\log n)$
Merge Sort	Divides the array into two halves, recursively sorts them, and then merges the sorted halves.	$O(n \log n)$	$O(n)$
Insertion Sort	Builds the final sorted array one item at a time by inserting the next element into its correct position.	Worst: $O(n^2)$ Best: $O(n)$	$O(1)$
Selection Sort	Repeatedly selects the smallest element from the unsorted part and swaps it with the first unsorted element.	$O(n^2)$	$O(1)$



SEARCHING ALGORITHMS

Linear Search

Linear Search checks each element of the list sequentially until the target element is found or the end of the list is reached.

- **Time Complexity:** $O(n)$
- **Space Complexity:** $O(1)$

Binary Search

Binary Search works on sorted arrays. It divides the array into two halves and compares the target element with the middle element, narrowing down the search to the appropriate half.

- **Time Complexity:** $O(\log n)$
- **Space Complexity:** $O(1)$ for iterative implementation, $O(\log n)$ for recursive implementation

Other Popular Algorithms

Dijkstra's Algorithm

- **Application:** Shortest path finding in weighted graphs.
- **Data Structures Used:** Priority Queue, Graph (Adjacency List or Matrix).

Kruskal's Algorithm

- **Application:** Minimum Spanning Tree (MST) in a graph.
- **Data Structures Used:** Disjoint Set (Union-Find), Graph (Edge List).

Prim's Algorithm

- **Application:** Minimum Spanning Tree (MST) in a connected graph.
- **Data Structures Used:** Priority Queue, Graph (Adjacency List).

Depth First Search (DFS)

- **Application:** Traversing or searching tree or graph structures.
- **Data Structures Used:** Stack, Graph (Adjacency List or Matrix).

Breadth First Search (BFS)

- **Application:** Traversing or searching tree or graph structures, finding the shortest path in unweighted graphs.
- **Data Structures Used:** Queue, Graph (Adjacency List or Matrix).

INTRODUCTION TO OPERATING SYSTEM(OS)

An **Operating System (OS)** is system software that manages computer hardware, software resources, and provides common services for computer programs. It acts as an intermediary between users and the computer hardware. The primary role of an OS is to ensure efficient execution of programs while managing hardware resources like CPU, memory, storage, and input/output devices.

Key functions of an OS include:

- Process management
- Memory management
- File system management
- Device management
- Security and access control

Process Management

- A process is a program in execution, consisting of the program counter, register contents, and variables.
Process management deals with the creation, scheduling, and termination of processes.

Key topics include:

- **Process Lifecycle:** The life of a process includes states such as new, ready, running, waiting, and terminated.
- **Process Scheduling:** The OS must determine which process runs at any given time.

Common scheduling algorithms include:

- First-Come, First-Served (FCFS)
- Shortest Job Next (SJN)
- Round Robin
- Priority Scheduling
- **Context Switching:** The process of storing and loading process states to switch between running processes.
- **Inter-process Communication (IPC):** Mechanisms like message passing and shared memory that allow processes to communicate with each other.

Threads and Concurrency

- A thread is a lightweight process, and multiple threads can exist within a single process. Concurrency refers to the execution of multiple tasks or threads simultaneously, allowing for more efficient utilization of CPU resources.

Important topics include:

- **Multithreading:** Running multiple threads within a single process, each performing a part of a task. This improves application performance, especially on multi-core processors.
- **Thread Synchronization:** Methods like mutexes, semaphores, and monitors are used to coordinate threads, preventing race conditions and ensuring data consistency.
- **Deadlocks:** A situation where a set of processes are blocked, each waiting for the other to release resources. Solutions to deadlocks include prevention, avoidance, detection, and recovery.



Memory Management

- Memory management refers to the way an OS manages computer memory, both primary (RAM) and secondary (disk storage). The goal is to maximize memory utilization while ensuring efficient access and protection.

Important topics include:

- **Memory Allocation:** Methods like contiguous, paging, and segmentation are used to allocate memory to processes.
- **Virtual Memory:** Provides an "idealized" abstraction of the storage resources that are not necessarily physically contiguous. This allows programs to execute without worrying about the physical memory size.
- **Page Replacement Algorithms:** Algorithms like FIFO, LRU (Least Recently Used), and Optimal Page Replacement determine which memory pages to swap in or out when the physical memory is full.
- **Memory Protection:** Ensures that processes do not interfere with each other's memory space, using techniques like base and limit registers.

Storage Management

Storage management refers to how the operating system manages both primary storage (RAM) and secondary storage(hard disks, SSDs).

Important topics include:

- **Disk Management:** Organizing and allocating space on disks using techniques like block allocation, contiguous allocation, and indexed allocation.
- **RAID (Redundant Array of Independent Disks):** A method of combining multiple disk drives for redundancy, performance, or both.
- **File System Types:** Differences between various file systems (e.g., FAT, NTFS, ext4) in terms of structure, permissions, and performance.

SYSTEM CALLS

A system call is a mechanism that allows user-level programs to interact with the OS kernel. Through system calls, a program can request services from the OS like file operations, process control, memory management, and communication.

Key system calls include:

- **Fork:** Creates a new process by duplicating an existing one.
- **Exec:** Replaces the current process with a new program.
- **Wait:** Makes a process wait for a child process to finish.
- **Exit:** Terminates a process.



Deadlocks

A deadlock occurs when two or more processes are unable to continue because they are each waiting for the other to release resources. The system becomes stuck, unable to make progress.

- Conditions for Deadlock: Mutual exclusion, hold and wait, no preemption, and circular wait
- Deadlock Prevention: Ensuring that at least one of the necessary conditions for deadlock is prevented
- Deadlock Avoidance: Using algorithms like Bunker's Algorithm to ensure that resources are allocated in a way that avoids deadlock
- Deadlock Detection and Recovery: Algorithms to detect deadlocks and recover from them

INTRODUCTION TO COMPUTER NETWORKS

A Computer Network is a set of multiple devices connected through various paths for data transfer and communication.

- Mediums: Includes wired or wireless connections
- Network Devices: Essential for data transmission

Features of Computer Networks

- High communication speed
- File, software, and hardware sharing
- Backup and rollback capabilities
- Enhanced security, scalability, and reliability

MAJOR NETWORK DEVICES

- **Hub:** Distributes network connections to multiple devices but broadcasts to all
- **Switch:** Transfers data directly between source and destination, offering improved efficiency over hubs
- **Router:** Connects local networks (LAN) to the internet
- **Modem:** Connects computers to the internet via telephone lines

COMPUTER NETWORK ARCHITECTURE

Peer-to-Peer Network

- Equal privilege for all devices; suited for small environments (<10 devices)
- **Advantages:** Low cost, easy setup, independent operation
- **Disadvantages:** No centralized backup; potential security issues



Client/Server Network

- The central server manages resources and communication.
- Advantages:** Centralized backup, improved security, better performance.
- Disadvantages:** High cost; server failure affects all clients.

Types of Computer Networks

- LAN (Local Area Network):** Connects devices within a small area (e.g., office building). Cost-effective and secure.
- PAN (Personal Area Network):** Connects personal devices within 10 meters (e.g., laptops, mobiles). Wired or wireless.
- MAN (Metropolitan Area Network):** Connects multiple LANs within a city (e.g., bank networks).
- WAN (Wide Area Network):** Covers large areas using technologies like satellites or fiber optics (e.g., the internet).

Network Topologies

- Bus Topology:** Nodes connect to a single backbone cable. Low cost but prone to interference.
- Ring Topology:** Nodes form a loop; data flows unidirectionally. Faulty nodes are removable, but delays are possible.
- Star Topology:** Nodes connect to a central hub. Scalable, but hub failure affects all.
- Tree Topology:** Hierarchical connection of nodes. Expandable but costly.
- Mesh Topology:** Nodes interconnected. Reliable but expensive.
- Hybrid Topology:** Combines multiple topologies. Scalable but complex.

Layered Architecture in Networks

OSI Model

- Purpose:** Standardizes communication processes across systems by dividing tasks into layers.
- Layers:**
- Physical Layer:** Transmits raw bitstreams via hardware.
- Data Link Layer:** Handles error detection and framing.

TCP/IP Model

- Purpose:** Practical implementation of network communication.
- Layers:**
- Application Layer:** Combines OSI's application, presentation, and session layers.
- Transport Layer:** Ensures error-free data transmission (TCP) or faster communication (UDP).



- **Internet Layer:** Routes data using IP addressing.
- **Network Interface Layer:** Manages hardware connections.
- **Comparison with OSI:** Simpler design with fewer layers; widely used for the internet.

Switching Techniques

- **Circuit Switching:** Dedicated communication path; reliable but resource heavy.
- **Packet Switching:** Data divided into packets; efficient and fault tolerant.
- **Message Switching:** Entire messages are stored and forwarded; this may introduce delays.

IPv4 vs IPv6

- **IPv4:** 32-bit address; supports 4.3 billion unique addresses.
- **IPv6:** 128-bit address; supports 3.4×10^{38} unique addresses.
- **Key Differences:** IPv6 offers better security, scalability, and future-proofing.

TCP vs UDP

- **TCP (Transmission Control Protocol):** Reliable and connection-oriented; used for critical applications like emails.
- **UDP (User Datagram Protocol):** Faster and connectionless; used for streaming and gaming.

HTTP vs HTTPS

- **HTTP (Hypertext Transfer Protocol):** Unsecured data transmission.
- **HTTPS:** Encrypted with TLS/SSL; essential for sensitive data.



COMMON QUESTIONS ASKED IN AN MBA INTERVIEW

1. What is the difference between artificial intelligence and machine learning in practical applications?
2. How do you see machine learning and deep learning enhancing business decision-making?
3. What challenges do companies face when integrating AI into their business models?
4. How do you balance AI efficiency and human oversight in decision-making?
5. What role do ethics play in developing AI technologies, especially in autonomous systems?
6. How can AI impact the healthcare industry, and what are the possible risks associated with its adoption?
7. What is the significance of AI-powered predictive analytics in improving business operations?
8. How do you see AI's role in customer service automation and enhancing user experience?
9. What measures would you take to prevent AI systems from becoming biased in decision-making?
10. How does artificial intelligence influence customer personalization in retail or e-commerce industries?
11. What are some innovative cybersecurity solutions that leverage AI and machine learning?
12. How can businesses ensure the security of AI and machine learning models against cyber threats?
13. In your opinion, what role does AI play in driving the future of autonomous vehicles and transport logistics?
14. How do AI and machine learning support predictive maintenance in industries like manufacturing or utilities?
15. How do you evaluate the performance and ethical implications of AI-driven tools and applications in your field?
16. Can you explain how blockchain can offer a more secure way to handle sensitive data compared to traditional systems?
17. In what ways can blockchain revolutionize supply chain management and transparency?
18. How do you see blockchain and smart contracts transforming the financial industry beyond cryptocurrency?
19. How would you explain the role of blockchain in enhancing data privacy and security in online transactions?
20. What are the potential risks associated with widespread adoption of IoT devices, and how can businesses mitigate them?
21. How can companies use predictive analytics to optimize supply chain and inventory management?
22. What are the most important considerations when implementing an IoT ecosystem in a large-scale enterprise?
23. How can IoT data help businesses improve customer engagement and enhance product development?
24. What are the primary advantages of implementing a cloud-based database management system in a business?
25. How would you approach the challenges of integrating AI with existing legacy systems in a business?
26. What is your understanding of edge computing, and how does it enhance data processing in IoT networks?
27. How do you see AI-powered chatbots changing the customer support landscape in the next 5 years?
28. Can you describe the significance of natural language processing (NLP) in improving AI communication?
29. How do you see quantum computing intersecting with AI and data analytics in the next decade?

OPERATIONS

Op-Era
The Operations Club



OP-ERA



What is Operations Management?

The process of planning, organizing, implementing, and improving business practices, maximizing an organization's efficiency. It is concerned with converting resources as efficiently as possible into goods and services to maximize an organization's profit, i.e., effectively balancing costs and revenues to maximize the net operating profit.

Ten Strategic Operations Management Decisions

- | | |
|---------------------------------|----------------------------|
| 1. Design of goods and services | 6. Human resources |
| 2. Managing quality | 7. Supply-chain management |
| 3. Process strategy | 8. Inventory Management |
| 4. Location strategies | 9. Scheduling |
| 5. Layout strategies | 10. Maintenance |

IMPORTANT CONCEPTS

- 1. Supply Chain Management (SCM):** Coordination and optimization of activities involved in producing and delivering products, from raw materials to end consumers.
- 2. Inventory Management:** Efficient control and tracking of stocked goods to ensure optimal levels, minimizing holding costs while meeting demand.
- 3. Forecasting:** Predictive analysis to estimate future demand for products or services based on historical data and trends.
- 4. Capacity Planning:** Determining the optimal production capacity required to meet current and future demand while avoiding under or overutilization of resources.
- 5. Cycle Time:** The total time it takes to complete a process, from the beginning to the end, often used to measure efficiency and productivity.
- 6. Bottleneck:** A point in a system where the flow of processes is slowed or impeded, limiting the overall capacity of the system.
- 7. Lead Time:** The time it takes from the initiation of a process to its completion, including order processing, manufacturing, and delivery.
- 8. Throughput:** The rate at which a system produces its end products, measuring the effectiveness of the production process.
- 9. Take Time:** It represents the maximum amount of time allowed to produce a product in order to meet customer demand.
- 10. Bullwhip effect:** The phenomenon in supply chains whereby ordering patterns experience increasing variance as you proceed upstream in the chain.

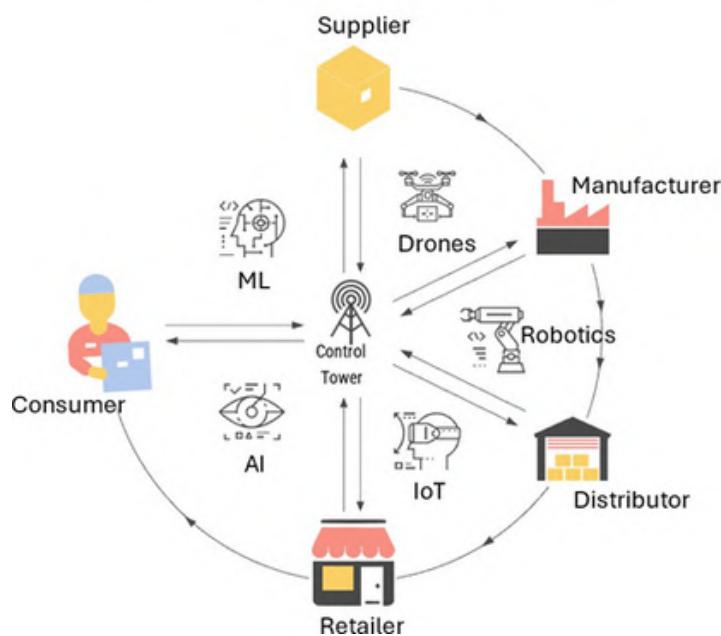
WHAT IS SUPPLY CHAIN MANAGEMENT?

A supply chain transforms raw materials and components into a finished product that's delivered to a customer. It is made up of a complex network of organisations and activities, such as raw materials suppliers, manufacturers, distributors, retailers, and the customer. Supply chain management is the orchestration between these networks comprising procurement, management, and storage of raw materials and manufacturing, as well as the moving, delivery, and storage of finished goods and after-market services to create maximum efficiency, lower cost, and net value.

Traditional Supply Chain



Digitally enhanced Supply Chain Management



Careers in Operations Management:

With accelerating economic growth in India, the demand for Operations managers will increase. Job roles and industries that require operations managers include:

Logistics and Supply Chain Management (SCM) – With an increase in manufacturing and trade, the demand for Logistics and Supply Chain Management has increased. The scope of logistics is broad and includes sub-sectors like shipping, air cargo, inventory management, and warehousing, each of which is a massive industry.

- **Manufacturing** – In this sector, the scope of operations managers is broad. It involves functional roles like plant managers, process managers, and technical operations managers, which are essential for the proper functioning of the manufacturing sector.
- **Process Engineering** – It involves designing, optimizing, implementing, and improving processes for various industries ranging from banking and insurance to e-commerce.

In addition, with the increasing need for achieving higher efficiencies and reducing waste, there is a demand for Operational Researchers to analyze systems and suggest improvements in processes.

LEAN MANUFACTURING

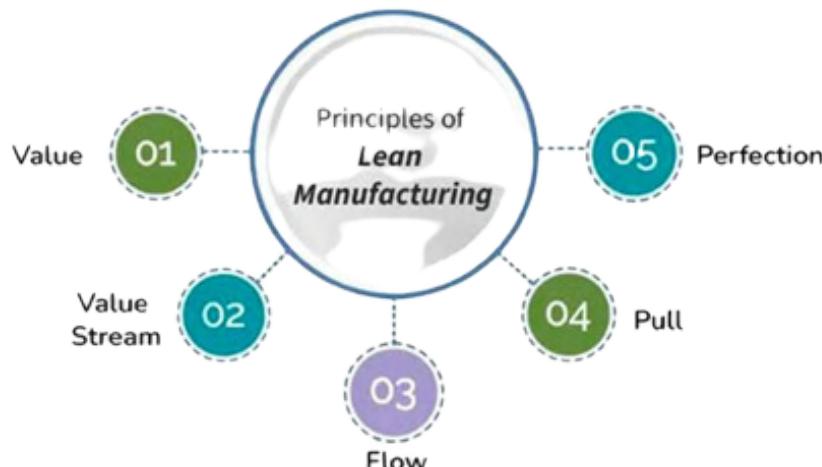
Lean manufacturing (or Lean production) is a systematic approach to minimizing waste within a manufacturing system while simultaneously maximizing productivity. The core idea is to eliminate any activity or resource that doesn't directly add value to the final product from the customer's perspective.

BENEFITS

- Reduced lead times and inventory levels
- Improved quality and customer satisfaction
- Increased employee morale and engagement
- Lower costs and higher profitability

KEY PRINCIPLES

- **Value:** Define value from the customer's perspective
- **Value Stream:** Identify all steps in the production process
- **Flow:** Create a continuous flow of production
- **Pull:** Let customer demand drive production
- **Perfection:** Continuously improve the process



Six Sigma

Six Sigma is a disciplined, data-driven approach and methodology to help eliminate defects in a process, from manufacturing to transactional and from product to service. Six Sigma is:

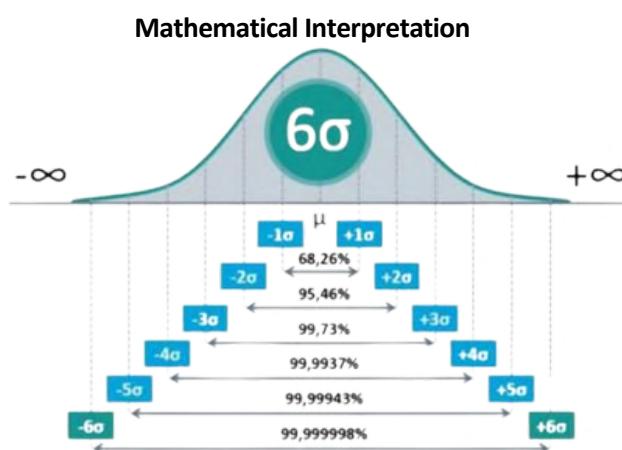
- A Philosophy: Make fewer mistakes in all that we do
- A statistical measure: Help gauge the adequacy of the product, process, and service
- A metric: A measuring system
- A business strategy: Good quality can help reduce cost numerically, having no more than 3.4 defects per million

Six Sigma's main goals are to:

- Reduce Variation
- Reduce Defects
- Cut Expenses
- Shorten the cycle time

Businesses use the Six Sigma approach because it increases their value in a methodical and quantifiable way by making them customer-focused, competitive, quality-aware, and forward-thinking. The following are some advantages that firms experience as a result of Six Sigma initiatives:

- Avoiding waste
- Reduction of defects
- Shortening of cycle time
- Savings on costs
- An increase in market share



DMAIC Methodology:

An organized, disciplined approach to problem-solving in most Six Sigma Organizations is known as DMAIC Methodology.

DMAIC Cycle

- **D (DEFINE the problem)** - In the Define Phase, we pinpoint areas for improvement, set clear goals, and allocate resources. By focusing on customer requirements, we identify Critical to Quality aspects—those pivotal characteristics ensuring customer and process satisfaction.

DMAIC is a five-step method for improving existing process problems with unknown causes.



- M (MEASURE the outcome)** – The Measure Phase gauges current process performance through exploratory data analysis, establishing a baseline before improvement identification. It builds on the Define Phase, using its outputs as inputs to assess the present process condition.
- A (ANALYZE)** – In the Analyze Phase, we use Six Sigma methods to shift through potential causes from the Measure Phase, identifying key factors affecting project outcomes and prioritizing them for focused improvement efforts. The data collected guides us in understanding and tackling sources of variation.
- I (IMPROVE)** – In the Improve Phase of Six Sigma, we optimize processes for improved efficiency and cost-effectiveness, implementing and validating optimal solutions to eliminate defects. The focus is on doing things better and faster.
- C (Control)** – In the Control Phase of Six Sigma, we establish and execute a process control plan to sustain improvements. This involves validating the measurement system, verifying process enhancements, and implementing control mechanisms for long-term stability.

DMADV Methodology

The DMADV is a Six Sigma framework that focuses on the development of a new product, service, or process.





7 QC TOOLS

The Seven Basic Tools of Quality (also known as 7 QC Tools) originated in Japan. These tools, which comprised simple graphical and statistical techniques, helped solve critical quality-related issues. 7 QC tools can be applied across any industry, from product development to delivery. 7QC tools, even today, own the same popularity and are extensively used in various phases of Six Sigma (DMAIC), in the continuous improvement process (PDCA- Plan Do Check Act cycle), and in Lean management (removing wastes from the process). The seven tools are:

1. Check the sheet
2. Control chart
3. Stratification (alternatively, Process flow chart or run chart)
4. Pareto chart
5. Histogram
6. Cause-and-effect diagram (also known as the "fishbone diagram" or Ishikawa diagram)
7. Scatter diagram

Check Sheet:

- Purpose: Collect and organize data for analysis.
- How: A simple form or sheet for systematically recording and tallying data.

Control Chart:

- Purpose: Monitor and maintain the stability of a process over time.
- How: Utilizes statistical analysis to plot data points and identify trends, helping to distinguish between common cause and special cause variations.

Stratification (often considered as the seventh tool):

- Purpose: Analyze and understand variations within data by dividing it into subgroups.
- How: Organizes data into different categories to reveal patterns and trends.

Pareto Chart:

- Objective: Determine and rank the most important elements causing an issue.
- How: Uses a bar graph to display data and draw attention to the key issues that cause most of the difficulties.

Histogram:

- Objective: The purpose of a histogram is to show how a set of data is distributed.
- How: Uses bars to visualize data and display the distribution and frequency of a given variable.

Cause-and-Effect Diagram (Fishbone or Ishikawa Diagram):

- Purpose: Identify and explore potential causes of a problem.
- How: Utilizes a fishbone-shaped diagram to categorize and analyze possible causes, including people, processes, equipment, and more.

Scatter Diagram:

- Purpose: Explore the relationship between two variables.
- How: Graphical representation of the correlation between two sets of data points



KANBAN

Kanban is a visual system for managing work as it moves through a process. Kanban visualizes both the process (the workflow) and the actual work passing through that process. It normally consists of a card or ticket with information on the item and the quantity to be produced. The goal of Kanban is to identify potential bottlenecks in your process and fix them so work can flow through it cost-effectively at an optimal speed or throughput. A Kanban board is **an agile project management tool designed to help visualize work, limit work-in-progress, and maximize efficiency (or flow)**. It can help both agile and DevOps teams establish order in their daily work. The Kanban Method follows a set of principles and practices for managing and improving workflow. It is an evolutionary, non-disruptive method that promotes gradual improvements to an organization's processes. This method will improve flow, reduce cycle time, and increase value to the customer with greater predictability.

The four foundational principles:

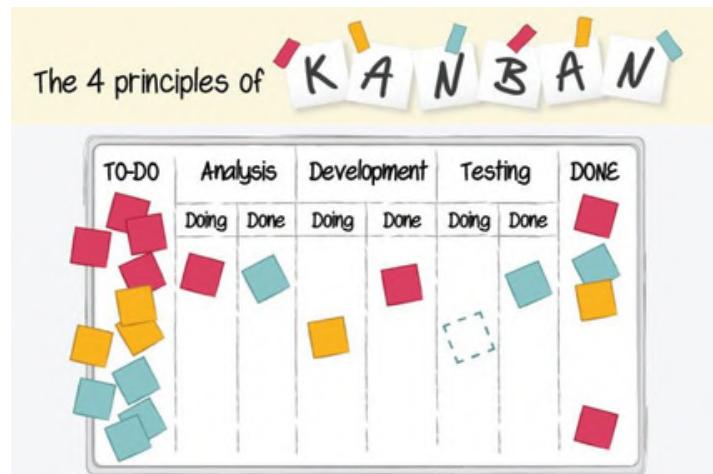
- 1. Start with what you are doing now** – Don't make any changes to your existing setup/ process right away. Kanban must be applied directly to the current workflow. Any changes needed can occur gradually over a period at a pace the team is comfortable with.
- 2. Agree to pursue incremental, evolutionary change** - Kanban encourages you to make small incremental changes rather than radical changes that might lead to resistance within the team and organization.
- 3. Initially, respect current roles, responsibilities, and job titles** - Kanban does not impose any organizational changes by itself. So, it is not necessary to make changes to your existing roles and functions, which may be performing well. The team will collaboratively identify and implement any changes needed.
- 4. Encourage acts of leadership at all levels** - People at all levels can provide ideas and show leadership to implement changes to continually improve the way they deliver their products and services.

Core Practices of the Kanban Method:

- **Visualize the flow of work** – Making the entire process using Kanban board.
- **Limit WIP (Work in Progress)** - Streamlining the currently active tasks efficiently.
- **Manage Flow** - People at all levels can provide ideas and show leadership to implement changes to continually improve the way they deliver their products and services.
- **Make Process Policies Explicit** - you create a common basis for all participants to understand how to do any type of work in the system. The policies can be at the board level, swim lane level, and for each column.
- **Implement Feedback Loops** - The method encourages and helps you implement feedback loops of various kinds – review stages in your Kanban board workflow, metrics and reports, and a range of visual cues that provide you continuous feedback on work progress – or the lack of it – in your system.
- **Improve Collaboratively, Evolve Experimentally** - adopt small changes and improve gradually at a pace and size that your team can handle easily.

In a classic Kanban board model, there are three columns:

- "**To Do**": This column lists the tasks that are not yet started ("backlog" can also be used)
- "**Doing- "**Done**": Consists of the tasks that are completed**



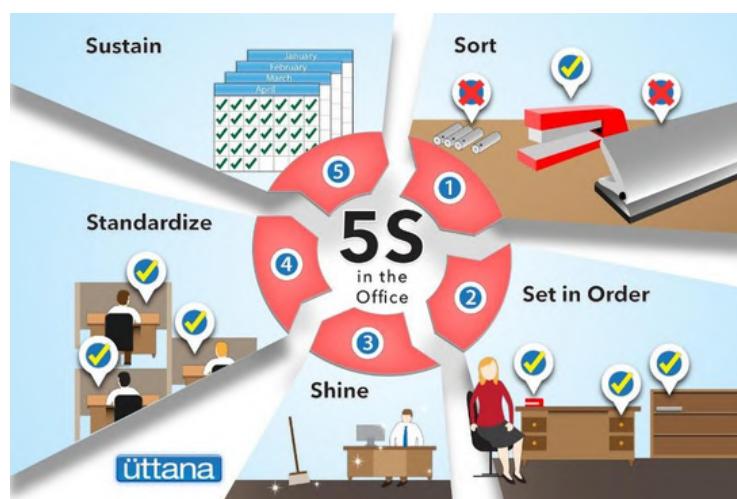
Applications

- The Kanban system can be used easily within a factory, but it can also be applied to purchasing inventory from external suppliers.
- The Kanban system creates extraordinary visibility for both suppliers and buyers.
- The main goal is to limit the build-up of excess inventory at any point on the production line.
- Limits on the number of items waiting at supply points are established and then reduced as inefficiencies are identified and removed.
- Whenever a limit of inventory is exceeded, it points to an inefficiency that needs to be addressed.

5S

5S is a system for organizing spaces so work can be performed efficiently, effectively, and safely. It is a methodology used to organize activities and areas in a facility. The ultimate responsibility for maintaining the 5Ss is of the manager. The 5 Ss are:

- Sort (Organization): Distinguish between what is needed and not needed.
- Stabilize (Orderliness): A place for everything and everything in its place.
- Shine (Cleanliness): Cleaning and looking for ways to keep it clean. Cleaning is inspecting!
- Standardize (Promote Adherence): Share established standards and make standards obvious.
- Sustain (Self-Discipline): Stick to the rules and maintain the first four S's.



Why necessary ?

- Factories are living, breathing entities that have a heartbeat and must eat and respire, just like many other organisms.
- 5S is the training regimen that a factory or company needs to partake in to get to that level.
- The 5S concept helps get your house in order and keep it in order.
- The basic concept is setting the workplace up so that it is organized and runs well.
- A technique that makes problems visible in a workplace.

5S Benefits

1. Zero changeovers bring product diversification
2. Zero defects bring higher quality
3. Zero waste brings lower costs
4. Zero delays bring reliable deliveries
5. Zero injuries promote safety
6. Zero breakdowns bring better maintenance
7. Zero complaints bring greater confidence and trust
8. Zero red ink brings corporate growth

TAKT TIME

The word "takt," which implies a beat or a pulse in German, is where the phrase first appeared. In the 1930s, Germany's aviation manufacturing industry was the first to adopt takt time as a metric. Twenty years later, it made a substantial contribution to Toyota's transformation from a modest Japanese automaker to the biggest automaker in the world. Takt time is the rate at which you need to complete a product to meet customer demand. For example, if you receive a new product order every 4 hours, your team needs to finish a product in 4 hours or less to meet the demand. Takt time is your sell rate and can easily be categorized as the heartbeat of your work process. It allows you to optimize your capacity appropriately to meet demand without keeping too much inventory in reserve. Managing a pull system wouldn't be possible without maintaining a continuous flow of work. This is not an easy task, as demand is constantly in flux. To meet demand and run your process in the leanest and most efficient way, you need to define takt time for your work process.

How to Define Takt Time?

To define takt time, you need to divide the production time available by customer demand.

$$\text{Takt time} = \frac{\text{Total Available Production Time}}{\text{Average Customer Demand}}$$

You should exclude breaks, scheduled maintenance, and shift changeovers (if there are any). When defining takt time, you should include a relatively short time frame for the average customer demand (e.g., a week or a month).

Takt Time vs Cycle Time vs Lead Time

- Lead time is the time frame between an order being received and the client getting their value.
- Cycle time is the time your team spends actively working on a customer order.
- Takt time is the maximum amount of time you need to comply with to meet customer demand.

As a Lean manager, you should consider all three metrics as key performance indicators of your workflow.

KAIZEN

Kaizen is a Japanese word that means consistent improvement or change for the better. It's a Japanese business philosophy about how to make operations better all the time and get everyone involved. It is an idea that includes a lot of different things. Making the workplace more efficient and effective means fostering a sense of teamwork, making daily tasks easier, keeping employees interested, and making work more satisfying, less tiring, and safer. The main idea behind kaizen is to make small changes over time to make things better in a business. That doesn't mean changes take a long time. The kaizen process is based on the idea that small changes made now can have big effects later on. Any worker can suggest ways to make things better at any time. The concept is that everyone has a stake in the success of the business and should always work to improve the way it works. The kaizen idea has been used by many businesses. Most importantly, Toyota uses the meaning and philosophy of kaizen in its business. One of its most important values is kaizen. Toyota wants to improve its production system, so it encourages and gives all of its employees the freedom to find ways to make things better and come up with workable solutions.



Kaizen

-
- ▶ Customer Orientation
 - ▶ Total Quality Control / Six Sigma
 - ▶ Robotics
 - ▶ Quality Circles
 - ▶ Suggested System
 - ▶ Automations
 - ▶ Discipline in the Workplace
 - ▶ Total Productive Maintenance (TPM)
 - ▶ Kanban
 - ▶ Quality Improvement
 - ▶ Just-In-Time (JIT)
 - ▶ Zero Defects
 - ▶ Small-Group Activities
 - ▶ Cooperative Labor / Management Relations
 - ▶ Productivity Improvement
 - ▶ New Product Development

10 Principles of Kaizen

The Kaizen method follows ten specific principles, which are described below:

1. Improve everything continuously
2. Abolish old, traditional concepts
3. Accept no excuses and make things happen
4. Say no to the status quo of implementing new methods and assuming how they will work
5. If something is wrong, correct it
6. Empower everyone to take part in problem-solving
7. Get information and opinions from multiple people
8. Before making decisions, ask "why" questions five times to get to the root cause (5 Why Method)
9. Be economical. Save money through small improvements to spend the saved money on further improvements.
10. Remember that improvement has no limits. Never stop trying to improve.

THE 5W AND 1H OF KAIZEN

Who?	What?	Where?
1. Who does it? 2. Who is doing it? 3. Who should be doing it? 4. Who else can do it? 5. Who else should do it? 6. Who is doing 3-Mu's?	1. What to do? 2. What is being done? 3. What should be done? 4. What else can be done? 5. What else should be done? 6. What 3-Mu's are being done?	1. Where to do it? 2. Where is it done? 3. Where should it be done? 4. Where else can it be done? 5. Where else should it be done? 6. Where are 3-Mus' being done?
When?	Why?	How?
1. When to do it? 2. When is it done? 3. When should it be done? 4. What other time can it be done? 5. What other time should it be done? 6. Are there any time 3-Mu's?	1. Why does he do it? 2. Why do it? 3. Why do it there? 4. When do it then? 5. Why do it that way? 6. Are there 3-Mu's in the way of thinking?	1. How to do it? 2. How is it done? 3. How should it be done? 4. Can this method be used in other areas? 5. Is there any other way to do it? 6. Are there any 3-Mu's in the method?

The Kaizen method strives toward perfection by eliminating waste (Muda) in the workplace (Gemba). The goal of Kaizen is production without waste by improving standardized activities and processes. Industrial engineer Taiichi Ohno, the father of the Toyota Production System, noticed that there is an 80% loss in every process and the value of the process is less than 20%.

INDUSTRY 4.0

We are in the Industry 4.0 era. With its extraordinary speed and scale, the Fourth Industrial Revolution enables you to approach operations with a stronger data-driven focus. This information gleaned from your assets adds value and permits wiser choices. Finding the relevant insights at scale is your issue, as more assets are incorporated into business workflows, and technologies like 5G and edge computing are used. These findings may be a crucial component of operational resilience in the face of this exceptional and global disruption.

Start with collecting data, then add AI

The Internet of Things is significantly used in modern manufacturing (IoT). It links equipment, computers, and sensors to create a comprehensive picture of the manufacturing facility and all of its resources, boosting output and quality. One component is data. However, what counts more is the ability to visualize that data using AI and machine learning. Businesses are looking more and more for AI to assist them in distinguishing between the signal and noise in their systems. According to an IBM survey, 34% of businesses, up from 14% a year ago, claimed they are implementing AI technology. That's because these new technologies will ultimately give operators a means to handle asset maintenance and operations more intelligently.

How AI adds intelligence to manufacturing

In a manufacturing plant where IT and OT may operate in information silos or in an organization where processes differ in varying degrees from plant to plant, it is pivotal to connect the data between the teams. That connection enables you to deliver the right information, to the right people, in the right context, all for better decisions. This collaborative view helps drive improved production efficiency and cost containment. AI-powered manufacturing can drive up to 30% yield improvements and 15% waste reduction.

Accelerated response times with 5G + edge computing

Today, 5G is assisting in bringing reaction times down to sub-second levels from minutes and seconds. This speeds up communications to sensors and actuators and produces results much more quickly. Combine this with edge computing after that. You become aware of how much simpler it is to calculate the enormous amount of data from ubiquitous assets now that you aren't sending data over the network. As you expand your activities, this gains a particularly strong impact. Utilize manufacturing powered by AI to create a more resilient corporation.

Improve product quality and yield with intelligent, secure, and adaptable manufacturing operations

AI-powered manufacturing—with solutions deployed at the edge—can drive up to 30% yield improvements and 15% waste reduction, and a 5-10% reduction in operating costs. It can also accelerate your journey to Industry 4.0.

EMERGING TRENDS IN OPERATIONS MANAGEMENT

- **Blockchain-** A blockchain is a decentralised database or ledger that is distributed among the nodes of a computer network. The utilisation of blockchain technology is transforming operations and supply chain management through the provision of a secure and a transparent platform for monitoring goods and materials, automating payments, and overseeing contracts. This has the capacity to enhance effectiveness, diminish expenses, and augment transparency across the supply chain.
- **Automation-** Automation entails the utilisation of advanced technology and software to mechanise the various procedures and repetitive activities. In Operations and Supply chain it can be heavily used in data entry, pick and pack systems, automatic guided vehicles, freight invoicing and many more.
- **AI-** An organisation can use Artificial Intelligence and the massive amount of data generated by company to improve supply chain management, efficiency, operations, performance, and customer experience with predictive analytics, quality control, demand forecasting, predictive maintenance, and many other innovations.
- **Circular Supply Chain-** Circular Supply Chain Management is an environmentally conscious strategy for managing the flow of goods and materials. It aims to reduce waste and optimise the use of resources by creating products and processes that can be repaired, refurbished, or recycled. CSCM, in contrast to the conventional linear "take-make-dispose" paradigm, prioritises circularity by focusing on product design, minimising waste, promoting reuse and recycling, and reintegrating products back into the supply chain. The advantages of CSCM encompass a diminished ecological footprint, heightened financial gains, and improved standing.
- **Net-Zero-** Net-Zero in Operations and Supply Chain Management (OSCM) is a strategy methodology that seeks to achieve a balance between the amount of greenhouse gas (GHG) emissions produced and the amount of GHG emissions removed. This ensures that an organization's OSCM activities do not have a significant impact



on the climate. This method entails quantifying and evaluating greenhouse gas emissions, executing plans to decrease emissions, and utilizing carbon offsets. Net-Zero OSCM provides advantages in terms of ecological sustainability, improved brand image, and financial savings. Net-Zero OSCM activities encompass several practices such as the adoption of renewable energy, implementation of circular supply chain methods, and promotion of sustainable transportation. Given the ongoing urgency of climate change, the adoption of Net Zero OSCM is increasingly essential for implementing sustainable business strategies.

- **Automated mobile robots-** Autonomous Mobile Robots (AMRs) are advanced machines that transform logistics management by independently moving materials within facilities. AMRs do not rely on fixed infrastructure. Instead, they utilize Laser Guidance and Geo-Guidance technologies to navigate uncontrolled situations. This provides them with the advantages of flexibility and cost-effectiveness. Laser Guidance utilizes rotating lasers and reflecting markings to accurately determine the course and make real-time adjustments to the route. On the other hand, Geo-Guidance relies on facility maps to enable autonomous navigation and calculate the optimal route. AMRs effortlessly combine with primary networks to optimize operational efficiency and flexibility.
- **Supply Chain as a service-** Supply Chain as a Service(SCaaS) is a cloud-based outsourcing model that allows enterprises to obtain supply chain solutions as needed, without having to invest in their own infrastructure. SCaaS provides the opportunity to easily adjust capacity, specialized knowledge, and creative thinking, resulting in decreased expenses, greater productivity, and a heightened emphasis on fundamental strengths. Typical SCaaS products encompass warehouse management, transportation management, demand forecasting, and supply chain analytics. Supply Chain as a Service is becoming increasingly popular as organisations acknowledge its advantages, allowing them to attain supply chain superiority while concentrating on their main areas of expertise.
- **Digital Supply Chain Twins-** Digital Supply Chain Twins are virtual representations of physical supply chains that leverage real-time data and simulations to simulate and analyze supply chain processes, facilitating optimized decision-making, increased visibility, and higher resilience. These incorporate up-to-date information, utilize simulation and modelling techniques, and present visual representations to improve decision-making, visibility, and resilience. Digital Supply Chain Twins are utilized in several areas such as predictive maintenance, demand forecasting, route optimization, and scenario planning, hence revolutionizing supply chain management.
- **Internet-Of-Things-** The Internet of Things is a network of devices that are finely tuned and interconnected within a comprehensive infrastructure, utilizing digital methods to record, transmit, store, and analyze data. IoT devices enable inventory management, predictive maintenance, asset tracking, and transportation optimization, improving visibility, effectiveness, and customer service. In Operations and Supply Chain Management, manufacturing firms monitor product temperature and humidity, retail firms monitor product flow, and logistics firms monitor vehicle conditions.



COMMONLY ASKED QUESTIONS:

1. Why have you chosen to pursue Operations Management?
2. What are some of the skills you think are significant for the Operations Manager?
3. What do you mean by forecasting, and what is the impact of forecasting on the manufacturing industry?
4. Define the terms Just-in-Time and Total Quality Management.
5. What is the supply chain? Describe the types of processes involved.
6. What do you mean by smart supply chain? What are its advantages?
7. What is Six Sigma? What does it aim to do?
8. What is Last mile delivery?
9. What do you understand by Make-to-order and Make-to-stock? Give some examples of industries relying on the above two methodologies.
10. How is technology contributing to operations? Justify your opinion.
11. What is Kaizen?
12. What is a Bottleneck, and how does it affect the overall process time?
13. What is the DMAIC improvement cycle, and how is it used?
14. Explain the bullwhip effect.
15. Identify Three Current Trends in Operations Management and Describe Them.
16. What is Operations Management?
17. How will 5G contribute to Operations?
18. What is sustainable operations management?
19. What are your views on four days working week in manufacturing firms?
20. What is the impact of Covid-19 on manufacturing firms?

CONSULTING

ConQuest
The Consulting & Strategy Club





INTRODUCTION TO CONSULTING

Consulting is a strategic partnership where experts leverage their specialized knowledge and skills to drive meaningful change for organizations, businesses, and individuals. It transcends mere advice by delivering in-depth analysis of a client's unique challenges and opportunities. Consultants draw from extensive experience across diverse fields, including management, finance, and technology, to pinpoint critical issues and design bespoke solutions that elevate performance and achieve objectives. This collaboration extends beyond recommendations, encompassing implementation support, training, and coaching to ensure enduring success. By bridging expertise gaps, consultants empower clients to navigate complexities and unlock growth opportunities with precision and confidence.

CAREERS IN CONSULTING

- Analyst
- Associate
- Consultant
- Manager
- Principal
- Director
- Partner

Generally, consulting careers can be broken down into three main levels: entry-level, manager, and partner / principal.

1. Entry-level consultants typically start as analysts or associates and work on conducting research, analyzing data, and helping to develop recommendations for clients.

2. Manager-level consultants are responsible for leading the project teams, managing client relationships, and delivering high-quality work. They may also be involved in business development activities, such as identifying new clients and opportunities.

3. Partner/principal-level consultants are responsible for the overall management of the consulting practice, including managing the firm's financial performance, developing and implementing business strategies, and leading business development efforts.

In addition to these levels, there are also specialized career paths within consulting, such as industry-specific consulting, strategy consulting, technology consulting, and management consulting.

The progression in consulting is often based on the performance, skills, and experience of the candidate. It is a merit-based career, and progress is based on the ability to deliver results, manage client relationships and lead teams.

It's also important to note that consulting is a demanding field that requires strong analytical, problem-solving, and communication skills, as well as the ability to work well under pressure and meet tight deadlines.

TYPES OF CONSULTING

- **Strategy Consulting:** An upper-level decision-making process where the consultants advise and support businesses to develop, implement and sustain business goals. This type of consultancy helps businesses with both long-term and short-term goals by helping with profitability, M&A, operations, and workforce.
- **Financial Consulting:** The role of a consultant in financial consulting is to provide information and advice to businesses on investment strategies, audits, financial decisions, taxes, actuarial, valuation, and risk management.
- **IT Consulting:** An IT consultant works in partnership with clients to overcome their business challenges through the application of technology. A consultant's work will often be based on the need to improve efficiency and the way a company functions, with IT being used to achieve this.
- **Operation Consulting:** Operations consulting, often known as operations management, is defined as advising and/or implementation services that help a firm enhance its internal operations and value chain performance. By advising on and supporting the implementation of changes to target operating models, functional business processes, management systems, culture, and other value chain elements, operations management consulting projects help clients run more efficiently.
- **Human Resource Consulting:** HR consulting is the activity of providing all parts of human resource management as an external supplier, as well as the professional and business challenges that go along with it, such as client development, contracts, and client management.
- **ESG Consulting:** ESG consultants are responsible for advising businesses on more sustainable investing. They identify opportunities in the company's current portfolio for investments that are environmentally and socially sustainable. They also suggest businesses divest from those that do not comply with ESG.

IMPORTANT FRAMEWORKS:

Porter's 5 Forces:

Michael Porter's Five Forces is probably the most famous framework used in preparing for interviews in the consulting domain. According to this framework, competitive advantage in an industry is dependent on the following five primary forces:

- The *Threat of New Entrants* evaluates barriers that deter new competitors from entering an industry. These include economies of scale, product differentiation that builds brand loyalty, high capital requirements, limited access to distribution channels and raw materials, proprietary technologies, and regulatory or policy restrictions. Together, these factors shape the industry's competitive environment and influence its profitability.

- The *Bargaining Power of Buyers* highlights the influence buyers have over pricing and terms. Buyer power grows when they purchase in large volumes, products are undifferentiated, switching costs are low, or buyers can threaten backward integration. Fewer buyers compared to sellers also increases their leverage, impacting industry dynamics.
- The *Bargaining Power of Suppliers* assesses the control suppliers hold over firms. This power strengthens when substitutes are limited, their products are essential inputs, switching costs are high, or suppliers can credibly threaten forward integration. Differentiated products further enhance supplier influence, requiring careful management by firms.
- The *Threat of Substitute Products* considers the risk of alternatives that fulfill similar needs and can replace an industry's offerings. Substitutes competing on price or offering better value, combined with low switching costs, increase this threat by encouraging consumers to shift to alternatives.
- Rivalry Among Competitors* evaluates the intensity of competition within an industry. It escalates with numerous competitors, slow growth, high fixed costs, undifferentiated products, and low customer switching costs. Excess capacity and high exit barriers further fuel competition, while strong brands and customer loyalty shape market dynamics.



The goal is to assess whether a company should enter/exit the industry or find a position in the industry where it can best defend itself against these forces or can influence them in its favour.

Although the Five Forces is an excellent framework for helping you organize your thoughts, its analysis is not complete. It should be used in conjunction with other frameworks to enable you to fully understand the issues at hand.

PESTLE Analysis:

Pestle Analysis is a concept used to gauge the environment in which the company operates and provides goods/services to its customers. PESTLE is a mnemonic that refers to:

1. Political factors help determine the extent to which a company/industry, or economy is impacted by government influence. For example, new tax structure, trade tariffs, fiscal policy changes, etc.

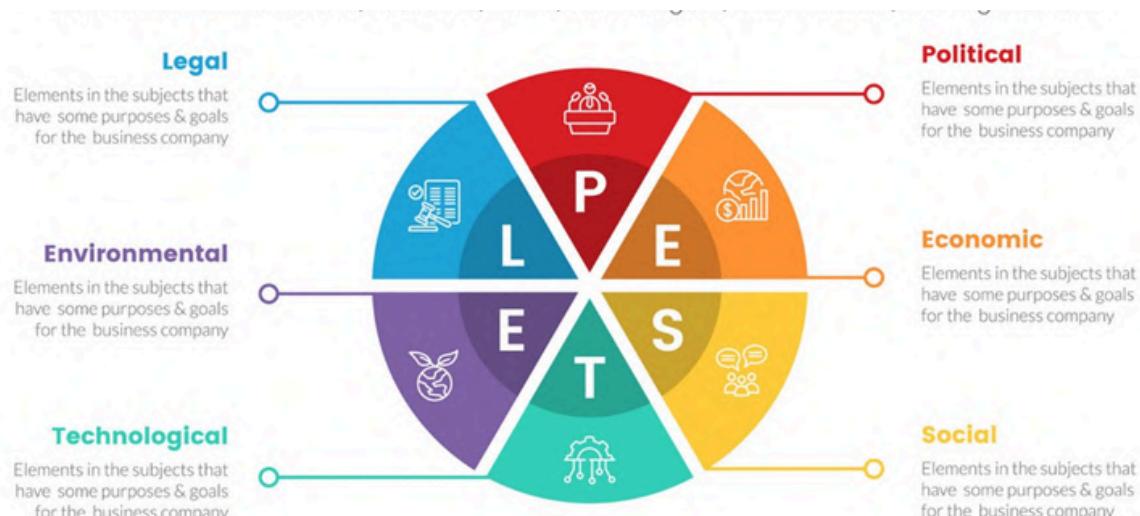
2. Economic factors help determine the performance of the economy, directly or indirectly impacting the company. For example, a rise in the inflation rate of an economy would affect the prices of a company's products and services. Adding to that, it would further affect the purchasing power of the consumers and may change demand/supply models for that economy.

3. Social factors help determine demographics, cultural trends, population analytics, etc. For example, buying trends in a country like India during the festive season of Diwali, where the economy witnesses high demand during festivities.

4. Technological factors help determine the changes in technology that may affect the company's operations or product line. For example, automation changes the way a company operates and leads to changes in human capital requirements.

5. Legal factors help determine how certain laws may affect the business environment while operating in a country. It also considers certain policies companies chart out for themselves. For example, labour laws, consumer laws, etc.

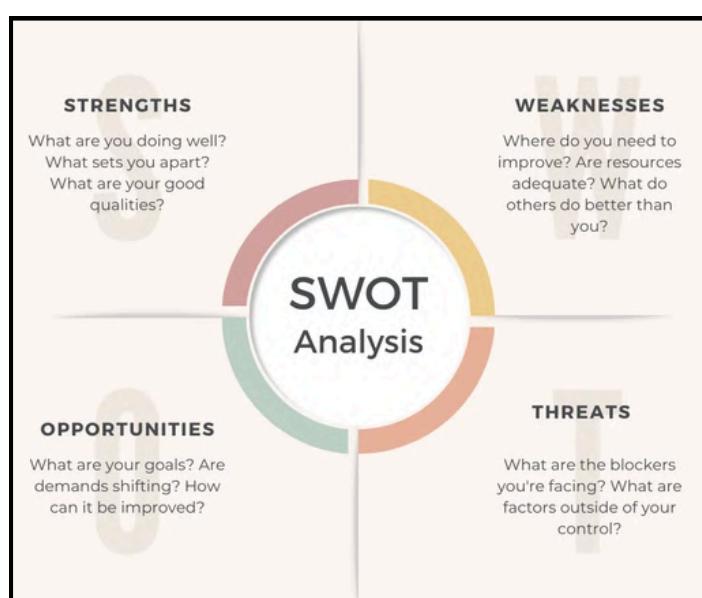
6. Environmental factors help determine the factors determined by the surrounding environment and its influence. These are not just limited to climate and weather but also include geographical location, global climate changes, environmental offsets, etc.



SWOT Analysis:

SWOT (strengths, weaknesses, opportunities, and threats) analysis is a framework used to evaluate a company's competitive position and to develop strategic planning. It assesses internal and external factors, as well as current and future potential. It is designed to facilitate a realistic, fact-based, data-driven look at the strengths and weaknesses of an organization, initiatives, or within its industry.

- 1. Strengths-** These describe what an organization excels at and what separates it from the competition: a strong brand, a loyal customer base, a strong balance sheet, unique technology, and so on.
- 2. Weaknesses-** These prevent an organization from performing at its optimum level. These are areas where the business needs to improve to remain competitive: a weak brand, higher-than-average turnover, high levels of debt, an inadequate supply chain, or lack of capital.
- 3. Opportunities-** These refer to favourable external factors that could give an organization a competitive advantage.
- 4. Threats-** These refer to factors that have the potential to harm an organization.



4Ps:

4P is a framework that helps develop strategies to differentiate a company's product from its competitors. It is very common when launching a new product or while reviewing the positioning of an existing product.

- 1. Product:** The company must be clear on what product it is selling and which product or which version of the product to market. What is the product? Product lifecycle? How innovative is the product compared to existing products? Any patents or rights to protect the product from being copied? Any similar products or substitutes?

2. Price: The price charged for the product depends on its command in the marketplace. It impacts the company's revenue and profits as well as communicates information on the quality or value of the product. What is the perceived value of the product for the customers? Price charged by the competitor? Production cost involved? Price sensitivity of the product? What is the breakeven point? Do customers need to be educated about the product or its usage?



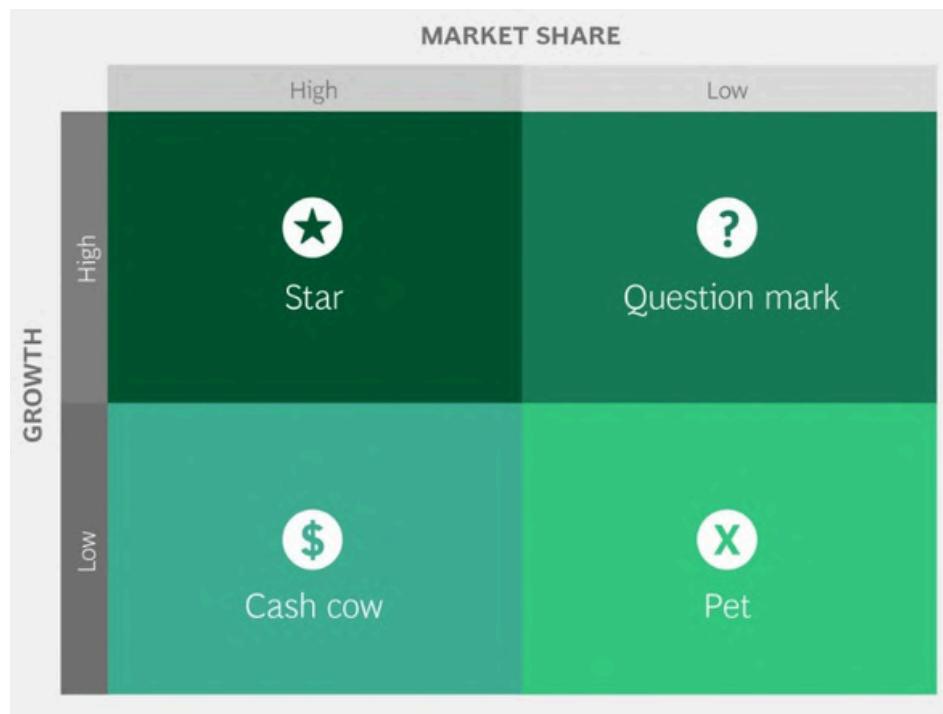
3. Promotion: It is important to understand how to spread information about the new product among the customers. Various cost-effective strategies and techniques can be used to reach different segments of customers. What marketing strategies have been implemented? Which strategies have been successful? What strategies are the competitors using? What is the best time to promote the product? Which media type will be used and will be most effective?

4. Place: It is about making it easy to find a product. Knowing where the product will be sold to the customers will make some distribution channels more effective than others. Possible distribution channels? (online/offline, etc.) What are the sales team requirements? What are the strategies followed by the competitors? Which channels best reach out to the customers? Most successful channels in the past? And why?

BCG Matrix

One popular and useful framework is the BCG 'Product Portfolio Matrix.' This matrix is designed to place a product or group of products into one of four categories.

Each of the four quadrants represents a specific combination of relative market share and growth:



- 1. Low Growth, High Share:** Companies should milk these "**cash cows**" for cash to reinvest
- 2. High Growth, High Share:** Companies should significantly invest in these "**stars**" as they have high future potential.
- 3. High Growth, Low Share:** Companies should invest in or discard these "**question marks**" depending on their chances of becoming stars.
- 4. Low Share, Low Growth:** Companies should liquidate, divest or reposition these "**pets**".

McKinsey 7S Model:

McKinsey's 7S Framework is a management model developed by management consultants Robert H. Waterman, Tom Peters, and Julien R. Phillips. The model is named after the seven interrelated elements that it identifies as critical for organizational success, all of which begin with the letter 'S'. The framework is designed to help organizations analyze and align various components to improve overall effectiveness and performance. The seven elements are:

- **Strategy:** This refers to the plan or course of action that an organization takes to achieve its objectives. It involves decisions about resource allocation, business direction, and competitive positioning.
- **Structure:** Structure encompasses the organizational design and the way in which various roles, responsibilities, and reporting relationships are arranged. It involves the formal division of tasks, authority, and coordination mechanisms.
- **Systems:** Systems represent the processes, procedures, and routines that guide how work is done within the organization. This includes both formal and informal processes such as decision-making processes, communication flows, and performance management systems.



- **Shared Values:** Shared values, also known as superordinate goals or core values, are the fundamental beliefs that underpin the organization's culture. They shape the behavior and attitudes of employees and influence decision-making throughout the organization.
- **Skills:** Skills refer to the capabilities and competencies possessed by the organization's employees. This includes both technical skills and the softer skills such as leadership, teamwork, and problem-solving abilities.
- **Style:** Style relates to the leadership and management styles prevalent within the organization. It encompasses the way leaders interact with employees, make decisions, and demonstrate their values. Leadership style has a significant impact on organizational culture.
- **Staff:** Staff includes the number, type, and distribution of employees within the organization. It also considers factors such as employee motivation, satisfaction, and the overall quality of the workforce.

The 7S Framework emphasizes the interdependence and interconnectedness of these seven elements. It suggests that for an organization to be successful, there must be alignment and consistency across all components. When there is a misalignment, organizations may face challenges in implementing their strategies and achieving their goals. The model is often used as a diagnostic tool for organizational change, helping leaders identify areas of strength and weakness that need attention to improve overall performance.

Application of the McKinsey 7S model:

Application of the McKinsey 7S Model involves navigating the inherent subjectivity surrounding alignment within its seven key elements, making it a seemingly complex process. However, a recommended approach is to adopt a top-down perspective, starting from overarching strategy and shared values down to style and staff.

Step 1: Identify Areas of Misalignment

Examine the consistency across values, strategy, structure, and systems. Identify gaps and inconsistencies in the relationships between these elements and determine necessary changes.

Step 2: Determine Optimal Organizational Design

Consolidate input from top management to formulate a generic, optimal organizational design. This design should enable the company to establish realistic goals and achievable objectives, requiring thorough research and analysis as no "organizational industry templates" exist.

Step 3: Decide on Changes

Once outliers are pinpointed, develop an action plan involving concrete alterations to the chain of hierarchy, communication flow, and reporting relationships. This step aims to establish an efficient organizational design.

Step 4: Implement Necessary Changes

The implementation phase is critical for the company to realistically achieve its objectives. Address potential hurdles through a well-thought-out implementation plan.



Advantages of the Model:

- Facilitates coherent and synchronized actions across different parts of the company.
- Enables effective tracking of the impact of changes in key elements.
- Considered a longstanding theory, widely adopted by numerous organizations over time.

Disadvantages of the Model:

- Regarded as a long-term model.
- Adaptability to the evolving nature of businesses remains uncertain.
- Relies heavily on internal factors and processes, potentially proving disadvantageous in situations where external circumstances influence an organization.

SUSTAINABILITY AND CONSULTING

Sustainability in consulting requires a holistic approach that involves integrating sustainable practices into all aspects of the consulting process, from the way consultants work to the services they offer to clients. There are multiple ways in which sustainability can be integrated into the consulting domain. Some of them are:

- Sustainable practices can be incorporated into the consultation process, such as using eco-friendly materials and reducing carbon emissions.
- Clients can be advised on sustainable business practices, and consultants can help them to set and achieve sustainability goals.
- Data and analytics can be used to measure the impact of consulting interventions on the environment and society.
- Consulting firms and their clients can be continuously monitored and evaluated on their sustainability performance.
- The use of technology and digital solutions must be prioritized to optimize the use of other resources.
- Consulting firms, clients, and other stakeholders can collaborate and exchange knowledge to accelerate the adoption of sustainable practices.
- Firms must focus on developing sustainable business models that are financially viable and beneficial for society and the environment.

EMERGING TRENDS

Apart from conventional frameworks, staying informed about emerging trends in consulting is equally critical for success. These trends reflect the industry's evolving dynamics and highlight the growing importance of innovation, adaptability, and client-focused approaches. By understanding and leveraging these trends, consulting firms can position themselves as strategic partners in delivering transformative solutions.



- 1. Data Privacy and Cybersecurity Consulting:** Rising regulations like GDPR (General Data Protection Regulation) and CCPA (California Consumer Privacy Act) drive demand for consulting services that address compliance, vulnerability assessments, and cybersecurity implementation to safeguard sensitive information, with the global market expected to grow significantly.
- 2. Sustainability and Climate Resilience Advisory:** Consulting focuses on long-term environmental strategies, including supply chain resilience, carbon footprint reduction, and climate action planning, transforming sustainability into a competitive advantage.
- 3. Workforce Transformation and Employee Experience:** Consulting addresses hybrid work strategies, talent management, and employee engagement, prioritizing mental health, inclusion, and diversity to attract and retain top talent in competitive markets.
- 4. Integrated Health and Well-being Consulting:** Firms offer holistic health solutions, including well-being programs and mental health initiatives, as companies prioritize employee welfare as a core performance driver.
- 5. Blockchain Consulting:** Consultants advise on blockchain adoption for secure transactions, supply chain transparency, and operational efficiency, driving trust and reducing fraud as blockchain applications expand beyond cryptocurrencies.



COMMON QUESTIONS ASKED

1. Perform a SWOT analysis for Flipkart. What are its key strengths, weaknesses, opportunities, and threats, and how do these factors shape its strategic positioning in the competitive e-commerce market? (*Framework: SWOT Analysis*)
2. Analyze the strengths and weaknesses of Colgate in the current market landscape. How do these factors influence its ability to maintain a competitive edge? (*Framework: SWOT Analysis*)
3. Conduct a BCG Matrix analysis for Amazon. Identify which products or services fall under Stars, Cash Cows, Question Marks, and Dogs, and explain the criteria for their placement. (*Framework: BCG Matrix*)
4. Using Porter's Five Forces, evaluate the factors influencing Apple's strategic decisions. How do these forces shape its position in the technology market? Provide specific examples. (*Framework: Porter's Five Forces*)
5. What are the key barriers to entry for new competitors in HUL's market, and how do these barriers impact the competitive landscape? (*Framework: Porter's Five Forces*)
6. If XYZ Solutions, an IT company, plans to expand into the U.S., what key regulatory requirements and trading policies must it consider? How might these factors impact its operational strategy? (*Framework: PESTLE Analysis*)
7. Assess the demographic trends in a target market for XYZ Solutions' expansion into the U.S. How do changes in population growth or decline affect its business opportunities and strategies? (*Framework: PESTLE Analysis*)
8. How has globalization influenced market share and operational strategies for companies expanding into international markets? Use XYZ Solutions as an example to explore this impact. (*Framework: PESTLE Analysis*)

ALL THE BEST!

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