FOR INTERNAL CIRCULATION ONLY

LECTURE NOTES

ON

ENTREPRENEURSHIP AND MANAGEMENT AND SMART TECHNOLOGY

DIPLOMA5thSEMESTER

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MODULE-I

ENTREPRENEURSHIP

CONCEPTOFENTREPRENEURSHIP

Entrepreneurship is the ability and readiness to develop, organize and run a business enterprise, along with any of its uncertainties in order to make a profit. The most prominent example of entrepreneurship is the starting of new businesses.

In economics, entrepreneurship connected with land, labour, natural resources and capital can generate a profit. The entrepreneurial vision is defined by discovery and risk-taking and is an indispensable part of a nation's capacity to succeed in an ever-changing and more competitive global marketplace.

MEANINGOFENTREPRENEUR

The entrepreneur is defined as someone who has the ability and desire to establish, administer and succeed in a startup venture along with risk entitled to it, to make profits. The best example of entrepreneurship is the starting of a new business venture. The entrepreneurs are often known as a source of new ideas or innovators, and bring new ideas in the market by replacing old with a new invention.

Itcanbeclassifiedintosmallorhomebusinesstomultinationalcompanies.Ineconomics,theprofitsthatan entrepreneur makes is with a combination of land, natural resources, labour and capital.

In a nutshell, anyone who has the will and determination to start a new company and deals with all the risks that go with it can become an Entrepreneur.

CHARACTERISTICSOFENTREPRENEURSHIP:

Not all entrepreneursare successful;therearedefinitecharacteristics thatmake entrepreneurship successful.Afewof them are mentioned below:

- **Ability to take a risk-** Starting any new venture involves a considerable amount of failure risk. Therefore, an entrepreneur needs to be courageous and able to evaluate and take risks, which is an essential part of being an entrepreneur.
- **Innovation-** It should be highly innovative to generate new ideas, start a company and earn profits out of it. Change can be the launching of a new product that is new to the market or a process that does the same thing but in a more efficient and economical way.
- **Visionary and Leadership quality-** To be successful, the entrepreneur should have a clear vision of his new venture. However, to turn the idea into reality, a lot of resources and employees are required. Here, leadership quality is paramount because leaders impart and guide their employees towards the right path of success.
- **Open-Minded-** In a business, every circumstance can be an opportunity and used for the benefit of a company. For example, Paytm recognised the gravity of demonetization and acknowledged the need foronline transactions would be more, so it utilised the situation and expanded massively during this time.

- **Know your Product-**A company owner should know the product offerings and also be aware of the latest trend in the market. It is essential to know if the available product or service meets the demands of the current market,

orwhetheritistimetotweakitalittle.Beingabletobeaccountableandthenalterasneededisavitalpartof entrepreneurship.

IMPORTANCEOFENTREPRENEURSHIP:

- **Creation of Employment-** Entrepreneurship generates employment. It provides an entry-level job, required for gaining experience and training for unskilled workers.
- **Innovation-** It is the hub of innovation that provides new product ventures, market, technology and quality of goods, etc., and increase the standard of living of people.
- **Impact on Society and Community Development-** A society becomes greater if the employment base is large and diversified. It brings about changes in society and promotes facilities like higher expenditure on education,bettersanitation,fewerslums,ahigherlevelofhomeownership.Therefore,entrepreneurshipassists the organisation towards a more stable and high quality of community life.
- **Increase Standard of Living-** Entrepreneurship helps to improve the standard of living of a person by increasing the income. The standard of living means, increase in the consumption of various goods and services by a household for a particular period.
- **Supports research and development-** New products and services need to be researched and tested before launching in the market. Therefore, an entrepreneur also dispenses finance for research and development with research institutions and universities. This promotes research, general construction, and development in the economy.

NEEDOFENTREPRENEURSHIP

Theneedforentrepreneurshipisdetaileddowninthefollowingsection:

1. Passion,Perseverance&Persistence

Passion is a strong and uncontrollable emotion that is based on something higher to achieve than what the person is carrying within himself. Perseverance is a mature emotion that comes through experiences gathered and analysed. While persistence is the sail that will row the boat of an entrepreneurthrough the toughest of climates.

2. BigDreamer

Dreaming big further strengthens an entrepreneur with his ability to dream and see the wide picture. This isthe very first step that sets the path to self-discovery.

3. Learning

Learning is never to stop irrespective of age and thus arming oneself with education does play a vital role informing leadershipqualities when needed.

4. Good Listener

The abilitytocontribute will onlycomeoncewe haveabundancein ourselves,and thiscomes by absorbingthe wordsofothers.Theabilitytotrulylistentothecustomersandemployeesisactuallywhatmakesadifference.This very skill leads to a successful venture.

5. Financing Partner

Choosing a financing partner who understands the business needs is very much essential. This is as critical as choosing the business which the entrepreneur wants to pursue. Also, a business loan from the right lender will for sure play a pivotal role in realizing the dreams of becoming a successful entrepreneur.

4TYPESOF ENTREPRENEURSHIP

Itisclassifiedintothefollowingtypes:

☐ **SmallBusinessEntrepreneurship-**

These businesses are a hairdresser, grocery store, travel agent, consultant, carpenter, plumber, electrician, etc. These people run or own their own business and hire family members or local employee. For them, the profitwould be able to feed their family and not making 100 million business or taking over an industry. They fund their business by taking small business loans or loans from friends and family.

☐ **ScalableStartupEntrepreneurship-**

This start-up entrepreneur starts a business knowing that their vision can change the world. They attract investors who think and encourage people who think out of the box. The research focuses on a scalable business and experimental models, so, they hire the best and the brightest employees. They require more venture capital to fuel and back their project or business.

☐ **LargeCompanyEntrepreneurship-**

These huge companies have defined life-cycle. Most of these companies grow and sustain by offering new and innovative products that revolve around their main products. The change in technology, customer preferences, new competition, etc., build pressure for large companies to create an innovative product and sell it to the new set of customers in the new market. To cope with the rapid technological changes, the existing organisations either buy innovation enterprises or attempt to construct the product internally.

QUALITIESOFANENTREPRENEUR

1. Motivation

Hard-working business owners are incredibly motivated to succeed. Adopting this mindset—and being able to demonstrate your motivation to an employer—iscrucial. You need to bring enthusiasm to everything you do atyour job.Fortunately, showing you're highly motivated is simple: Show up to work every day with a positive attitude. This is among the top characteristics of entrepreneurship. Employers want to see you're passionate about what you do day in and day out.

2. Creativity

No matter what industry you're in, employers want workers with out-of-the-box ideas. They want to hirepeople to not only carry out assignments, but to also come up with better ways of doing things.

That's whyit'simportanttobecreative—toalwaysbethinkingofnewwaysyoucanimproveyourcompany's workflow,productivity,andbottomline.

3. Persuasiveness

Persuasiveness can make you a better negotiator, which gives you an edge when going after a plumassignment, raise, or promotion.

There will come a time when you needto convince aclient,a coworker, or yourboss totake certain actions,so you need to be persuasivewhenpresenting your ideas.

4. Vision

Successful entrepreneurs always keep one eye on the big picture, and this ability can make you a better employee. Vision is primarily about strategic planning.

Can you see what direction the industry is going? Can you identify challenges for your company? Can you tackle your day-to-day job responsibilities, while staying focused on long-term goals and initiatives?

5. Versatility

Although you were hired for a specific set of skills, it's important that you can shift as needed. You want to be someone that your boss can go to in a pinch, so be prepared to tackle work that's outside your job description. Among the leading characteristics of entrepreneurship is being an early adopter of new technology and keepingyour skills current.

6. RiskTolerance

Everyemployerwantstogrowtheirbusiness,andthatinvolvesembracingchange. Translation: Don'tbeafraidto take riskswhen pursuing new clients, for example, or testing a new product. (One caveat: Make sure you have your boss' buy-in.)

7. Flexibility

Like an entrepreneur, you have to be able to adapt to change and solve problems as they arise. A good team player can shift their priorities to help out whenever the team needs assistance. Thus, flexibility means being receptive to other people's needs, opinions, and ideas and beingopen-minded to feedback from your manager.

8. Decisiveness

Do you exercise sound judgment under pressure? When you're an entrepreneur, you don't have room to procrastinate—and the same is true for employees. You have to be comfortable taking action when needed. This means knowing how to prioritize tasks and make decisions quickly. (It helps to be organized.)

9. Collaboration

Savvy entrepreneurs are not only brilliant leaders, but also great collaborators,so you have to be an effective team player. Unsurprising, 86.3% of hiring managers seek job candidates who demonstrate strong teamwork skills, according to the National Association of Colleges and Employers Job Outlook survey.

FUNCTIONSOFENTREPRENEURSHIP:

Therearethreetypesoffunctionsof entrepreneurship:

1. **Primaryfunctions:**

- Planning
- Decisionmaking
- Organizing
- Innovating
- Managing
- Riskbearing

2. **Secondaryfunctions:**

- Expansionoftheenterprise
- Diversificationofproduction
- Maintainingcordialemployerandemployeerelation
- Coordinatingandcommunicatingwiththirdparties
-

Infrastructuresupport: Therehavetobeproperroads,adequacyofpower,drainagefacilities,water,and othersuchinfrastructuralsupports.Butbecauseofred-tapismandincreasedcorruption,thingstendtob₇e quite complicated.

3. **Otherimportantfunctions:**

- Managing scarce resources
- Identifying parallel opportunities
- Dealing with public bureaucracy
- Buildingstrongcustomerrelations

BARRIERSINENTREPRENEURSHIP:

Followingarethedifferenttypesofbarriersthatcomeacrossthepathof entrepreneurship:

- **Financial barriers:** This is one of the most prominent barriers in the life of an entrepreneur. Such barriers are quite common. Availability of funds is of great significance. If a delay happens in gathering enough funds, then it may further delay the commencement of an enterprise. Also, various business operations need a persistent flow of funds.
- **Personal barriers:** Personal barriers are caused because of the emotional and psychological blocks of an entrepreneur. Let us have a look at the various types of personal barriers:
- **Lack of motivation and encouragement:** When an idea does not turn out to be fruitful, these entrepreneurs give up quite easily. Even a minor failure is enough to demotivate them.
- **Inability to depend on and trust others:** These entrepreneurs often find it difficult to trust others while hiring their expert services. They waste much of their time deciding upon the best service provider and then, too, cannot put their trust completely.
- **Lack of patience:** If anentrepreneur loses interest because of any hurdle or obstacle, then he does not have enough patience and perseverance to carry on with the entrepreneurship. Even the initial losses areenough to discourage them and shut their enterprises.
- **Lack of confidence:** These entrepreneurs never have enough confidence. They never trust in themselves. They are somehow convinced that they will never be able to come up with a successful business idea. They are always bothered about their inability to attract enough funding. Hence, they almost give up on their dream of being self-employed and thus do not carry on with entrepreneurship.
- **Lackofvision:** Thereshouldneverbeanylimitationtowhatyoucanachieve.Someentrepreneurs,aftermaking short progress, lose their vision and show no more interest in expanding the business.
- **Senseofembarrassment/pride:** Suchentrepreneursarewaytooproudorembarrassedtoaskforhelpfrom someone.
  Environmentalbarriers:
- **Machinery:** Machinesareextremelysignificanttocarryoutmultipleoperations.However,machinerydoes come
- costly. Also, technology keeps changing quite rapidly, and hence, machines tend to get obsolete quite often. Thus an entrepreneur needs to replace them. This process is quite difficult for the entire organization.

- **Raw material:** The situation can get quite distressful if there is no raw material available during the peak season of the work. This further increases the price of limited raw materials available because of an increased level of competition.
- **Land and building:** For an enterprise, it is necessary that proper acquisition of land is made. Then, the construction of buildings will also have to be done. However, all these can be quite expensive. When the land is rented, the fixed cost becomes a cause of worry for the entrepreneur. He needs to keep paying the rents whether he is making any profit out of business or not.

☐
Labour: For successful entrepreneurship, there has to be the availability of skilled labor, quality and quantity labor, and committed and loyal employees. Lack of any of these can lead to severe disruptions in the working procedure of the enterprise.

☐ **Political barriers:** Whenthere are not enough government concessions, andincentives offered, thingsstart getting difficult for the entrepreneurs. Also, there has to be a proper socio-economic setting to makethings happen the way they need to. A politician should also focus on making a society economically developed. Only then will things smoothen up for the entrepreneurs.**Societal barriers:**

☐

1. Casteandreligiousaffiliationsoftenactashurdlesinthewayofa business.
2. Financial stability and family backgrounds also have to be kept in mind. These, too, can impact the operations and development of an enterprise.
3. Socio-cultural norms and values often act as barriers for modern-day budding entrepreneurs. These ageold norms hamper the smooth development and progress of business enterprises.

ENTREPRENEURV/SMANAGER

Parameters	Entrepreneur	Manager
Meaning	An entrepreneur is a person who builds a new organisation by gathering data (i.e. land, labour and capital) for manufacturing purposes.	By the term 'manager' we mean a person who gets the things done through his assistants, with the purpose of achieving business goals efficiently.
Focuses on	Setting up a business	Running the daily operations
Status in organisation	Owner	Employee
Kind of benefit applicable	Profit earned from running business	Salary earned from managing daily business operations

FORMSOFBUSINESSOWNERSHIP

1. SoleProprietorship.
2. Partnership.
3. Company.
4. CooperativeSociety.
5. StateEnterprise.

SoleProprietorship

A sole proprietorship is a for-profit business owned by one person.The owner may operate on his or her own or may employ others. The owner of the business has unlimited liability for the debts incurred by the business.

Partnership

Apartnershipisaformoffor-profitbusinessownedbytwoormorepeople.Inmostformsofpartnerships,each partner has unlimited liability for the debts incurred by the business.

Company

A company is a limited liability business that has a separate legal personality from its members.The company can be either privately-owned or government-owned, and privately the owned companies can organize either for-profit or not-for-profit.

Aprivately-owned,for-profitcompanycaneitherbeprivatelyheldorpubliclyheld.Afor-profitcompany's

shareholderselectaboardofdirectorstodirectthecorporationandhireitsmanagerialstaff.**CooperativeSociety**

Often' referred to as a "co-op," a cooperative is a limited-liability business that can be organized forprofit or not-for-profit.

A for-profit cooperative differs from a for-profitcorporation in that it has members, as opposed to shareholders,who share decision-making authority.

Cooperativesaretypicallyclassifiedaseitherconsumercooperativesorworker cooperatives.Cooperativesare fundamental to the ideology of economicdemocracy.

StateEnterpriseorGovernmentCompany

Generally,anenterpriseownedbythestateisknownasastate-ownedenterprise,stateenterprise,orgovernmentcompany.

Fortheexpansionofthebusiness,rapidindustrializationanddevelopment,andtoremoveindividualmonopolyand   to establish public interest and ownership, the state interferes in the business sector.

TYPESOFBUSINESSINDUSTRIES

Therearemorethan15typesofbusinessindustriesintheworldrightnow,andthemarketingtutorisgoingtolist asmanyaspossible.Let'sgiveyouaknowledge-loadedride!

Transportindustry

Eventheindustriesarefurtherclassifiedaccordingtotheirroleorimportanceinaneconomy;thetransportindustry is one of the largest business industries in the world. The primary objective of the transportation industry is the movementortransportationofgoods,humans,andanimals.Currently,therearethreemainmodesoftransportation

- Air
- Land(railwayandroad)
- Water

The transport industry is a major part of any economy. The transport industry currently constitutes 17% of the United States GDP, and the USA also holds the record for the largest railway network in the world— 250,000 kilometers.

Aerospaceindustry

The aerospace or aviation industry is one of the most advanced but relatively less-spread business sectors. Aerospace or aviation basically deals with the production and manufacturing of aircrafts and similar cuttingedge devices that can travel inside and outside the earth's atmospheric area.

Theaerospaceindustrybasicallyservesotherprivateandgovernmentbodiessuchasairlines,themilitary, NASA, etc. You must be thinking, why is it a relatively less-spread industry? That's because the aviation industry is only spread in almost 50 countries. In other words, 50 countries own one or more aerospace production units/corporations.

Theaerospaceindustrywasvaluedat$838billionin 2017.

Agricultureindustry

The agriculture industry is certainly one of the oldest business sectors in the history of mankind. As a matter offact, agriculture is a source of employment for more than 1 billion people on the planet, making it the second- largest global employer.

However, agriculture has seen dramatic growth in the last 50 years or so due to technological advancements suchas fertilizers, pesticides, and genetic modification to create hybrid agricultural products.

The history of agriculture goes 10,000 to 15000 years back, and it is still the largest part of many economies inAsia and Africa.

Thecurrentworthoftheagricultureindustryisover$1.3trillion.

Computerindustry

Computer or commonly known as the IT industry is indeed the most prolific business sector that has seen unparalleled growth in the 21st century, and the future seems brighter.

The IT sector includes corporations or enterprises that deal in manufacturing or developing everything related to computers, such as software, applications, operating systems, databases, and anything that is related to computers.

IT is an integral part of almost all other business sectors. Whether it is telecommunication, healthcare, education, data management, or engineering, you cannot keep IT out of them. It won't be wrong to say that computers are an important part of our lives.

Thecomputerindustrywasvaluedat$5trillionin2019.

Telecommunicationindustry

The telecommunication industry, just like the computer industry, is one of the fastest-growing industries of the 21st century. The telecommunication sector basically consists of businesses involved in providing communication channels. Major contributors in the telecom sector include internet service providers, satellite companies, and wireless operators.

Common communication channels include text messaging, audio and video calls, digital communication apps, the internet, etc. Apart from that, the telecom sector is deeply integrated with other business sectors, and it won't be wrong to say that it is the backbone of all other business arenas.

Thetelecommunicationindustrywasvaluedat$1.4trillionin2017.

Educationindustry

If we are to make a list of industries that are a part of any economy in the world, the education industry will undoubtedly be among that list. The education industry includes any or all types of educational institutes, ministries, governing bodies, and individuals directly or indirectly connected to the education sector.

Just like other business sectors, the education industry has been revolutionized with the advent of technology. Educational institutes are shifting to digital channels (e-learning), using the internet as a medium ofcommunication.

The education industry is a prime example of globalization as students can study in universities in crossborder or cross-continent universities by enrolling in their online courses or degrees.

Theeducationindustrywasvaluedat$4.4trillionin 2013.

Constructionindustry

The **constructionsector**includes designing, creating/building, and maintaining the domestic and government-owned infrastructure. It is important to note that construction is a complex process that includes the involvement of other disciplines such as engineering and logistics.

Theconstructionindustryhasthreemajorsubcategories;

- Heavyconstructions,e.g.,roads,bridges,etc.
- General constructionincludes commercial andresidential **realestate**such as houses, apartments, shopping malls, etc.
- Specializedconstructiondealswithtoolsandtypesofequipmentnecessaryforconstructionpurposes.

Although the construction industry dates back hundreds and thousands of years ago, it has been revolutionized by the technological advancements in the 20th century.

Theconstructionindustrywasvaluedat$8,452billionin2018.

ElectronicsIndustry

The electronics industry isone of the biggest industries that has been growing atan unprecedented rate. Producing, selling, and marketing electronics and electrical **products**,especially consumer electronics, are all part of the electronic industry.

Also, the electronic industry employs a huge number of technicians and electrical engineers who take care of designing, testing, and production of these commercial and domestic electronics.

Currently, the electronic industry primarily focuses on artificial-intelligence-based goods and is working towards the development of smart cars and wireless charging.

What's more, the **electronicsector**has been observing a CAGR (compound annual growth rate) of 5.4% since 2015.

An increase in the demand for consumer electronics is primarily because of the outbreak of the pandemic as employees and students have transitioned to digital working and learning.

ManufacturingIndustry

Industrial and engineering designs are closely linked with the manufacturing sector. On a global scale, the industry processes raw materials into the final products either using machinery or labor force.

Thesefinished goods are subsequently transportedandsoldto othermanufacturersforfurther processing intomore specialized commodities, or they are sold to the retailers directly.

The transportation equipment industry, food industry, paper industry, petroleum industry, and wood industry fall under the umbrella of manufacturing industries.

Plus, the manufacturing sector employs both the educated as well as the labor force of a country. It is one of the major sectors of the economy as it **contributedalmost16%oftheGDP**(gross domestic product) globally in2018.

What'smore,globally,themarketformanufacturingandprocesscontrolispredictedtogrowataCAGRof almost 6.3%,from\$86.7billiontoawhopping\$117.5billionasof2025.

EnergyIndustry

Theenergysectorisresponsiblefortheproductionaswellasthesaleofenergythatincludesavarietyofprocesses, such as the extraction of the fuel, refining, manufacturing, marketing, and selling.

The renewable energy industry and non-renewable energy are the two parts of the energy sector. The energy industry includes different sectors, such as the electrical power industry, the gas industry, the coal industry, the petroleum industry, and the nuclear power industry.

Such types of business industries play a crucial role in the development of any nation. Also, these energy sources are finite and will be depleted soon in the future. Hence, the industry needs to carry out extensive research for alternative energy resources.

Wind, hydroelectric, and solar energy are a few examples of alternative energy sources. Moreover, developed and developing nations are spending a lot of money to increase the usage of alternative energy sources.

The **globalEaaS**(energy as a service) market is expected to expand from \$64.2 billion to \$124.1 billion by 2028, growing at a CAGR of 9.9%.

PharmaceuticalIndustry

It is one of the most highly research-based sectors that discover, develop, market, and distribute drugs. On a global scale, it is one of the most significant industries and relies heavily on constant and **innovativeresearch**.

Thepharmaceuticalsectorisresponsiblefordevelopingandmanufacturingmedicationstotreatanimalsand humans. Also, some drugs can address the symptoms of diseases.

What'smore,thesekindsoffirmsarehighlyregulated.Also,didyouknowthatthepharmaceuticalmarketinthe USaccountsforalmost45%ofthepharmaceuticalmarket globally?

Plus, the outbreak of the pandemic has increased the demand for vaccines. Merck & Co, Johnson & Johnson, and Pfizer are some of the best pharmaceutical firms in the world.

Also, the medical device sector that specializes in medical devices, implants, and surgical equipment is another branch of the pharmaceutical sector.

HealthcareIndustry

The **healthcaresector** is a conglomeration of various sectors that provide therapeutic, diagnostic, curative, and preventive care.

The primary purpose of this sector is to restore and maintain people's health. Also, it is one of the rapidly expanding and largest industries that takes more than 10% of the GDP.

What's more, this is one of the most promising sectors for entrepreneurs and investors; even the government of every country invests a lot in this specific area.

The sector has multiple disciplines and is run by a team of specialists that put emphasis on the unique needs of each patient.

Both public and private companies provide such services. Also, several voluntary organizations provide services free of cost to the needy population.

Also, there is a prediction that **healthcarespending** might reach over $10 trillion globally by the end of 2022.

FoodIndustry

The **foodsector** is a conglomeration of numerous businesses that work together and are responsible for supplying food to the population.

For food production, the industry needs a large amount of raw material that it directly gets from the agriculture sector. Hence, we can say that the food industry relies heavily on the agrarian sector.

Also, several food additives and chemicals are added to the food products after processing to keep the taste and preserve them for a long period.

Since people seek "ready-to-go" food items in today's fast-paced digital world, the food sector has expanded exponentially in the last decade.

Also, **globallythefoodmarket** has welcomed a revenue of almost $8.27 trillion in 2021, an increase of over $500 billion from 2020.

Many companies have sprung up in response to the growing demand for packaged and processed foods, and almost all types of food are now available in packets, from curry to instant noodles and whatnot.

Also, food services, known as food technology and catering, are vital aspects of the food sector. Also, food

technology entails R&D to produce more ready-to-go food.

EntertainmentIndustry

The entertainment sector is one of the multibillion-dollar businesses. Furthermore, it encompasses a plethora of entertainment sub-sectors. The audience and the entertainer form the core part of this particular sector.

Albeit the entertainment sector has always been a part of human society for ages, the entertainment business we know or see today has recently become commercialized.

Also, the sector has grown at a breakneck speed in the last century. Plus, the entertainment industry contributes significantly to the GDP of any country.

Forinstance,soccerteams,includingBrazil,France,andBelgium,bringinalotofmoney(asapartofrevenue)for their respective countries.

Thesectoralsoemploysalargenumberofpeople,cateringtotheneedforemployment.Also,people's entertainmentmethodshaveevolvedinrecent years.

Peopledon'thavetoworkashardtogetintothespotlightastheyoncedid.Now,peoplehavetheopportunityto entertaintheaudiencebyputtingupvideosonYouTubeandotherrelated platforms.

Plus,thedigitalplatformhasalsoaidedintheindustry'sexponentialgrowth.Also,theavailabilityofinternetvideo streaming services such as Amazon Prime and Netflix has also altered how people engage with TV shows and movies.

MusicIndustry

The music industry is one of the vital components of the business world. The industry consists of companies, musicians, lyricists, composers, and producers.

Techhasdramaticallychangedthemusicindustry;gonearethedayswhenpeopleusedtobuyDVDsandCDs.

The emergence of the internet has taken over other media platforms. People now can listen to their favorite music online regardless of their location.

With the advent of the Digital Music Industry, people have so many options to choose from; music is nowavailable on several online platforms, including Spotify, Soundcloud, etc.

Also,thedigitalmusicmarketwelcomedarevenueofalmost$28.2billiongloballyasof2021.

WorldWideWebIndustry

It is a type of industry that has dominated all other kinds of industries. The World Wide Web is a collection of resources and documents that can be accessed using their URLs.

People can access such resources and documents using web browsers, including Yahoo, Internet Explorer, Google, etc. The web was Tim Berners-Lee in 1989. However, it took almost a decade for his invention to gain popularity.

The advent of the web has drastically altered the world we live in and has opened the doors for new opportunitiesin numerous business fields. For instance, from running an online business to interacting with the customers and business partners at every level.

Today, the World Wide Web comprises educational sites, governmental sites, eCommerce stores, entertainment, and whatnot.

NewsMedia Industry

It is one of the most integral industries as it delivers the news to the general public as well as to a particular target audience.

The news media sector encompasses all, from traditional print media (newspapers, etc.) to the internet (podcasts, blogs, online newspapers, etc.) to broadcast news (radio, TV).

Washington Posts and The New York Times are the two most famous newspapers that are available online as well as in paper form. However, social media platforms have taken the media news sector to a whole new level.

Twitter, Facebook, YouTube, etc., are a few social media platforms that provide instant access to the latest happenings.

Mining Industry

The mining sector refers to the process of extracting rich metals, minerals, and other geological resources from the surface of the earth across the globe.

Also,themining sectorattemptstoprovidematerialsthatcan'tbeproducedviaagriculturalactivitiesorgenerated reliablyinthe laboratory.

Extracted metals are also used for jewelry making and commercial purposes. Also, the mining sector takes part in trading and producing such metals.

What's more, each country invests heavily in the exploration of a viable location to extract metals. Albeit work safety has increased over the years, the mining sector causes environmental problems, which, in turn, is a global concern.

HospitalityIndustry

The **hospitalitysector**encompasses a wide range of service-related subcategories. Event organizing, food,lodging, transportation, travel, amusement parks, beauty centers, gyms, etc., are all the services that fall under the category of this industry.

Hence,theindustryisahighlycustomer-orientedmarketplaceandprimarilyfocuseson**customersatisfaction.**

Theindustryisuniqueinthatitthrivesexclusivelyonpeople's"desires"ratherthan"needs,"asthehealthcare sector does.

For example, Airbnb is one of the top hospitality online services that is famous for providing the most affordable lodging in any country. The service is available on both the platforms, mobile apps as well as the website.

DISTRICTINDUSTRIESCENTERS

They are called as DICs in short and are crucial for small businesses. The central government launched it on 1st May 1978. They were set up to provide an integrated administrative framework at the district level as the district industries are located in districts. This integrated organisational framework will help look into the problems of industrialization in a district in a composite manner.

There are some roles and functions of the district industry centre which is beneficial for small businesses. They provide all the necessary services and support to help entrepreneurs set up micro, small, and medium enterprises called MSMEs.

NeedforDistrictIndustriesCenters

The central government felt the need for the district industries centres when the country's economy started plateauing, and there was a need to revive it. Another reason for setting up these DICs is to shift the focus from agriculture to industries. Industrialization makes a country develop. Superpowers of the world are industrial countries.

Therefore, the centre decided to set up these district industries centres with the defined functions of district industries to accelerate the establishment and provide help to developing industries of a district. As it is a central scheme, it is completely funded by the central government. There are some schemes like district industries centre loan scheme, Prime Minister's employment guarantee program, etc., which are given out by the DICs that help fulfil the goals of establishing district industries centres.

(1) National Bank for Agriculture ND Rural Development (NABARD): It was setup in 1982 to promote integrated rural development. Apart from agriculture, it supports small industries, cottage and village industries, and rural artisans. It provides credit and offers counseling and consultancy services and organizes training and development programmes for rural entrepreneurs.

(2) The Rural Small Business Development Centre (RSBDC): It was set up by the world association for small and medium enterprises and is sponsored by NABARD. It provides management and technical support to current and prospective micro and small entrepreneurs in rural areas.

(3) National Small IndustriesCorporation (NSIC): It was set up in 1955 with a viewto promote, aid and foster the growth of small business units in the country. It works on promoting the use of indigenously available raw materials. It helps small businesses in exporting their products and works on developing export worthiness of products. It also provides mentoring and technology development services for small businesses.

(4) Small Industries Development Bank of India (SIDBI): It was set up to provide direct and indirect financial assistance under different schemes. It caters to the credit and finance requirements of especially small-scale enterprises.

(5) The National Commission for Enterprises in the Unorganised Sector (NCEUS): It was constituted in September, 2004 withthe objective of improving the efficiencyand enhancingtheglobal competitivenessofsmall-

scale industries. It focuses on addressing the problems faced by small enterprises, particularly in the unorganised/informal sector.

(6)   Rural and Women Entrepreneurship Development (RWED): It aims at promoting a conducive business environment and at building institutional and human capacities that will encourage and support the entrepreneurial initiatives of rural people and women.

(7)   World Association for Small and Medium Enterprises (WASME): It is an international nongovernmental organisation based in India that addresses the problems of small-and medium-scale enterprises. It has set up an 'International Committee for Rural Industrialisation' with the aim of designing a model for the growth and development of rural industries.

(8)   Scheme of Fund for re-generation of Traditional Industries (SFURTI): The Central Government set up this fund to make the traditional industries more productive and competitive and to facilitate their sustainable development.ThemainobjectivesofSFURTIaretodevelopclustersoftraditionalindustriesinvariouspartsofthe   country; build innovative and traditional skills, improve technologies and encourage public-private partnerships, develop market intelligence etc.

(9)   TheDistrictIndustriesCenters(DICs):TheDistrictIndustriesCentersProgrammewaslaunchedonMay1,   1978, witha viewto providing an integratedadministrativeframeworkatthedistrictlevel, which wouldlookatthe problems of industrialisation in the district, in a composite manner

NABARD

In the year 1982, CRAFICARD or the Committee to Review Arrangements of Institutional Credit for Agriculture and Rural Development recommended the establishment of a developmental bank and accordingly, NABARD was set up.

It was formed by a special parliamentary act. The chief focus of the organisation was the advancement of rural India by enhancing the flow of credit for the upliftment of agriculture as well as the rural nonagricultural sector.

FunctionsofNABARD

ThefunctionsofNABARDaredescribedbelow.

 •   In order to build an empowered and financially inclusive rural India, NABARD has specific departments
that work towards the desired goals. These departments can be collectively categorized into three majors units:
 •   Financial
 •   Developmental
 •   Supervision

ThefinancialsupportnecessarytobuildruralinfrastructureisprovidedbyNABARD.

Preparation of district-level credit plans by NABARD are used to guide and motivate the banking industry to achieve required targets.

NABARD also supervises the Regional Rural Banks (RRBs) and Cooperative Banks along with developing their banking practices and integrating them to the Core Banking Solution (**CBS**) platform.

- NABARD also helps handicraft artisans sell their products by training and providing a marketing platform for them.
- NABARDhaspartneredwithvariousleadingglobalorganisationsandinstitutionsaffiliatedwiththe World Bank thathave played a role in transforming agriculture.
- Itoffersadvisoryservicesandfinancialassistanceprovidedbytheseinternationalpartnerstohelpin consultation with rural development and other agricultural practices.

SIDBI

Small Industries Development Bank of India (SIDBI) is an independent financial institution aimed at aiding the growth and development of Micro, Small and Medium Enterprises (MSMEs) which contribute significantly to the national economy in terms of production, employment and exports.

- SIDBI was established with the mission of facilitating and strengthening the flowof credit to Micro, Small and Medium Enterprises and for addressing the developmental and financial gaps in the ecosystem of MSMEs.
- ItisastatutorybodysetupunderanactoftheIndianParliamentin1990.

Functions of SIDBI

- It aims at emerging as a single-window to meet the developmental and financial needs of MSMEs in order to make them globally competitive, strong, vibrant and to protect the institution as a customer-friendly financial body.
- Italsoaimsatenhancingthewealthofshareholdersthroughthemoderntechnologyplatform.
- ItisinvolvedinthepromotionanddevelopmentoftheMSME sector.
- It is the principal institution for the development, promotion and financing of the MSME sector and for coordination of functions of the institutions engaged in similar activities.

- SIDBI retained its position in the top 30 Development Banks of the World in the ranking of TheBanker, London.
- SIDBI also functions as a Nodal/Implementing Agency to various ministries of the Government of India viz., Ministry of MSME, Ministry of Textiles, Ministry of Commerce and Industry, Ministry of Food Processing and Industry, etc.

FinancialSupportofSIDBIto MSMEs

SIDBIprovidesfinancialsupporttoMSMEsinthefollowingways:

1. Indirect financing by way of refinancing the banks, refinancing financial institutions for onward lending to MSMEs.
2. Directfinancingbywayofservicesectorfinancing,receivablefinancing,riskcapitalandsustainable financing, etc.

Apart from providing financial assistance, SIDBI focuses on the "credit plus approach" under which it facilitates technology modernisation & upgradation, cluster development, enterprise development, upgrading the skills and support marketing activities.

TECHNOLOGYBUSINESSINCUBATOR(TBI)

Technology Business incubator (TBI) is an entity, which helps technology-based start-up businesses with all the necessary resources/support that the start-up needs to evolve and grow into a mature business. Typically, TBIs provide budding entrepreneurs all necessary infrastructure support, technology/prototype development support, researchassistance,helpingettingfunding,businessconsultingassistance,marketingassistanceanddowhateveris necessary to make the start-up a success.

The primary goal of a business incubator is to facilitate economic development by improving survival and growth of new entrepreneurial units. Incubators accelerate the development of young entrepreneurial units from 'ideastage'toindependentself-sustaining successfulbusiness. Thephenomenal growthoftheincubatorshastakenplace world over in last two decades. The concept has benefited many countries in utilizing technology as a means for their economic development.

In the form of a business centre, the TBIprovides incubatees an initial place of operation equipped with supportive environment in which services such as assistance in technology, hands-on management, mentoring, business plan development, exposure to Venture Capital and Institutional Capital and all other operational business/finance related needs involved in starting and growing a technology company.

SCIENCE&TECHNOLOGYENTREPRENEURSHIPPARK(STEP)

The Science Parks and similar initiatives help in creating an atmosphere for innovation and entrepreneurship; for active interaction between academic institutions and industries for sharing ideas, knowledge, experience and facilities for the development of new technologies and their rapid transfer to the end user.

The Science & Technology Entrepreneurs Park (STEP) programme was initiated to provide a reorientation in the approach to innovation and entrepreneurship involving education, training, research, finance, management and the government. A STEP creates the necessary climate for innovation, information exchange, sharing of experienceand facilities and opening new avenues for students, teachers, researchers and industrial managers to grow in a trans-disciplinary culture, each understanding and depending on the other's inputs for starting a successfuleconomic venture. STEPs are hardware intensive with emphasis on common facilities, services and relevant equipments.

The major objectives of STEP are to forge linkages among academic and R&D institutions on one hand and the industry on the other and also promote innovative enterprise through S&T persons.

Objectives

- To forge a close linkage between universities, academic and R&Dinstitutions on one hand and industry on the other.
- TopromoteentrepreneurshipamongScienceandTechnologypersons,manyofwhomwereotherwise seeking jobs soon after their graduation.

- ToprovideR&Dsupporttothesmall-scaleindustrymostlythroughinteractionwithresearchinstitutions.
- Topromoteinnovationbasedenterprises.

FacilitiesandServicesProvidedby STEPs

- It offers facilities such as nursery sheds, testing and calibration facilities, precision tool room/central workshop, prototype development, business facilitation, computing, data bank, library and documentation, communication , seminar hall/conference room , common facilities such as phone, telex, fax, photocopying. It offers services like testing and calibration, consultancy.
- Training, technical support services, business facilitation services, database and documentation services, quality assurance services and common utility services .

MODULE-II

MARKETSURVEY&OPPORTUNITYIDENTIFICATION(BUSINESSPLANNING)

BUSINESSPLANNING

Abusinessplanistheblueprintofthestep-by-stepprocedurethatwouldbefollowed toconvert a business idea into a successful business venture. A business plan firstofallidentifiesan innovativeidea,researchestheexternalenvironmenttolisttheopportunities and threats,identifies internal strengths and weakness, assesses the feasibilityof the idea and then allocates resources (production/operation, finance, human resources) inthe best possible manner to make the plan successful.

Theobjectivesofabusinessplanare:
- Togivedirectionstothevisionformulatedbyentrepreneur.
- Toobjectivelyevaluatetheprospectsof business.
- Tomonitortheprogressafterimplementingtheplan.
- Topersuadeotherstojointhebusiness.
- Toseekloansfromfinancialinstitutions.

- Tovisualize the concept in terms of market availability, organizational, operational and financial feasibility.
- Toguidetheentrepreneurintheactualimplementationoftheplan.
- Toidentifythestrengthsandweaknessofthe plan.

- To identify challenges in terms of opportunities and threats from the externalmarkets. ☐ To clarify ideas and identify gaps in management information about their business, competitors and☐ the market.
- Toidentifytheresourcesthatwouldberequiredtoimplementtheplan.
- Todocumentownershiparrangements,futureprospectsandprojectedgrowthsofthebusinessventure.

Business Planning is the first step towards a successful enterprise. Business Planningincludes deciding what products or services you would like to offer,theplace where youwould like to start the business, analysing competition, estimating demand and creating thefinancial model. Businessplanningisanongoingactivityandshouldbeupdatedwheneverinternalorexternalfactors change.

PreparingaBusinessPlan:
Aplan,whichlooksverylucrative/feasibleatthefirstinstance,mightactuallynotbe whenthe details are drawn. Hence documenting the business plan is one ofthe earlysteps that an entrepreneur should take.

BusinessPlanProcess:
The successful entrepreneur lays down a step-by-step plan that she/he follows in starting a new business. Thisbusiness plan acts asa guiding tooltothe entrepreneurandisdynamicinnature-it needscontinuous review and updating so that the plan remains viableeveninchangingbusiness situations.
Thevariousstepsinvolvedinbusinessplanningprocess are:

PreliminaryInvestigation
PreliminaryInvestigation:Beforepreparingtheplan,entrepreneurshould:
- Reviewavailablebusinessplans(ifany).
- Drawkeybusinessassumptionsonwhichtheplanswillbebased(e.g.
- inflation,exchange rates, market growth, competitive pressures,etc.) ☐ Scantheexternal

environment and internal environment to assess the☐ strengths, weakness, opportunities and threats.
- Seekprofessionaladvicefromafriend/relativeorapersonwhoisalreadyintosimilar
- business(if any).

AdvantagesofBusinessPlanning:
1. BusinessPlanning helpstheCompanytoformulateobjectivesandgoals clearly.Thecompany formulatesobjectivesafterdiscussingthoroughlywithsuperiors,colleaguesandsub-ordinates.These objectiveshelpthecompanytoachievestabilityofbusinessand maximize profits.
2. Businessplanninghelpstoavoidpiece-mealapproachandtohaveintegrativeapproach.
3. Businessplanninghelpstoviewtheorganizationintotalratherthandepartment-wise.
4. Businessplanaimsatthelong-rangeplanratherthanshort-range plan.
5. Businessplanintegratesthecompanyplanwiththenationalplansandpriorities.
6. Businessplantakesintoconsiderationtheenvironmentalfactors.Technologicalfactorsinfluencethe business plan significantly. Technology has been upgraded continuously. Thechangesintechnologyarepivotal,resultinginhightechnology
7. Liberalization,PrivatizationandGlobalization notonlybroughtsignificantchangesintheeconomy, buttheyhaveintensifiedthecompetition.GlobalizationallowedmanyMNC'stoenterandoperatein India.Thisresultedintoughcompetitionbetweendomestic and foreign companies.

8. A good business plan helps an organization to be aware of the changes in political trends and their impact in business at national and international levels. Effective business plan helps the company to achieve its objectives and goals.

10. Effective business plan certainly contributes for the achievement of high rate of profits and increases in earnings per share.

SMALLSCALE INDUSTRIES

Small Scale Industries (SSI) are those industries in which the manufacturing, production and rendering of services are done on a small or micro scale. These industries make a one-time investment in machinery, plant, and equipment, but it does not exceed Rs.10 crore and annual turnover does not exceed Rs.50 crore.

Characteristics of Small Scale Industries

Following are the characteristics of Small scale industries in India:

1. Small scale industries generally have a single ownership, which means it either has a sole proprietorship structure or a partnership.
2. The management of the small scale industries rests with the owners and therefore, the owner plays an active role in the day to day functions of the business.
3. Small scale industries are very much labor intensive, hence there is limited use of technology.
4. Small scale industries are flexible and adaptable to a changing business environment, unlike the large industries.
5. Small scale industries work in a restricted area which makes them able to meet local and regional requirements.
6. Small scale industries use resources that are local and readily available, which helps the economy fully utilise the natural resources and bear minimum wastage.

Objectives of Small Scale Industries

The objectives of small scale industries are as follows:

1. To create job opportunities for the population.
2. To help in the development of the rural areas of the economy.
3. To play an active role in reducing the regional imbalances in the nation.
4. To help in improving the standard of living for people in rural areas.
5. To ensure there is equal distribution of wealth and income

Role of Small Scale Industries in the Indian Economy

Following are the roles of small scale industries in the Indian Economy

1. They are the major sources of employment for the people living in rural areas and therefore, play a vital role in generating employment in an economy.
2. Small scale industries account for almost 40% of the total goods and services in India hence, is a very important contributor to the economy.

3. Small scale industries help in promoting the Make in India initiative which helps in increasing demand for local made products.

4. Majority of the export materials are provided to the Indian companies from the small scale industries. It is estimated that around 50% of all the material exported are produced from such industries

WHATISANANCILLARYUNIT?

An industrial unit which is engaged or is proposed to be engaged in the manufacture or production of parts, components,sub-assemblies,toolingorintermediaries,   ortherenderingofservices   andtheundertakingsupplies   or renders or proposes to supply or render not less than 5o percent of its productionor services, as the casemay be, to one or more other industrial takings and whose investment in fixed assets in plant and machinery whether held on ownership terms or on lease or on hire purchase, does not exceed Rs 75 lacs.

Thestrategyforancillarydevelopmentwasoriginallyoutlinedwiththeobjectiveof:

•   Development of employment opportunities coupled with growth of entrepreneurship in different fields and different parts of the country.

•   Increaseinproductivityofthesmallscaleunits.

•   Growth of a low cost economy through reduction in costs brought by appropriate technology followed by ancillary units.

•   Developmentofasingleormultidisciplineexpertiseindifferentfieldstobringabouteconomiesofscale.

TINYUNIT

A tiny unit is the business enterprise whose investment in plant and machinery is not more than Rs. 25 lakh. Investment limit is Rs. 25 lakh in this type of unit. No such assistance is there.

SERVICESECTORUNITS

The service sector is the sector of the economy that produces and offers services. According to the trisector macroeconomic theory, there are three major economic sectors – primary, secondary, and tertiary.

MAJORECONOMICSECTORS

1.   PrimarySector

The primary sector is composed of industries engaged in the business of gathering raw materials. It includesmining companies, lumber companies, and oil drilling companies – along with the agricultural and fishing industries.

2.   SecondarySector

Thesecondarysectorincludesallbusinessesinvolvedinproducingandsellinggoods –suchasautomanufacturers, furniture stores, and clothing retailers.

3.   TertiarySector

The tertiary sector is the service sector. It includes industries such as the financial services industry, internet technology (IT), and the healthcare and entertainment industries.

TIMESCHEDULE PLAN

The time schedule is a contractual document between the client and the contractor which defines the forecast sequence and progress of the work and the contractual start, finish and milestones dates. The time schedule could contain the budget cost of the project which creates the project cash flow and could contain the manpower as well which creates manpower histograms.

PROJECTIMPLEMENTINGAGENCY(PIA)SELECTIONPROCESS:

1. **Invitation for Project Proposal:** Expression of Interest is float at DDU-GKY website for invitation of Project Implementing Agency (PIA) to apply for Project under DDU-GKY for providing Skills Development Training to Rural Youths within a stipulated time period.

2. **Initial Screening and Qualitative Appraisal of Project Proposal:** Project Proposal submit by PIA are screened by TSA for approval or rejection at the initial level (Evaluation format of IS as per Notification– 20/2017 of MoRD). After approval at IS, Qualitative Appraisal is conducted for the
PIA by TSA which involves a complete check of documents, evaluation and visit of PIA Headquarter.TSA may approve or reject the PIA proposal based on QA (Evaluation format as per Notification – 20/2017 of MoRD).

3. **ProjectApprovalCommittee(PAC):**PACmeetingisheldundertheChairmanshipofChief
SecretaryoftheStatealongwiththeCo-Chairman,Commissioner&SecretaryofR.D Department, State Mission Director, Member Secretary, Chief Executive Officer, MzSRLM and10 other PAC members (Secretary of Line Department and Director of Rural Development and LE&IT). PAC is conducted after PIAprojectproposalareapprovedinISandQAforfinalapprovalofproject.Basedonpresentationand interactionbetweenPACmembersandPIAtheprojectproposalofPIAmaybeapprovedorrejected.

4. **Commencement of Project:** After approval of PIA project proposal, MoU will be signed and funds willbe released to PIA and project will be commenced as per timeline of Notification 53/2017 0f MoRD.

ListofProjectImplementingAgencies:

Atpresent,DDU-GKYMizoramhas10PIAsatpresentnamely:

1. ApolloMedskillsLtd
2. eCentircSolutionsPvt.Ltd
3. EternityPartnerLLP
4. IntegratedDevelopmentEnvironmentandAwarenessSociety
5. SocialJustice&DevelopmentIndia
6. MissionFoundationMovement
7. BigConceptsFoundationPvtLtd
8. SynchroServeGlobalSolutionsPvt.Ltd

9. HimaliEducationalandWelfareSociety
10. InfovalleyEduational&ResearchPvt.Ltd

DEMAND-SUPPLYANALYSIS?

In a market economy, the level of demand and supply of all goods and services jointly determines the price level and quantity of that good (or service) in the economy.

WhenisaSupplyDemandAnalysisUsed?

The law of demand states that (with a few exceptions) as price rises, the quantity demanded of any good or service would be lower.

The law of supply implies that higher the price received by a supplier, the quantity supplied will rise. Thus,demand is often a downward sloping curve in the price-quantity plane, while supply is an upward sloping curve.

IDENTIFYINGBUSINESSOPPORTUNITIES

Business opportunity is a favorable situation for doing business. It is important for an entrepreneur to recognizeandexploitthoseopportunities.Therearevariousapproachestoidentifyright businessopportunities,someof them are as follows:

Howtoselecttherightopportunity?

•   Identifyyourbusinessandpersonalgoal

•   Researchyourfavoriteindustry

•   Identifypromisingindustrysegment

•   Identifyproblemareasandbrainstorm solutions

•   Comparepossiblesolutionswithyourobjectivesandopportunitiesinthemarketplace

•   Focusonthemostpromising opportunities

HowtoevaluateanideatoidentifyviabilityofEntrepreneurialopportunities:Timmonset.al(1987)ina study observed four anchors of superior opportunities:

•   Viableideacreatessignificantvaluetotheenduser

•   Itsolvesasignificantproblemandmeettheunmetneedorwantsofthe customers

•   Thisideahasastrongmarketandpotentialtomakemoney

•   Itisagoodfitwith thefoundersandmanagementteamoftheorganization,andinthemarketplace,and with the risk and reward balance.

Theprocesscanbebrokenupintothefollowing stages:

1. *Exploration:*

New ideas are sought from the sales force, since that is the department which is in constant direct contact with customers.

The analysis of customer needs also takes into account competitors' products and services. New ideas are also generated from the consultants, shareholders, management employees, report on foreign markets and products, trade journals, R&D laboratories, other research, etc. However, technical feasibilities and market potential have to be kept in mind while examining new ideas.

2. *Screening:*

While choosing the most effective ideas, guesswork or hunches are not reliable. To ensure a more scientific and less risky selection process, it is necessary to keep in mind all possible quantitative, as well as, qualitative information. Keeping in mind the organizational objectives and available facilities, the following must points be considered while selecting an idea—

i. Market potentiality ii. Technical feasibility of the idea iii. Does the idea fall under any

intellectual property rights or patent regulations? iv. Raw material supply position—at

present and in the future

v. Doexistingproductionfacilitiesandresourceavailabilityremainsuitablefor commercializationofthenew idea?

vi. Thelevelofinvestmentrequiredvii.Canthecompanygeneratethislevelofrequiredinvestmentfrom internal

sources?

viii. If borrowing is a must, cost of borrowing is a factor ix. Does profitability projection analysis suggest

adequate return on investment?

(a) $PVI = \dfrac{CTS \times CCS \times AV \times /L}{TPC}$

Where,

PVI	=	Project Value Index
CTS	=	Chances of Technical Success, calculated on a rating scale, which may be arbitrary, say 0 to 10
CCS	=	Chances for Commercial Success, on a scale, say 0 to 10
AV	=	Annual Volume of total sales in units
P	=	Profit per unit
L	=	Life of Product (in years)
TPC	=	Total Project Cost

Profitabilityprojectionstudycanbemadeusingfollowingformulae:

However,amoresimpleapproach,asunder,maybeconsideredtoarriveatthenetprobablereturnperrupee:

(b) I = (PN/C)

Where,

I	=	Index of relative worth
P	=	Overall probability of commercial attainment of goal
N	=	Estimated net return for an arbitrary five-year period
C	=	Estimated future cost

Inaddition,pointsystemandgraphsalsocansupplementtheprofitabilityprojectionanalysisofnewproduct.

3. *BusinessAnalysis:*

At this stage, technical and economic factors, like manhours, cash flow, inventory holding, etc., are analysed to evaluate commercial feasibility. This will ultimately facilitate the budgeting process.

4. *Development:*

A working model is developed at this stage to evaluate the practicability of the new idea, by studying the acceptability of customers to the working model. Most companies use product life cycle model at this stage.

5. *Testing:*

Redesigningoftheworkingmodelintoaproductionprototypeandtestingthemarketbeforebulk production.

6. *Commercialization:*

At the final stage of a new product planning, decisions have to be made whether to make or buy components; production methods have to be developed; distribution networks activated and the new product has to integratewith the organization's normal activity, and satisfactory sales volume and profitability have to be achieved.

MODULE-III

PROJECTREPORTPREPARATION

PROJECTPRELIMINARYREPORT

Project Preliminary Report is a formal document that describes specific activities, events, occurrences, or subjects of a project to explain progress of the project up to a certain point in time (but not later than completion time). This document is presented and communicatedat project status meetings to explain what goals, deliverables and results are produced and what activities are still in progress. The document serves as the basis for developing the final project report.

Atypicalpreliminaryreportforprojectshighlightsthefollowingdata:

- *Problem/need*:Acleardescriptionoftheproblemorneedtheprojectaimsto handle.
- *Proposedsolution*:abriefdescriptionofhowtoaddresstheproblem/need.
- *Workeffort*:Ananalysissummaryofworkrelevanttothe project.
- *Status*:currentstateofprojectwork,includingactivitiescompletedandunfinished.
- *Evaluation*:ananalysisandassessmentofprojectworkbyspecificcriteriasuchascosteffectiveness, feasibility, manageability, performance, others.
- *Schedule*:atimelinewithspecificmilestonesandeventsrelatedtoprojectwork.

DETAILEDPROJECTREPORT

A**detailed project report**is an extensive document that gives intricate details about the proposed businessidea. It includes information about the business proposal and different strategies that would be taken into account in order to implement the plan.

A project report is a vital aspect of investing in any business. This document contains essential information on the project that can be carried out feasibly.

A detailed report of the project plan mainly includes data on the project's financial, technical, production, and managerial areas. Even as an entrepreneur obtaining a project report helps you understand theimportant areas of your business. You can also get financing by getting your project evaluated.

Contentsofadetailedproject report

A**detailedprojectreport**mustincludethefollowinginformation:

- Briefinformationabouttheproject

- Experienceandskillsofthepeopleinvolvedinthepromotionofthe project
- Details and practical results of the industrial concerns of the promoters of the project•   Project finance and sources of financing

- Governmentapprovals
- Rawmaterialrequirement
- Detailsoftherequisitesecuritiestobegiventovariousfinancialorganizations
- Other important details of the proffered project idea include information about management teams for the project, details about the building, plant, machinery, etc

TECHNOECONOMICFEASIBILITYREPORT

Objective of Techno-Economic Feasibility Studies/ Detailed Project Reports is to determine the technicalfeasibilityandfinancial viabilityofthe project, assesstherisksassociated withthe projectandenumerateimminent actions that are required to be taken. It helps a client get a detailed evaluation of a project.**It helps a client make an investment decision based on:**

- Technicalfeasibilityoftheproject.
- Financialviabilityofthe project.
- Therisksassociatedwiththeproject.
- Actionsrequiredforriskmitigation.

PROJECTVIABILITY

Project Viability means the likelihood that the Project can be successfully developed and provide the Product and services required for the period stated in the Offer. This assessment is based on a review of the status and plans for key Project activities (e.g. financing, permitting, engineering, procurement, construction, interconnection, start-up and testing, operations, fuel supply, water supply, wastewater discharge, labor agreements, site control, etc.).

MODULE-IV

MANAGEMENTPRINCIPLES

INTRODUCTION:

"Management is the co-ordination of all the resources through the process of planning,organizing, direction and controlling in order to attain the pre-determined objectives."

Manageristhedynamic,life-givingelementineverybusiness.Withouthis/herleadership,the"resourcesof production"

remains resources and never become production.

"Managementistheartofgettingthingsdonethroughandwithpeopleinformallyorganizedgroups."– HaroldKoontz

"Managementistheartofknowingwhattodointhebestandcheapestway."– F.W.Taylor

NATUREOFMANAGEMENT:

1. **Management is goal oriented:** It is a means to achieve certain goals. Management goals are called group goals or organizational goals.

2. **Management is universal:** The basic principles of management are universal. They apply more or less in every situation. Whenever two or more persons are engaged in working for a common goal, management is necessary.

3. **Management is intangible:** It is an unseen or invisible force. It cannot be seen but its presence can be everywhere in the form of results.

4. **Managementisasocialprocess:** Itisdonebypeople,throughpeopleandfor people.

5. **Management is multi-acted discipline:** It contains principles drawn from many social sciences like anthropology, psychology etc.

6. **Management is a continuous process:** It is constantly engaged in moulding of enterprise in the ever changing business environment.

7. **Management is purposeful:** It is the way to achieve certain end results, but without the end results it would bedirectionless.Allthe activitiesofmanagement are goal oriented,thesuccess ofmanagement ismeasured by the extent to which the desired objectives are attained.

8. **Management is group phenomenon:** It involves the use of group effort in the pursuit of common objectives. People join in groups to achieve what they cannot achieve individually.

9. **Management is essentially an executive function:** It deals with the active directions and control of the activitiesofpeopletoattainpredeterminedobjectives.It isatechniquebymeansof whichtheobjectivesofhuman group are determined, clarified and accomplished.

10. **Management make things happen:** It is the art of getting things done through people. It implies thatunder given set of constraints or problems, how positive results can emerge, by taking well defined actions.

PRINCIPLESOFMANAGEMENT:

1. **Divisionofwork:**Itmeansspecialization.Eachjobandworkshouldbedividedintosmallelementsandeach element should be assigned to the specialist of the element.

2. **Authorityandresponsibility:**Fayolstressedthatrightandpowertogiveordersshouldbebalancedwiththe responsibility for performing the necessary functions.

3. **Discipline:**

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4. **Unity of command:** According to this principle, one sub-ordinate should get orders and instructions regarding his work only from one superior.   interest of the individuals and groups.   subordinates.

5. **Unity of direction:** Each group of activities having the same objective must have one head and one plan. It will create dedication to the purpose and loyalty.

6. **Subordination of individual interest to general interest:** The interest of organization is above the

7. **Remuneration:** It should be fair and adequate. It should lead to maximum satisfaction and include both types of incentives- financial as well as non- financial.

8. **Centralization:** The relationship between centralization and decentralization authority is a matter of proportion and optimum balance should be maintained a/c to the needs of the organization.

9. **Scalar chain:** It means the hierarchy of authority from the highest executive to the lowest one for the purpose of communication.

10. **Order:** It means the right person on the right job and everything in proper place.

11. **Equity:** Kindness and justice should be exercis   ed by the management in dealing with its

12. **Stability of tenure and personnel:** The management policies should provide a sense of reasonable

13. **Initiative:** Manager must create an environment which encourages their subordinates to take

14. **Espirit de corps:** Cohesiveness and team spirit should be encouraged among employees. It is o ne

MANAGEMENT FUNCTIONS:
1. PLANNING:-

Five Functions of Great Management

Planning
When you think of planning in a management role, think about it as the process of choosing appropriate goals and actions to pursue and then determining what strategies to use, what actions to take, and deciding what resources are needed to achieve the goals.

Organizing
This process of establishing worker relationships allows workers to work together to achieve their organizational goals.

Leading
This function involves articulating a vision, energizing employees, inspiring and motivating people using vision, influence, persuasion, and effective communication skills.

Staffing
Recruiting and selecting employees for positions within the company (within teams and departments).

Controlling
Evaluate how well you are achieving your goals, improving performance, taking actions. Put processes in place to help you establish standards, so you can measure, compare, and make decisions.

2. ORGANISING:- According to Henry Fayol, "To

Organizing as a process involves:

Thiswillcreateloyaltyanddevotionamongtheemployees.jobsecurity.Ithelpstodevelop loyalty

andattachmentonthepartofemployees.initiativeandresponsibility.

ofthechiefcharacteristicsoforganizedactivitythatanumberofpeopleworktogetherinclosecooperationforthe achievement of common goals.

According to KOONTZ, "Planning is deciding in advance - what to do,whentodo&howtodo.Itbridgesthegapfromwhereweare& where we want to be". A plan is a future course of actions. It includes:

- Determinationofobjectives
- Forecasting
- SearchofalternativecourseofactionDrawingpolicies& procedures
- Budgeting,etc.

organize a business is to provide it with everything useful orits functioning i.e. raw material, tools, capital and personnel's". To organize a business involves determining & providing human and non-human resources to the organizational structure.

- Identificationofactivities.
- Classificationofgroupingofactivities.
- Assignmentofduties.

- Delegation of authority and creation of responsibility.

- Coordinatingauthorityandresponsibilityrelationships.

3. STAFFING:-

According to Koontz & O'Donnell, " The managerial function of staffing involves manning the organizational structurethrough proper and effectiveselection,appraisalanddevelopmentofpersonneltofilltherolesdesignedinto the structure." It includes:

- Properrecruitmentandselectionofpeople
- Fixing remuneration
- Selectionofsuitablepersons
- Placementandorientationofemployees
- Traininganddevelopmentofemployees

4. DIRECTING:-

It is that part of managerial function which actuates the organizational methods to work efficiently for achievement of organizational purposes.Directing involves the following sub-functions:

Supervision-impliesoverseeingthe workofsubordinatesbytheir superiors.It istheact of watching&directingwork & workers.

Motivation- means inspiring, stimulating or encouraging the sub-ordinates with zeal to work. Positive, negative, monetary, non-monetary incentives may be used for this purpose.

Leadership-may be defined as a process by which manager guides and influences the work of subordinates in desired direction.

Communications- is the process of passing information, experience, opinion etc from one person to another. It is a bridge of understanding.

5. CONTROLLING:-

AccordingtoKoontz&O'Donell"Controllingisthemeasurement&correctionofperformanceactivitiesof subordinatesinordertomakesurethattheenterpriseobjectivesandplansdesiredtoobtainthemasbeing accomplished".
Thereforecontrollinghasfollowingsteps:

-
  - Establishmentofstandardperformance.
  - Measurementofactualperformance.

Comparisonofactualperformancewiththestandardsandfindingoutdeviationifany.

LEVELS OF MANAGEMENT

- Correctiveaction.

LEVELSOFMANAGEMENT:

The term "**Levels of Management**" refers to a line of demarcation between various managerial positions in an organization. The number of levels in management increases when the size of the business and work force increases and vice versa.

1. TopLevelof Management

It consists of board of directors, chief executive or managing director. The top management is the ultimate source of authority and it manages goals and policies for an enterprise. It devotes more time on planning and coordinating functions.

Theroleofthetopmanagementcanbesummarizedasfollows-

- Topmanagementlaysdowntheobjectivesandbroadpoliciesoftheenterprise.

- It issues necessary instructions for preparation of department budgets, procedures, schedule setc.

- Itpreparesstrategicplans&policiesfortheenterprise.
- Itappointstheexecutiveformiddleleveli.e.departmental managers.
- Itcontrols&coordinatestheactivitiesofallthedepartments.
- Itisalsoresponsibleformaintainingacontactwiththeoutsideworld.
- Itprovidesguidanceanddirection.
- The topmanagement

isalsoresponsibletowardstheshareholdersfortheperformanceoftheenterprise.

2. MiddleLevelofManagement

The branch managers and departmental managers constitute middle level. They are responsible to the topmanagement for the functioning of their department. They devote more time to organizational and directional functions. In small organization, there is only one layer of middle level of management but in big enterprises, there may be senior and junior middle level management.Their role can be emphasized as -

- Theyexecutetheplansoftheorganizationinaccordancewiththepoliciesanddirectivesofthetopmanagement.
- Theymakeplansforthesub-unitsoftheorganization.
- Theyparticipateinemployment&trainingoflowerlevelmanagement.
- Theyinterpretandexplainpoliciesfromtoplevelmanagementtolowerlevel.
- Theyareresponsibleforcoordinatingtheactivitieswithinthedivisionordepartment.
- Italsosendsimportantreportsandotherimportantdatatotoplevelmanagement.
- Theyevaluateperformanceofjuniormanagers.
- Theyarealsoresponsibleforinspiringlowerlevelmanagerstowardsbetterperformance.

3.Lower Level of Management

Lower level is also known as supervisory / operative level of management. It consists of supervisors, foreman, section

officers,superintendentetc.Accordingto*R.C.Davis*,"Supervisorymanagementreferstothoseexecutiveswhose workhastobelargelywithpersonaloversightanddirectionofoperativeemployees".Inotherwords,theyare concerned with direction and controlling function of management.

Theiractivitiesinclude-

- Assigningofjobsandtaskstovariousworkers.
- Theyguideandinstructworkersfordaytodayactivities.
- Theyareresponsibleforthequalityaswellasquantityof production.
- Theyarealsoentrustedwiththeresponsibilityofmaintaininggoodrelationintheorganization.
- Theycommunicateworkersproblems,suggestions,andrecommendatoryappealsetctothehigherlevelandhigher level goals and objectives to the workers.
- Theyhelptosolvethegrievancesoftheworkers.
- Theysupervise&guidethesub-ordinates.
- Theyareresponsibleforprovidingtrainingtotheworkers.

- Theyarrangenecessarymaterials,machines,toolsetcforgettingthethingsdone.

- Theyprepareperiodicalreportsabouttheperformanceoftheworkers.
- Theyensuredisciplineinthe enterprise.
- Theymotivateworkers.
- Theyaretheimagebuildersoftheenterprisebecausetheyareindirectcontactwiththeworkers.

MODULE-V

FUNCTIONALAREASOF MANAGEMENT

PRODUCTIONMANAGEMENT

Production management is called upon to develop and establish relationship between market demand and production capability of an enterprise. It ensures accomplishment of twin organisational objectives of production andsatisfaction. Both these objectives can be fulfilled with planning, organising, directing, and controlling and inventory management. Production management is the process of effectively coordinating and controlling the factors of production such as man, machine, material, money and management in order to get satisfaction out of the product.

Production management is the process of transforming the input into output by creating various utility which can add value to those created output. While the input is transferred into output various types of utility are created. Some of the utilities are:

1.   Form Utility: When the input is changed in size, weight, colour, shape and form while converting into output for the benefit of the customers in the market it has form utility. (Cotton changed into different dress materials).

2.   Place Utility: When the input is changed from the place of its availability to the place of their use to be converted into output through transportation is known as place utility.(Sugarcane to the factory for sugar production)

3.   Time Utility: When either the input or the output is preserved for storage purpose in order to be utilised when there is a scarcity of that product to be utilised by the consumers.(Potato & Tomato in cold storage)

4.   Service Utility: When some utility is created by rendering some service to the customer either directly or indirectly for a definite time period it is called as service utility of the product.(Doctors for the patient , lawyers forthe clients, teachers for the students)

5.   Knowledge Utility: When some information is communicated to the customer by imparting some knowledge about the product through presentation or advertisement. (Advertisement for a product or service)

 "It is the ratio between the output of goods and services and the input of resources consumed in the process of production."

Productivityistheratiobetweenoutputofwealthandinputofresourcesusedinproductionprocesses.

Productivitycanbeincreasedby:

i.   Generatingmoreoutputsfromsamelevelofinputs.

ii.   Producingsamelevelofoutputswithreducedlevelof

inputs. iii. A combination of both.

QUALITYCONTROL

Quality control involves testing units and determining if they are within the specifications for the final product. The purpose of the testing is to determine any needs for corrective actions in the manufacturing process. Good quality control helps companies meet consumer demands for better products.

WhyIsQC Needed?
Creatinga productiscostly, time-consuming, and canbe unsafe without controlsin place.Additionally,ifacompany sends defective products out for purchase, it could be held liable for injuries or issues that arise from using its products. Quality control inspectors ensure that defective or unsafe products are identified, and the causes are corrected.

PRODUCTIONPLANNING

Production planning is one part of production planning and control dealing with basic concepts of what to produce, when to produce, how much to produce, etc. It involves taking a long-term view at overall production planning. Therefore, objectives of production planning are as follows:

- Toensurerightquantityandqualityofrawmaterial,equipment,etc.areavailableduringtimesofproduction.
- Toensurecapacityutilizationisintunewithforecastdemandatallthetime.

A well thought production planning ensures that overall production process is streamlined providing following benefits:

- Organizationcandeliveraproductinatimelyandregularmanner.

- Supplierareinformedwillinadvancefortherequirementofraw materials.

- Itreducesinvestmentin inventory.
- Itreducesoverallproductioncostbydrivinginefficiency.

Production planningtakescareoftwobasic strategies'productplanningandprocess planning.Production planningis done at three different time dependent levels i.e. long-range planning dealing with facility planning, capital investment, location planning, etc.; medium-range planning deals with demand forecast and capacity planning and lastly short term planning dealing with day to day operations.

ProductionControl

Production control looks to utilize different type of control techniques to achieve optimum performance out of the production system as to achieve overall production planning targets. Therefore, objectives of production control are as follows:

- Regulateinventorymanagement
- Organizetheproductionschedules
- Optimumutilizationofresourcesandproductionprocess

Theadvantagesofrobustproductioncontrolareasfollows:

- Ensureasmoothflowofallproduction processes
- Ensureproductioncostsavingstherebyimprovingthebottomline
- Controlwastageofresources
- Itmaintainsstandardofqualitythroughtheproductionlifecycle.

Production control cannot be same across all the organization. Production control is dependent upon the following factors:

- Natureofproduction(joboriented,serviceoriented,etc.)
- Natureofoperation
- Sizeofoperation

INVENTORYMANAGEMENT

Inventory management is the process of ordering, handling, storing, and using a company's noncapitalized assets - AKAitsinventory.Forsomebusinesses,thisinvolvesrawmaterialsandcomponents,whileothersmayonlydealwith finished stock items ready for sale. Either way, inventory management all comes down to balance - having the right amount of stock, in the right place, at the right time. And this guide will help you achieve just that.

Theimportanceofinventorymanagement

Aretailbusinessisuselesswithoutitsinventory.Andsowhileitmaynotbethemostexcitingsubject,inventory

managementisvitallyimportanttoyourbusiness'slongevity.Goodinventorymanagementhelpswith:

1.   Customerexperience:Nothavingenoughstocktofufillordersyou'vealreadytakenpaymentforcanbea realnegative.

2.   Improving cash flow: Putting cash into too much inventory at once means it's not available for other things - like payroll or marketing.

3.   Avoidingshrinkage: Purchasingtoomuchofthewrong inventoryand/ornotstoringitcorrectlycan leadtoit

becoming'dead',spoiled,orstolen.

4.   Optimizingfulfillment:Inventorythat'sputawayandstoredcorrectlycanbepicked,packedandshippedoff tocustomersmorequicklyand easily.

Theformsofinventoriesexistinginamanufacturingenterprisecanbeclassifiedintothreecategories:

(i) *Raw Materials:*

These are those goods which have been purchased and stored for future productions. These are the goods which have not yet been committed to production at all.

(ii) *Work-in-Progress:*

These are the goods which have been committed to production but the finished goods have not yet been produced. In other words, work-in-progress inventories refer to 'semi-manufactured products.'

(iii) *FinishedGoods:*

These are the goods after production process is complete. Say, these are the final products of the production process ready for sale. In case of wholesaler or retailer, inventories are generally referred to as 'merchandise inventories.' Some firms also maintain the fourth type of inventories called 'supplies.' Examples of supplies are office and plant cleaning materials, oil, fuel, light bulbs and the like.

Therearebroadlytwocostsinvolvedinholdinginventories:

(i) *OrderingCosts:*

These include costs which are associated with placing of orders to purchase raw materials and components. Clerical and administrative salaries, rent for the space occupied, postage, telegrams, bills, stationery, etc. are the examples of ordering costs. The more the orders, the more will be the ordering costs and vice versa.

(ii) ***CarryingCosts:***

These include costs involved in holding or carrying inventories like insurance charges for covering risks, rent for the

floor space occupied, wages of labourers, wastages, obsolescence, or deterioration, thefts, pilferages, etc. These also include 'opportunity costs.' This simply means had the money blocked in inventories been invested elsewhere in the business, it would have earned a certain return. Hence, the loss of such return may be considered as an 'opportunity costs.'

ModelsofInventoryManagement:

While it is very necessary to maintain the optimum level of inventory, it is not so easy as well. Nonetheless, some models or methods have been developed in the recent past for determining the optimum level of inventories to be maintained in the enterprise.

Allmodelsareclassifiedintotwomajortypes:

(i) DeterministicModels,and(ii)

Probabilistic Models.

In brief, the deterministic models are built on the assumption that there is no uncertainty associated with demand and replenishment of inventories. On the contrary, the probabilistic models take cognizance of the fact that there isalways some degree of uncertainty associated with the demand pattern and lead time of inventories.

Usually,thefollowingthreedeterministicmodelsarein use:

1. EconomicOrderingQuantity(EOQ)Model:EconomicOrderingQuantity(EOQ)Model:

One of the important decisions to be taken by a firm in inventory management is how much inventory to buy at a time.

2. ABC Analysis: This is also called 'Selective Inventory Control.' The ABC analysis of selective inventory is based onthelogicthatinanylargenumber,weusuallyhave'significantfew'and'insignificantmany.'Thisholdstruein case of inventories also. A firm maintaining several types of inventories does not need to exercise the same degree of control on all the items.

The firm adopts selective approach to control investments in various types of inventories. This selective approach is called the ABC Analysis. The items with highest value are classified as 'A Items'. The items with relatively low value as 'B Items' and the items least valuable are classified as 'C Items.' Since the ABC analysis concentrates on important items, hence, it is also known as 'Control by Importance and Exception (CIE).'

3. Inventory Turnover Ratio: Inventory can also be managed by using accounting ratios like Inventory Turnover Ratio. Inventory ratio establishes relationship between average inventory and cost of inventory consumed or sold during the particular period.

Thisiscalculatedwiththehelpofthefollowingformula:

CostofGoodConsumedorSoldduringtheyear/AverageInventoryduringtheyear.

DEFINITIONSOFFINANCIALMANAGEMENT:

1.   According to Weston and Brighan, "Financial Management is an area of financial decision making, harmonising individual motives and enterprise goals".

2.   According to Howard and Upon, " Financial Management is the application of the planning and controlling functions to the finance function".

3.   According to Ezra Soloman and Pringle John, "Financial Management is concerned with the effective use of an economic resource namely capital fund".

4.   A formal definition of finance would be determining acquisition, allocation, understanding and utilisation of financial resources usually in the aim of achieving of some particular goals of objective.

FUNCTIONS OF FINANCIAL MANAGEMENT

There are two approaches to identify the functions that must be performed by financial management. One classification system links the functions with the twin goals of liquidity and profitability. The second classification method focuses on what is being a managed asset or funds.

1) Liquidity Functions: In seeking sufficient liquidity to carry out the firm's activities, the financial manager performs tasks such as the following:

➢ The day-to-day operations require the firm to be able to pay its bills properly.

➢ This is largely a matter of matching cash inflows against cash outflows.

➢ The firm must be able to forecast the sources and timing of inflows from customers and use them to pay creditors and suppliers.

2) Raising Fund: The firm receives financing from a variety of sources. At different times some sources will be more desirable than others. The possible source may not at a given time, have sufficient funds available to meet firm's need.

The financial manager must identify the amount of funds available from each source and the periods when they will be needed. Then the manager must take steps to ensure that the funds will actually be available and committed to the firm.

3) Managing the Flow of Internal Funds: A large firm has a number of bank accounts for various operating division. The money that flows among these internal accounts should be carefully monitored. Frequently, a firm has excess

cash in one bank account when it has a need for cash elsewhere. By continuously checking on the cash balances in the head quarters and each operating division's accounts, the manager can achieve a high degree of liquidity with minimum external borrowing.

4)   Profitability Functions: In seeking profits for the firm the financial manager provides specific inputs intothe decision

makingprocess,basedonthefinancialtrainingandactions.

MANAGEMENTOFWORKINGCAPITAL

Workingcapitalmanagementisabusinessstrategydesignedtoensurethatacompanyoperatesefficientlyby monitoring and using its current assets and liabilities to their most effective use.

Theefficiencyofworkingcapitalmanagementcanbequantifiedusingratioanalysis.

WorkingCapitalManagementRatios

Three ratios that are important in working capital management are the working capital ratio (or current ratio), the collection ratio, and the inventory turnover ratio.

CurrentRatio(WorkingCapitalRatio)

The working capital ratio or current ratiois calculated as current assets divided by current liabilities. It is a key indicator of a company's financial health as it demonstrates its ability to meet its short-term financial obligations.

Although numbers vary by industry, a working capital ratio below 1.0 generally indicates that a company is having trouble meeting its short-term obligations. That is, the company's debts due in the upcoming year would not be covered by its liquid assets. In this case, the company may have to resort to selling off assets, securing long-termdebt, or using other financing options to cover its short-term debt obligations.

Workingcapitalratiosof1.2to2.0areconsidereddesirable,butaratiohigherthan2.0maysuggestthatthecompany is not effectively using its assets to increase revenues.1 A high ratio may indicate that the company is not managing its working capital efficiently.

CollectionRatio(DaysSalesOutstanding)

The collection ratio, also known as days sales outstanding(DSO), is a measure of how efficiently a companymanages its accounts receivable. The collection ratio is calculated as the product of the number of days in an accounting period multiplied by the average amount of outstanding accounts receivable divided by the total amountof net credit sales during the accounting period.

The collection ratio calculation provides the average number of days it takes a company to receive payment after a sales transaction on credit. If a company's billing department is effective at collections attempts and customers pay their billsontime,thecollection ratio willbelower. The lower acompany's collection ratio,themore quickly itturns receivables into cash.

InventoryTurnoverRatio

Another important element of working capital management is inventory management. To operate with maximum efficiency and maintain a comfortably high level of working capital, a company must keepsufficient inventory onhandto meet customers' needs while avoiding unnecessary inventory that ties up working capital.

Companiestypicallymeasurehowefficientlythatbalanceismaintainedbymonitoringtheinventoryturnoverratio.

The inventory turnover ratio, calculated as cost of goods sold divided by average balance sheet inventory, revealshow rapidly a company's inventory is being used in sales and replaced. A relatively low ratio compared to industry peers indicates a risk that inventory levels are excessively high, while a relatively high ratio may indicate inadequate inventory levels.

Costconcept

The cost concept is a concept of accounting which states that the value of an asset will be calculated on the basis of historical cost or acquisition cost. Such as an asset purchased at 25 lac in 1999 and same cost will be shown in 2022 financial statement in all future years.

The cost concept is an accounting principle that records assets at their respective cash amounts at the time the asset was purchased or acquired. The amount of the asset that is recorded may not be increased for improvements in market value or inflation, nor can it be updated to reflect any depreciation.

BREAKEVENANALYSIS

A break-even analysis is an economic tool that is used to determine the cost structure of a company or the number of units that needto besold tocoverthecost. Break-evenis acircumstance where acompany neither makesa profit nor loss but recovers all the money spent.

The break-even analysis is used to examine the relation between the fixed cost, variable cost, and revenue. Usually,an organisation with a low fixed cost will have a low break-even point of sale.

ImportanceofBreak-EvenAnalysis

- **Manages the size of units to be sold:** With the help of break-even analysis, the company or the owner comes to know how many units need to be sold to cover the cost. The variable cost and the selling price of an individual product and the total cost are required to evaluate the break-even analysis.
- **Budgeting and setting targets:** Since the company or the owner knows at which point a company can break-even,it iseasyforthem tofixagoal andset abudget forthefirm accordingly.Thisanalysiscanalsobepractised in establishing a realistic target for a company.
- **Manage the margin of safety:** In a financial breakdown, the sales of a company tend to decrease. The break-even analysis helps the company to decide the least number of sales required to make profits. With the margin of safety reports, the management can execute a high business decision.
- **Monitors andcontrolscost:** Companies'profitmargincanbeaffectedbythefixedandvariablecost. Therefore, withbreak-evenanalysis,themanagementcandetectifanyeffectsarechangingthe cost.
- **Helps to design pricing strategy: The** break-even point can be affected if there is any change inthepricingofa product. For example, if the selling price is raised, then the quantity of the product to be sold to break-even will be reduced. Similarly, if the selling price is reduced, then a company needs to sell extra to break-even.

BOOKKEEPING

Petty Cash Book is used for recording payment of petty expenses, which are of smaller denominationslike postage, stationery, conveyance, refreshment, etc. Person who maintains petty cash book is known as petty cashier and these small expenses are termed as petty expenses.

Itispreparedbytwomethods:

1. **Ordinary system:** In this case, a fixed sum of money is paid to petty cashier for the payment of petty expenses and after spending the whole amount, the account is submitted by the pettycashier to the main cashier.
2. **Imprest system:** In this case, a fixed sum of the money is given to the petty cashier in the beginning of a period and at the end of the period the amount spent by him is reimbursed, so that he has a fixed amount in the beginning of every new period.

Bookkeepingistheprocessofrecordingyourcompany'sfinancialtransactionsintoorganizedaccountsonadaily

basi

It can also refer to the different recording techniques businesses can use. Bookkeeping is an essential part of your accounting process for a few reasons. When you keep transaction records updated, you can generate accuratefinancial reports that help measure business performance. Detailed records will also be handy in the event of a tax audit.

JOURNALENTRY

Ajournal entryrecords a business transaction in the accounting system for an organization. Journal entries form the building blocks of the double-entry accounting method that has been used for centuries to keep financial records. They make it possible to track what a business has used its resources for, and where those resources came from.

The double-entry accounting method requires every transaction to be recorded in at least two accounts. For example, when a business buys supplies with cash, that transaction will show up in the supplies account and the cash account. Before we get ahead of ourselves, let's start with the basics.

PETTY CASH BOOK
MARKETINGMANAGEMENT

Marketing concept is a set of strategies that the firms adopt where they analyse the needs of their customers and implement strategies to fulfil those needs which will result in an increase in sales, profit maximisation and also beat the existing competition.

TypesofMarketingConcept

Fivetypesofmarketingconceptsareas follows:

1. ProductionConcept

2. ProductConcept

3. Sellingconcept

4. Marketingconcept

5. Societalmarketingconcept

ProductionConcept

This concept was based on the assumption that customers are primarily interested in products which are accessible and affordable. Thisconcept wasintroducedatatimewhen businesswasfocusedmainly on production. Itsays thata business will be able to lower costs by producing more quantity or mass production of goods.

Solelyfocusingonproducinggoodsmayleadtothefirmdeviatingfromitsobjective.

ProductConcept

The product concept is based on the assumption that customers will be more inclined towards productsthat are offering more quality, innovative features and top-level performance.

Inthistypeofmarketingconcept,abusinessfocusesoncreatinghigh-qualityproductsandrefiningit every time in order to develop a better and improved product.

Selling Concept

While the previous two concepts focused on production, the selling concept is focused on selling. It believes that customers will be buying products only when the product is aggressively marketed by the company. It does not focus on building relationships with customers, and ensuring customer satisfactionis also not deemed necessary.

MarketingConcept

A marketing concept places the centre of focus on the customer. All the activities that are undertaken by an organisation are done keeping the customer in mind. The organisations are more concerned about creating value propositions for the customers, which will differentiate them from the competition.

SocietalMarketingConcept

This is the fifth and most advanced form of the marketing concept. Here the focus is on needs and wants of the customer as well as ensuring the safety of the customer and society first. It believes in giving back to society and making the world a better place for all human beings.

BestMarketingTechniques ☐

BrandStorytelling.

- ☐ Digital PR.
- ☐ TheSurroundSoundMethod.
- ☐ Brand Extensions.
- ☐ Podcasting.Video
- ☐ Marketing.
- ☐ CommunityBuilding.
- ☐ ContextualMarketing
- ☐ Online video

☐ Developasignaturepieceof content

CONCEPTOF4P's

ThefourPsarethekeyconsiderationsthatmustbethoughtfullyreviewedandwiselyimplementedinorderto successfully market a product or service. They are product, price, place, and promotion.

1. Product

Creatingamarketingcampaignstarts with an understandingofthe product itself.Who needsit, andwhy? What does it do that no competitor's product can do? Perhaps it's a new thing altogether and is so compelling in its design or function that consumers will have to have it when they see it.

Thejobofthemarketeristodefinetheproductanditsqualitiesandintroduceittotheconsumer.

Defining the product also is key to its distribution. Marketersneed to understand thelife cycle ofaproduct,andbusiness executives need to have a plan for dealing with products at every stage of the life cycle.

Thetypeofproductalsodictatesinpart howmuchitwillcost,whereitshouldbeplaced,andhowitshouldbe promoted.

Many of the most successful products have been the first in their category. For example, Apple was the first to create a touchscreen smartphone that could play music, browse the internet, and make phone calls. Apple reported total sales of the iPhone for FY 2022 at $205.4 billion.3 In 2021, it hit the milestone of 2 billion iPhones sold.4

2. Price
Price is the amount that consumers will be willing to pay for a product. Marketers must link the price to the product's real and perceived value, while also considering supply costs, seasonal discounts, competitors' prices, and retail markup.

In some cases, business decision-makers may raise the price of a product to give it the appearance of luxury or exclusivity. Or, they may lower the price so more consumers will try it.

Marketersalsoneedtodeterminewhenandifdiscountingisappropriate.Adiscountcandrawinmorecustomers, but it can also give the impression that the product is less desirable than it was.

UNIQLO,headquarteredinJapan,isaglobalmanufacturerofcasualwear.LikeitscompetitorsGapandZara, UNIQLO creates low-priced, fashion-forward garments for younger buyers.

What makes UNIQLO unique is that its products are innovative and high-quality. It accomplishes this by purchasing fabric in large volumes, continually seeking the highest-quality and lowest-cost materials in theworld.Thecompanyalsodirectlynegotiateswithitsmanufacturersandhasbuiltstrategicpartnerships with innovative Japanese manufacturers.

UNIQLO also outsources its production to partner factories. That gives it the flexibility to change production

partners

asitsneedschange.

Finally, the company employs a team of skilled textile artisans that it sends to its partner factories all over the world for quality control. Production managers visit factories once a week to resolve quality problems.5

3. Place
Place is the consideration of where the product should be available—in brick-and-mortar stores and online—andhow it will be displayed.

The decision is key: The makers of a luxury cosmetic product would want to be displayed in Sephora and Neiman Marcus, not in Walmart or Family Dollar. The goal of business executives is always to get their products in front of the consumers who are the most likely to buy them.

Thatmeansplacingaproductonlyincertainstoresandgettingitdisplayedtothebestadvantage.

Thetermplacementalsoreferstoadvertisingtheproductintherightmediatogettheattentionoftargetconsumers.

For example, the 1995 movie *GoldenEye* was the 17th installment in the James Bond movie franchise and the first that did not feature an Aston Martin car. Instead, Bond actor Pierce Brosnan got into a BMW Z3. Although the Z3 wasnotreleaseduntilmonthsafterthefilmhadlefttheaters,BMWreceived9,000ordersforthecarthemonthafter the movie opened.

4. Promotion
The goal of promotionistocommunicatetoconsumers thatthey needthis product andthatitis pricedappropriately. Promotion encompasses advertising, public relations, and the overall media strategy for introducing a product.

Marketers tend to tie together promotion and placement elements to reach their core audiences. For example, In the digital age, the "place" and "promotion"factors are as muchonline as offline. Specifically, where a productappears onacompany'swebpageorsocialmedia,aswellaswhichtypesofsearchfunctionswilltriggertargetedadsforthe product.

HUMANRESOURCEMANAGEMENT

Personnel management can be defined as obtaining, using and maintaining a satisfied workforce. It is a significant part of management concerned with employees at work and with their relationship within the organization.

NatureofPersonnel Management
1. Personnelmanagementincludesthefunctionofemployment,developmentandcompensation-Thesefunctionsare performed primarily by the personnel management in consultation with other departments.
2. Personnel management is an extension to general management. It is concerned with promoting and stimulatingcompetent work force to make their fullest contribution to the concern.
3. Personnelmanagementexisttoadviceandassistthelinemanagersinpersonnelmatters.Therefore,personnel department is a staff department of an organization.

4. Personnel management lays emphasize on action rather than making lengthy schedules, plans, work methods. The problems and grievances of people at work can be solved more effectively through rationale personnel policies.

5. It is based on human orientation. It tries to help the workers to develop their potential fully to the concern.

6. It also motivates the employees through it's effective incentive plans so that the employees provide fullest co-operation.

7. Personnel management deals with human resources of a concern. In context to human resources, it manages both individual as well as blue- collar workers.

FunctionsofPersonnelManagement

FollwoingarethefourfunctionsofPersonnelManagement:

1)Manpower   Planning:
Manpower Planning which is also called as Human Resource Planning consists of putting right number of people, right kind of people at the right place, right time, doing the right things for which they are suited for the achievement of goals of the organization. 2) Recruitment:

Internal Recruitment - is a recruitment which takes place within the concern or organization. Internal sources of recruitment are readily available to an organization. Internal sources are primarily three - Transfers, promotions and Re-employment of ex-employees.Internal recruitment may lead to increase in employee's productivity as their motivation level increases. It also saves time, money and efforts. But a drawback of internal recruitment is that it refrains the organization from new blood. Also, not all the manpower requirements can be met through internal recruitment. Hiring from outside has to be done.

Internalsourcesareprimarily3

a.**Transfers**b. **Promotions(throughInternalJobPostings)**and

c. **Re-employment of ex-employees** -Re-employmentofex-employeesisoneoftheinternalsources of recruitment in which employees can be invited and appointed to fill vacancies in the concern. There are situations when ex-employees provide unsolicited applications also.

External Recruitment - External sources of recruitment have to be solicited from outside the organization. External sources are external to a concern. But it involves lot of time and money. The external sources of recruitment include - Employment at factory gate, advertisements, employment exchanges, employment agencies, educational institutes, labour contractors, recommendations etc.

d. **Employment at Factory Level -** This a source of external recruitment in which the applications for vacancies are presented on bulletin boards outside the Factory or at the Gate. This kind of recruitment is applicable generally where factory workers are to be appointed. There are people who keep on soliciting jobs from one place to another. These applicants are called as unsolicited applicants. These types of workers apply on their own for their job. For this kind of recruitment workers have a tendency to shift from one factory to another and therefore they are called as "badli" workers.

e. **Advertisement -** It is an external source which has got an important place in recruitment procedure. The biggest advantage of advertisement is that it covers a wide area of market and scattered applicants can get information from advertisements. Medium used is Newspapers and Television.

f. **Employment Exchanges -** There are certain Employment exchanges which are run by government. Most of the government undertakings and concerns employ people through such exchanges. Nowadays recruitment in government agencies has become compulsory through employment exchange.

g. **Employment Agencies -** There are certain professional organizations which look towards recruitmentandemploymentofpeople,i.e.theseprivateagenciesrunbyprivateindividualssupply required manpower to needy concerns.

h. **Educational Institutions -** There are certain professional Institutions which serves as an external source for recruiting fresh graduates from these institutes. This kind of recruitment done through sucheducational institutions,iscalledasCampusRecruitment.Theyhavespecialrecruitmentcells which helps in providing jobs to fresh candidates.

i. **Recommendations -** There are certain people who have experience in a particular area. Theyenjoy goodwill and a stand in the company. There are certain vacancies which are filled by recommendations of such people. The biggest drawback of this source is that the company has to rely totally on such people which can later on prove to be inefficient.

j. **Labour Contractors -** These are the specialist people who supply manpower to the Factory or Manufacturingplants.Throughthesecontractors,workersareappointedoncontractbasis,i.e.fora particulartimeperiod.Underconditionswhenthesecontractorsleavetheorganization,such peoplewhoareappointedhavetoalsoleavetheconcern.

3) Selection: Employee Selection is the process of putting right men on right job. It is a procedureof matching organizational requirements with the skills and qualifications of people. Effective selection can be done only when there is effective matching

4) TrainingandDevelopment:
Training of employees takes place after orientation takes place. Training is the process of enhancingtheskills,capabilitiesandknowledgeofemployeesfordoingaparticularjob.Training process moulds the thinking of employees and leads to quality performance of employees. It is continuous and never ending in nature.

EMPLOYEESELECTIONPROCESS

Employee Selection is the process of putting right men on right job. It is a procedure of matching organizational requirements with the skills and qualifications of people. Effective selection can be done only when there is effective matching.

By selecting bestcandidatefortherequiredjob,the organizationwillgetqualityperformance ofemployees. Moreover, organization will face less of absenteeism and employee turnover problems.

By selecting right candidate for the required job, organization will also save time and money. Proper screening of candidates takes place during selection procedure. All the potential candidates who apply for the given job are tested.

But selectionmust bedifferentiatedfrom recruitment,thoughthesearetwophasesofemployment process. Recruitmentisconsideredtobeapositiveprocessasitmotivatesmoreofcandidatestoapplyforthejob.It creates a pool of applicants. It is just sourcing of data.

While **selection is a negative process** as the inappropriate candidates are rejected here. Recruitment precedes selection in staffing process. Selection involves choosing the best candidate with best abilities, skills and knowledge for the required job.

The**EmployeeselectionProcess**takesplaceinfollowingorder-

1. **Preliminary Interviews-** It is used to eliminate those candidates who do not meet the minimum eligiblity criteria laid down by the organization. The skills, academic and family background, competencies and interests of the candidate are examined during preliminary interview. Preliminary interviews are less formalized and planned than the final interviews. The candidates are given a brief up about the company and the job profile; and it is also examined how much the candidate knows about the company. Preliminary interviews are also called screening interviews.
2. **Application blanks-** The candidates who clear the preliminary interview are required to fill application blank. It contains data record of the candidates such as details about age, qualifications, reason for leaving previous job, experience, etc.
3. **Written Tests-** Various written tests conducted during selection procedure are aptitude test, intelligence test, reasoning test, personality test, etc. These tests are used to objectively assess the potential candidate. They should not be biased.
4. **Employment Interviews-** It is a one to one interaction between the interviewer and the potential candidate. It is used to find whether the candidate is best suited for the required job or not. But such interviews consume time and money both. Moreover the competencies of the candidate cannot be judged. Such interviews may be biased at times. Such interviews should be conducted properly. No distractions should be there in room. There should be an honest communication between candidate and interviewer.
5. **Medical examination-** Medical tests are conducted to ensure physical fitness of the potential employee. It will decrease chances of employee absenteeism.
6. **Appointment Letter-** A reference check is made about the candidate selected and then finally he is appointed by giving a formal appointment letter.

MODULE-VI

LEADERSHIPAND MOTIVATION

LEADERSHIP

Leadership in business is the capacity of a company's management to set and achieve challenging goals, take fast and decisive action when needed, outperformthe competition, and inspire others to perform at the highest level they can. Individuals with strong leadership skills in the business world often rise to executive positions such as CEO(chief executive officer),COO(chief operating officer),CFO(chief financial officer), president, and chair.

ImportanceofLeadership

Herearesomereasonsthathighlighttheimportanceofleadership:

1. **Changemakers**
The role of leadership is evolving. Leaders were previously perceived as bosses or managers who follow the reward and punishment system. However, they are now seen as individuals who propagate change in an organization or team. They are unselfish individuals who use skills like intuitiveness, analytics, and otherstogetakintothelatestmarkettrendsthataccommodatetheorganization'sgoalsandobjectivesand bring innovation to business processes and the tasks performed by the workforce to mitigate mundanity and introduce creativity.

2. **Goal-oriented**
Experts consider leaders as the bridge between the employer and the employees. Moreover, they believe that effective leadership establishes a personal connection with their fellow employees to set a goal or objective that vicariously fulfils the needs and requirements of the workforce and the company. It drives and motivates employees to achieve business goals with limited resources.

3. **Conflict** **resolvers**
Although leaders may not be influential individuals in an organization, they are good at solving conflicts between different business parties. It is because they have a deep understanding of human behaviour and cognition, which helps them understand the perspective of others and come up with a solution easily.

4. **Instigates** **a** **positive** **work** **environment**
To retain employees, many companies employ leaders who are intuitive and good communicators. Themainreasonisthattalentedandskilledleadersinstigateapositiveworkenvironment,increasingjob satisfaction and motivation among the employees.

5. **Leads** **to** **organizational** **development**
It is believed that good leaders lead organizational development and growth in any business environment. They have appropriate skill sets that increase the efficiency and productivity of many business processes, inciting organizational growth and development.
The growing importance of intelligent leadership models has encouraged business organizations toemployleaders withvarious skills that offer acompetitive advantage and increasebusinessefficiency and productivity. Now that you are aware of the reasons that make the inclusion of leadership in business important, let's delve deep into understanding the different roles played by leaders in an organization.

RoleofLeadershipinAnOrganization?

The complex business environment requires leaders to perform a variety of roles in an organization. Hereare some of the roles played by a leader in an organization:

• **Visionary**
As visionary leaders put to use skills like active listening and communication to offer innovative ideasand processes to integrate change and novelty into different business functions. Furthermore, they work with the team to turn the company's vision into reality.

- **Architect**

As architects, leaders act as a reckoning force that plans and executes business objectives and goals with employee assistance. They play the role of a designer in business planning and forecasting the future trajectory of the business.

- **Coach**

As a coach, leaders manage the employees; they listen to their grievances and work closely with them to guide them into achieving their goals.

- **Catalyst**

As a catalyst, leaders perform four important functions – remove roadblocks that hinder the project results, develop connections across the organization, connect the employee's vision to that of the company, and instigate a positive working environment in the company.

LEADERV/SMANAGER

LEADER	MANAGER
Leaders have missions to accomplish	Managers are goal-oriented
Leaders challenge the status quo	Managers maintain or try to achieve the status quo
Leaders are unique	Managers mimic their competitors
Leaders take risk	Managers avoid taking risk
Leaders are willing to learn and grow personally	Managers perfect existing, proven skills
Leaders build relationships	Managers focus on goals and objectives
Leaders coach people to become a better version of themselves	Managers direct people to achieve the company goal
Results of leadership are intangible	Results of management is measurable
Leadership is qualitative	Management is quantitative
Leaders have fans	Managers have employees

STYLESOFLEADERSHIP

DemocraticLeadership

This is as clear as its name. In democratic leadership, the leaders make or break decisions democratically, based on their team's opinion and feedback. Although it is the leader who makes the final call, every opinion counts. This is easily one of the most effective leadership styles since it allows employees to have a voice.

AutocraticLeadership

This is exactly the opposite of democratic leadership wherein the opinions of employees are not considered. Leaders with this style expect others to adhere to the decisions they take, which is not a sustainable approach in the long term.

Laissez-faireLeadership

Laissez-fire means "let them do". This style is the least intrusive and leaders with this approach ensure that the authority lies with the employees. While this leadership style can empower, it may also limit development, therefore, must be kept in check.

StrategicLeadership

Strategic leadership acts as a bridge between the senior team and the employees. Leaders adopting this style

ensure that bothexecutive interests and workingconditions for the team are stable when a decisionis made.

Transformational Leadership

This kind of leadership always aims at transforming and improving functions and capabilities. There may be tasks and schedules assigned and leaders following this style may ask employees to push their boundaries constantly. Most growth-minded companies tend to adopt this kind of a leadership style.

TransactionalLeadership

This is a very common leadership style today based on the action-and-reward concept. For instance, an employee or team may receive an incentive or bonus for achieving a target set by the company.

Coach-StyleLeadership

This leadership style focuses on larger growth while encouraging individual team members to focus on their strengths and talent. Though this is similar to strategic and democratic leadership styles, the focus here is more on the individual.

BureaucraticLeadership

This kindof leadershipstylegoesbythebooks.Althoughleaderswiththisapproachdolistentoemployees andtheiropinions,theymaynegateorrejectit,incasetheygoagainstthecompany'sethosorpolicy.

MOTIVATION

Motivationistheworldderivedfromtheword'**motive**'whichmeansneeds,desires,wantsordriveswithin theindividual.Itistheprocessofstimulatingpeopletoactionstoaccomplishthegoals.

Intheworkgoalcontextthepsychologicalfactorsstimulatingthepeople'sbehaviourcanbe-

o desirefor

money ○ success ○

recognition ○

    job-satisfaction

○ teamwork,etc

One of the most important functions of management is to create willingness amongst the employees to perform in the best of their abilities. Therefore the <u>role of a leader</u>is to arouse interest in performance of employees in their jobs. The process of motivation consists of three stages:-

1. Afelt needordrive.
2. Astimulusinwhichneedshavetobearoused.

3. Whenneedsaresatisfied,thesatisfactionoraccomplishmentofgoals.

ImportanceofMotivation

1. Motivation helps to change from negative attitude to positive attitude. Without motivation the employees try to perform minimum activities in the organization. But the motivation fills in the desire to perform to their maximum level. All the resources of the organization are of no use unless and until the employees use these resources. The motivated employees make best use of the resources.
2. Motivation improves performance level of employees. The motivation improves the efficiency level of employees which means the employees start performing the job to the best of their ability with minimum wastage of time and resources because motivated employees always go for best utilization of resources. The motivationbridges the gap betweenthe abilitytoworkand willingness always improves efficiency.
3. Help in achieving the <u>organizational goals.</u>The motivated employees always try to achieve the organizational goaland contributetheirbesteffortsfortherealization oforganizationalgoalasthey know with the achievement of organizational goal only they can achieve their personal goal. All the employees contribute their efforts in one direction of accomplishment of goal.
4. Motivation creates <u>supportive work environment.</u>In motivation the relations between superior and subordinatesarealwaysimproved.Whentheemployees get their needsatisfiedor get therecognitionand respect in the organization then they always offer a supportive hand to superiors. There is more cooperation and co-ordination in the organization and all the employees work with the team spirit.
5. Motivation helps the managers to introduce changes. The motivated employees show less <u>resistanceinaccepting the changes</u>according to <u>changes in the business environment</u>because they know if thechanges are not implements in the organization, not only the organization will lose by this but the employees also will find it difficult to get their needs fulfilled. Motivated employees are always supportive and co-operative in <u>accepting changes in the organization</u>.
6. Reduction in <u>Employee Turnover.</u>The motivation creates confidence in the employees to get their need satisfied in the organization itself. They always select the alternative to remain in the organization and increase their earning rather than leaving the organization and increasing their earnings. With motivation employee turnovers are less because the satisfied employees never leave the job.

Fourfactorsof motivation:

1. **Leadership style.** Management style deeply impacts motivation. Think about bosses thatempowered you. You were likely motivated to work harder for them than for managers that you did notalignwith.Ifyouareamanager,areyougettingfeedbackonyourleadershipstyleandifitis

working for your team? How are you empowering your staff? Employees want to be better for a strong manager and supporttheteamasawhole.

2. **The reward system.** As a manager, ensure you have a clear evaluation system in place that motivates employees. They need to know their job description, what is required of them each day, when they will be reviewed etc.

3. **The organizational climate.** Otherwiseknownas workplaceculture.It issoimportanttocultivatea team that supports one another, trusts each other, and leaves employees feeling committed.

4. **The structure of work.** Isthe workrewarding?Whyare we doing what we are doing?Areyouable to be flexible? Autonomous?

THEORYOF MOTIVATION

Maslow's hierarchy of needs is a theory of motivation which states that five categories of human needs dictate an individual's behavior. Those needs are physiological needs, safety needs, love and belonging needs, esteem needs, and self-actualization needs.

Maslow'stheorypresentshishierarchyofneeds in a pyramid shape, with basic needs

at the bottom of the pyramid and more highlevel, intangible needs at the top. Aperson can only move on to addressing the higher-level needs when theirbasicneedsareadequately fulfilled.

1. **Physiological needs**: The first of the id-driven lower needs on Maslow's hierarchy are physiological needs. These most basic human survival needs include food and water, sufficient rest, clothing and shelter, overall health, and reproduction. Maslow states that these basic physiological needs must be addressed before humans move on to the next level of fulfillment.
2. **Safety needs**: Next among the lower-level needs is safety. Safety needs include protection from violence and theft, emotional stability and well-being, health security, and financial security.
3. **Love and belonging needs**: The social needs on the third level of Maslow's hierarchy relate to human interaction and are the last of the so-called lower needs. Among these needs arefriendships and family bonds—both with biological family (parents, siblings, children) andchosen family (spouses and partners). Physical and emotional intimacy ranging from sexual relationships tointimate emotional bondsareimportant toachievinga feeling ofelevated kinship. Additionally, membership in social groups contributes to meeting this need, from belonging to a team of coworkers to forging an identity in a union, club, or group of hobbyists.
4. **Esteem needs**: The higher needs, beginning with esteem, are ego-driven needs. The primary elements of esteem are self-respect (the belief that you are valuable and deserving of dignity) and self-esteem (confidence in your potential for personal growth and accomplishments). Maslow specifically notes that self-esteem can be broken into two types: esteem whichisbased on respect and acknowledgment from others, and esteem which is based on your own self-assessment. Selfconfidence and independence stem from this latter type of self-esteem.
5. **Self-actualization needs**: Self-actualization describes the fulfillment of your full potential as a person. Sometimes called self-fulfillment needs, self-actualization needs occupy the highest spot on Maslow's pyramid. Self-actualization needs include education, skill development—therefining of talents in areas such as music, athletics, design, cooking, and gardening—caring for others, and broader goals like learning a new language, traveling to new places, and winning awards.

Sixmotivationaltechniquesformanagers

1: Communicate

It is said that good communication is the number one factor in any good relationship. A leader must always be approachable and accessible. In other words, keep the door open. Spending time with employees on a one to one basis will put them at ease and alleviate uncertainty. It will also give the manager keen insight into what motivates each of his employees. *2: Socialize*

A manager should make time for his employees to spend time together socializing during work hours. Treatyourteamtorefreshmentsafterameetingorgoalloutandprovideamealforthem.Cateritorcook it up yourself. A brunch or sandwiches will let the team know they are appreciated. This is also a teambuilding exercise as they will have the opportunity to spend time together 'outside' of work.

3: Reward

Award programs have been around for years and are a great way to recognize employees for achieving a goal or objective. Choose an award that is appropriate to the achievement. It might be something casual, like an envelope with movie tickets. Or you may want to go all out and present something like a nice artglass award for a bigger reward. Either way, the reward should be conveyed with a genuine sense of appreciation. *4: Challenge*

Everyone wants to improve themselves. Take advantage of this human trait by providing employees with challenges and goals they can achieve. Instead of facing new challenges alone, use the opportunity to put them on members of the team. Are there projects sitting idly on the shelf? Hand them over to a staff member to head up and get moving again. Have too much on your own plate? Look for an opportunity to hand some of the workload off to one of your top performers.

5: Time Off

Few things are appreciated more than a little paid time off. If an individual or team had gone above and beyond on a project, let them take an afternoon off. Or go the extra mile in showing your appreciation by taking an employee to lunch and then giving them the rest of the day off.

6:TrainandMentor

Motivate employees by providing them with additionaltraining, even if doing so makes them all the more attractive to other employers. Employees in companies where additional training or educational opportunities exist are more likely to stay motivated, even if they don't take immediate advantage of the opportunities. The same is true of organizations that take the time to set up mentoring programs.

IMPORTANCEOFCOMMUNICATIONINBUSINESS

Communication in business is important to convey clear, strong messages about strategy, customer service and branding. A business building a brand reflects a consistent message tailored to its audience.

Internal communication builds rapport among employees and managers and encourages teamwork and collaboration.

1. EfficientandSmoothRunningofan Enterprise

2. BasisofDecisionMaking

3. ProperPlanningandCoordination

4. ForHigherProductivityatMinimumCost

5. MoraleBuilding

6. DemocraticManagement

7. BindsPeopleTogether

8. CreatesMutualTrustandConfidence

9. AnAidtoManagerialPerformance

10. HelpsinSmooth Working

11. IncreaseManagerialEfficiency

12. MaintainingIndustrialPeace

13. AidtoLeadership

14. AidtoJob Satisfaction

15. Savingof Time

16. AidtoPublic Relation

BARRIERSOFCOMMUNICATION

i. LinguisticBarriers

The language barrier is one of the main barriers that limit effective communication. Language is the most commonly employed tool of communication. The fact that each major region has its own language is one of the Barriers to effective communication. Sometimes even a thick dialect may render thecommunication ineffective.

ii. PsychologicalBarriers

There are various mental and psychological issuesthat may be barriers to effective communication. Some people have stage fear, speech disorders, phobia, depression etc. All of these conditions are very difficult to manage sometimes and will most certainly limit the ease of communication.

iii. EmotionalBarriers

The emotional IQ of a person determines the ease and comfort with which they can communicate. A personwhoisemotionallymaturewillbeabletocommunicateeffectively.Ontheotherhand,peoplewho let their emotions take over will face certain difficulties.

iv. PhysicalBarrierstoCommunication

They are the most obvious barriers to effective communication. These barriers are mostly easily removable in principle at least. They include barriers like noise, closed doors, faulty equipment used for communication, closed cabins, etc. Sometimes, in a large office, the physical separation between various employees combined with faulty equipment may result in severe barriers to effective communication.

v. CulturalBarriersofCommunication

As the world is getting more and more globalized, any large office may have people from several parts of theworld.Differentcultureshaveadifferentmeaningforseveralbasicvaluesofsociety.Dressing,

Religions or lack of them, food, drinks, pets, and the general behaviour will change drastically from one culture to another.

vi. OrganisationalStructureBarriers

As we saw there are many methods of communication at an organizational level. Each of these methods has its own problems and constraints that may become barriers to effective communication. Most of these barriersarisebecauseofmisinformationorlackofappropriatetransparencyavailabletotheemployees.**vii. Attitude Barriers**

Certain people like to be left alone. They are the introverts or just people who are not very social. Others like to be social or sometimes extra clingy! Both these cases could become a barrier to communication. Some people have attitude issues, like huge ego and inconsiderate behaviours.

viii. PerceptionBarriers

Different people perceive the same things differently. This is a fact which we must consider during the communication process. Knowledge of the perception levels of the audience is crucial to effective communication. All the messages or communique must be easy and clear. There shouldn't be any room for a diversified interpretational set.

ix. PhysiologicalBarriers

Certain disorders or diseases or other limitations could also prevent effective communication between the various channels of an organization. The shrillness of voice, dyslexia, etc are some examples of physiological barriers toeffective communication. However, these are not crucial because they can easily be compensated and removed.

x. TechnologicalBarriers&Socio-religiousBarriers

Other barriers include the technological barriers. The technology is developing fast and as a result, it becomes difficult to keep up with the newest developments. Hence sometimes the technological advance may become a barrier. In addition to this, the cost of technology is sometimes very high.

MODULE-VII

WORKCULTURE, TQM& SAFETY

HUMANRELATIONSHIPANDPERFORMANCEINMANAGEMENT

Human relations are the study of the ways in which people relate to each other in group situations, especially work, and how communication skills and sensitivity to other people's feelings can beimproved.According to Keith Davis 'human relations deals with motivating people in organizations to develop teamwork which effectively fulfills their objectives and achieves organizational objectives'.

In the words of Scott, 'human relations is a process of an effective motivation of individuals in a given situation in order to achieve a balance of objectives which will yield greater human satisfaction and help accomplish company goals'.

FactorsAffectingHumanRelations:
Humanrelationsintheorganizationaredeterminedby:
(i)   Individual: The individual is an important part of the organization and each individual is unique. While motivating the employees, management should give due consideration to their economic, socialand psychological needs.

(ii)   Work group: The work group is the centre of focus of human relations approach. It has an important role in determining the attitudes and performance of individual workers.

(iii)   Leader: Theleadermust ensure complete and effectiveutilization of all organizational resources to achieve organizational goals. They must be able to adjust to various personalities and situations.

(iv)   Work environment: It is important to create a positive work environment where organizational goalsareachievedthroughsatisfactionofemployees.Ingeneral,whenemployees'needsaresatisfied,the   work environment is termed positive.

RELATIONBETWEENPEERS,SUPERIORSANDSUBORDINATES

The relationship between supervisor and subordinates at the workplace should be clearly defined. The primary responsibility of the supervisor is to create and maintain a good working relationship between each employee.

Specific protocols should be establishedtomaintain good relationsbetween workersandsupervisors. It is necessary to be mentally prepared to adopt the policies of the company and to behave with the supervisor with respect. For this the following factors must be taken into account

(i) Trust – When a work is given to a subordinate, the supervisor should trust him and he should trust the supervisor. The supervisor should behave with his subordinates in a non-discriminatory, reliable and ethical manner, so that a relationship full of trust can be established between them.

(ii) Communication - The cordial relationship between the supervisor and the subordinate plays an important role in communication. The communication between the two should be clear and should be continuous.Bothshouldhavenohesitationinexpressingtheirviewsforfearofthepossibilityofgettinga   reaction. Both should be mentally prepared to criticize or listen to each other and justified.

It is veryimportant to get the executivecooperation ofyour subordinatetoachieve thecompanyorfamily and to outline the future. To achieve these objectives, it is necessary to express the desire to acquire new skills. Supervisor himself should be enthusiastic and positive thinking.

 (iii) Clarification of Roles The relationship between a supervisor and a subordinate depends on their relative positions in the company. A supervisor should lead his subordinate employee as it is his professional right and responsibility.

Similarly the subordinates should also understand their role and should be prepared to follow the instructions given whether they personally agree with them or not. But it also does not mean that he should not inform the supervisor about his thoughts. Keeping their views in view, the supervisor has the right to take the final decision.

(iv) Boundaries — A boundary should be fixed in the relationship between the supervisor and the subordinate. This limit should be completely professional. Although the company may or may not have any special protocol regarding relations with the employees, there should not be excessive joking or openness with the subordinate and there must be a formality in the behavior.

This does not lead to allegations of biased behavior on the supervisor. It also does not lead to the allegation of harassment on the basis of gender. The supervisor should not have so much personal attachment with his subordinates that his decisions get affected.

TOTALQUALITYMANAGEMENT

Total Quality Management (TQM) is a management technique based on the idea that all "employees continuouslyimprovetheirability to provide on-demand products and services that customers willfindof particular value."

KeyPrinciplesofTQM

Total quality management has a number of key principles which—when implemented together—can move any organization towards business excellence.

a. Customerfocus

Central to all successful TQM systems is an understanding that quality is determined by the customer. No matter whatmeasures youintroducetoimprove the quality of your productsandservices, the only way of knowing if they have been successful is customer feedback, whether in the form of reviews, return rates, or satisfaction surveys.

b. Employeeinvolvement

Every person in an organization—from entry-level workers to management—has a responsibility for the quality of products and services. However, employees can only be invested if they feel empowered to make their own decisions, something that depends on management creating the right workplace environment.

c. Centredonprocess

A TQM system will fail without a clear focus on processes and process-led thinking. A process fault is ultimately the cause of most problems, which is why effective monitoring of every single step is an essential part of assessing, maintaining and improving quality.

d. Integratedsystem

An organization shouldhave an integratedsystem thatallows for effectivetotalqualitymanagement. This may be a bespoke system, or one based on a quality standard such as **ISO 9001**, but it should be understood and applied across all functions and departments.

e. Strategic&systematicapproach

Critical to quality management is the existence of a strategic plan that outlines how an organization intends to achieve its mission and business goals. It goes without saying that quality should be a core component of such a plan.

f. Decision-makingbasedonfacts

Business performance can only be assessed using the available facts, such as sales data, revenue figures, andcustomer retentionrates.Theopinionsof customers,employersandsuppliersshouldnever beusedto inform decisions.

g. Communication

Effective communication is essential when an organization is implementing significant changes for the sake of business improvement. Every member of staff should be made aware of the strategy, the timescales involved, and the reasons for implementing it.

h. Continuousimprovement

Applying the principles of **DMAIC** and **Lean Six Sigma** will instill an organization with a culture of **continuous improvement**, driving all employees to constantly seek new ways to be more competitiveand deliver high-quality products for all stakeholders.

QUALITYPOLICY:

A Quality Policy is typically **a brief statement that aligns with an organization's purpose, mission, and strategic direction**. It provides a framework for quality objectives and includes a commitment to meet applicable requirements (ISO 9001, customer, statutory, or regulatory) as well as to continually improve.

QUALITYMANAGEMENT:

Qualitymanagementis**theactofoverseeingall activities andtasks neededtomaintainadesiredlevel of excellence**. Quality management includes the determination of a quality policy, creating and implementing quality planning and assurance, and quality control and quality improvement.

QUALITYSYSTEM:

A quality system is **a structure for managing the quality of the output of a manufacturer**. We have a very stringent quality system forinspecting items and delivering the best products. A good quality system prevents errors from occurring rather than correcting them after they have happened.

PERSONALPROTECTIVEEQUIPMENT

Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to hazardsthatcauseserious workplaceinjuriesandillnesses. Theseinjuries andillnessesmayresultfrom contactwith chemical,radiological, physical, electrical,mechanical, or other workplace hazards.Personal protective equipment may include items such as gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators, or coveralls, vests and full body suits.

Whatcanbedonetoensureproperuseofpersonalprotectiveequipment?

All personal protectiveequipmentshouldbesafelydesignedandconstructed,andshouldbemaintainedin a clean and reliable fashion. It should fit comfortably, encouraging worker use. If the personal protective equipment does not fit properly, it can make the difference between being safely covered or dangerously exposed. When engineering, work practice, and administrative controls are not feasible or do not provide sufficient protection, employers must provide personal protective equipment to their workers and ensure its proper use. Employers are also required to train each worker required to use personal protective equipment to know:

- Whenitis necessary
- Whatkindisnecessary
- Howtoproperlyputiton,adjust,wearandtakeitoff
- Thelimitationsoftheequipment
- Propercare,maintenance,usefullife,anddisposaloftheequipment

If PPE is to be used, a PPE program should be implemented. This program should address the hazards present; the selection, maintenance, and use of PPE; the training of employees; and monitoring of the program to ensure its ongoing effectiveness.

MODULE-VIIILEGISLATION

INTELLECTUALPROPERTYRIGHTS

Intellectual property rights (IPR) refers to the legal rights given to the inventor or creator to protect his invention or creation for a certain period of time.[1]These legal rights confer an exclusive right to the inventor/creator or his assignee to fully utilize his invention/creation for a given period of time.

right,thepatentownermakestechnicalinformationabouttheinventionpubliclyavailableinthe

publishedpatentdocument.

TRADEMARK

Atrademarkisasigncapableofdistinguishingthegoodsorservicesofoneenterprisefromthoseof other enterprises.Trademarksdatebacktoancienttimeswhenartisansusedtoputtheirsignatureor"mark"on their products.

PATENTS

A patent is an exclusive right granted for an invention. Generally speaking, a patent provides the patent owner with the right to decide how- or whether- the invention can be used by others. In exchange forthis

COPYRIGHT

Copyrightisalegaltermusedtodescribetherightsthatcreatorshaveovertheirliteraryandartistic works. Workscoveredby copyrightrange from books,music,paintings, sculpture and films,to computerprograms, databases, advertisements, maps and technicaldrawings.

SALIENTFEATURESOFFACTORIESACT, 1948

Theimportantfeaturesofthe1948Actareas follows:

- Theword"factory"hasbeenexpandedbytheFactories(Amendment)Actof1976toinclude contractlabourwhendeterminingwhetherafactoryhasamaximumof10or20employees.
- The Act increased theminimum age for childrento work in workplaces from 12to 14 and reduced their daily working hours from 5 to 4 and a half.
- TheActforbidswomenandchildrenfromworkinginfactoriesfrom7p.m.to6a.m.
- Thedifferencebetweenaseasonalandnon-seasonalfactoryhasbeenabolishedbytheAct.
- TheAct,whichhasprovisionsforfactoryregistrationandlicencing.

- The state government is required to make sure that all factories are registered and also have valid licences that are renewed from time to time.
- The Act gives state governments the authority to enact rules and regulations that ask for management and employee association for the benefit of employees.

- The state government has the authority to apply the Act's requirements to any establishment, regardless of the number of employees inside and regardless of whether the establishment engages in manufacturing operations.
- In *Rabindra Agarwal v. State of Jharkhand(2010)*,the Jharkhand High Court held that the Factories Act, special legislation would prevail over the Indian Penal Code

FEATURESOFPAYMENTOFWAGESACT 1936

SalientFeaturesoftheAct:

A.**ObligationsofEmployers:**

Every employer is responsible for the payment of wages to all the employees that he employs. Additionally, apart from the Employer, all the person so named / person so responsible to the employer / the person so nominated shall also be responsible for such payment. B. **Wage Period:**

Every person responsible for Wage Payment shall fixperiods in respect of which such wages shall be payable. No wage-period shall exceed one month. C. **Time and Mode of Payment of Wages:**

Every establishment having employees in excess of 1,000 person shall pay the wages before the expiry of the 10th day. All other employers shall make the Wage payment by the expiry of 07thday.

Employers shall make the payment of wages in current currency notes i.e. cash or via Bank transfer.D. **Deductions from Wages:**

Employers shall ensurethatwages are paidto all employees without deduction ofany kind except those authorized by or under this Act.
Deductionincludesthereductionofwagesforthefollowing:

- Fines
- Absencefrom duty
- Damagetoorlossofgoodsincludinglossofmoneywheresuchdamageorlossisdirectly attributabletoemployee'sneglector default
- Recoveryofadvances/loansandtheinterestdueinrespectthereof
- Adjustmentofover-paymentsof wages
- Payments made by the employed person to the employer or his agent shall also be deemed to be a deduction from wages.

MODULE-IXSMARTTECHNOLOGY

INTERNETOFTHINGS

The Internet of Things (IoT) describes the network of physical objects—"things"—that are embeddedwith sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet. These devices range from ordinary household objects to sophisticatedindustrialtools.Withmorethan7billionconnectedIoTdevicestoday,expertsareexpecting this number to grow to 10 billion by 2020 and 22 billion by 2025.

HOWDOESIOTWORK?

An IoT ecosystem consists of web-enabled smart devices that use embedded systems, such as processors, sensors and communication hardware, to collect, send and act on data they acquire from their environments. IoT devicesshare the sensor data they collect by connecting to an IoT gateway or other edge device where data is either sent to the cloud to be analyzed or analyzed locally. Sometimes, these devices communicate with other related devices and act on the information they get from one another.The devices do most of the work without human intervention, although people can interact with the devices -- for instance, to set them up, give them instructions or access the data.

The connectivity, networking and communication protocols used with these web-enabled devices largely depend on the specific IoT applications deployed.

IoT can also make use of artificial intelligence (AI) and machine learning to aid in making data collecting processes easier and more dynamic.

COMPONENTSOF IOT

Major Components of IOT:

These are explained as following below.

Major Components of IOT
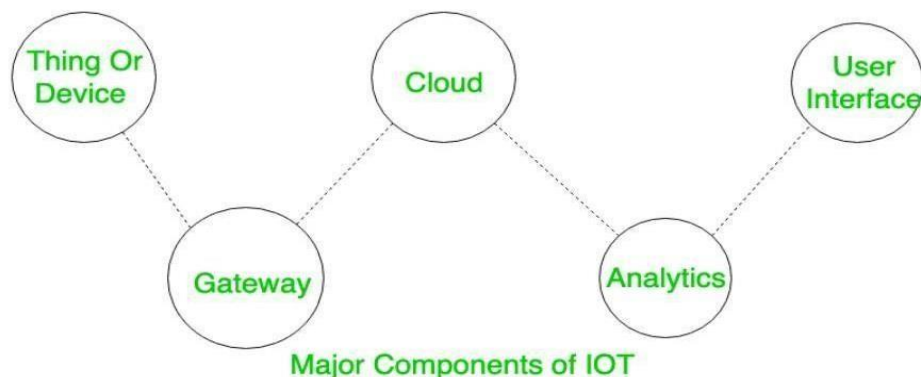
1. **Thingsor Device**

   Thesearefittedwithsensorsandactuators.Sensorscollectdatafromtheenvironmentandgiveto gateway where as actuators performs the action (as directed after processing of data).

2. **Gateway**

   The sensorsgive datato Gatewayandheresomekindof pre-processingof dataisevendone. Italsoacts as a level of security for the network and for the transmitted data.

3. **Cloud**

   The data after being collected is uploaded to cloud. Cloud in simple terms is basically a set of serversconnected to internet 24*7.

4. **Analytics**

   The data after being received in the cloud processing is done . Various algorithms are applied here for proper analysis of data (techniques like Machine Learning etc are even applied).

5. **UserInterface**

   Userendapplicationwhereusercanmonitororcontrolthe data.

CHARACTERISTICSOFTHEINTERNETOFTHINGS:

a. Connectivity–

   Connectivity is an important requirement of the IoT infrastructure. Things of IoT should be connected to the IoT infrastructure. Anyone, anywhere, anytime can connect, this should be guaranteed at all times. For example, connection between people through internet devices like mobile phones ,and other gadgets, also connection between Internet devices such as routers, gateways, sensors, etc.

b. IntelligenceandIdentity   –

   The extraction of knowledge from the generated data is very important. For example, a sensor generates data, but that data will only be usefulifitisinterpreted properly. Each IoT device hasa unique identity. This identification is helpful in tracking the equipment and at times for querying its status.

c. Scalability–

   The number of elements connected to the IoT zone is increasing day by day. Hence, an IoT setup should be capable of handling the massive expansion. The data generated as an outcome is enormous, and it should be handled appropriately.

d. DynamicandSelf-Adapting(Complexity)–

   IoT devices should dynamically adapt themselves to the changing contexts and scenarios.Assume a camera meant for the surveillance. It should be adaptable to work in different conditions and different light situations (morning, afternoon, night).

e. Architecture–

   IoT architecture cannot be homogeneous in nature. It should be hybrid, supporting different manufacturers 'products to function in the IoT network. IoT is not owned by anyone engineering branch. IoT is a reality when multiple domains come together.

f. Safety   –

   There is a danger of the sensitive personal details of the users getting compromised when all his/herdevicesareconnectedtotheinternet.Thiscancausealosstotheuser.Hence,data

security is the major challenge. Besides, the equipment involved is huge. IoT networks may also be at the risk. Therefore, equipment safety is also critical.

g. Self Configuring – This is one of the most important characteristics of IoT. IoT devices are able to upgrade their software in accordance with requirements with a minimum of user participation. Additionally, they can set up the network, allowing for the addition of new devices to an alreadyexisting network.

CATEGORIESOFIOT

For IoT, the scope can be within an organization (smart factory) or between organizations (retailer supply chain). This is definitely the most established and mature part of IoT. The IIoT will help a business to achieve:

○ Efficiency

○ Harnessintelligencefromawiderangeofequipment

○ Improveoperations(productivity)

○ Increasecustomersatisfaction

For CIoT, the scope can be a single individual, family, small group, or community. The CIoT will help make life easier for consumers by improving:

○ Quality

○ Comfort

○ Security

○ Convenience

○ Efficiency

APPLICATIONSOFIOTINSMARTCITIES

When cities face issues brought on by population density, a plethora of problems can arise, such as air pollution, freshwater scarcity, mountains of garbage, and an increase in traffic. How can we deal with these challenges? According to Finextra,smart cities can leverage IoT and smart technologies in the following ways:

1. Smart Infrastructure

Digital technologies are becoming increasingly important for cities to have the conditions for continuous development; buildings andurbaninfrastructures mustbe plannedmore efficientlyand sustainably. Cities should also invest in electric cars and self-propelled vehicles to keep CO2 emissions low. In fact, intelligent technologies to achieve an energy-efficient and environmentally friendly infrastructure. For example, to reduce the need for electrical power, smart lighting only gives light when someone actually walks past smart lights; setting brightness levels and tracking daily use are both important components of smart lights.

2. AirQualityManagement

Smart cities also are implementing tools that can capture pollution data in real time and forecast emissions. Being able to predict air pollution accurately allows cities to get to the root of their emissions problems and brainstorm strategic ways to limit the amount of air pollution they put out.

3. TrafficManagement

One of the greatest challenges facing large cities is finding ways to optimize traffic. Yet, finding asolution is not impossible. For example, Los Angeles is one of the busiest cities in the world and has implemented an intelligent transport solution to control the traffic flow. Pavement integrated sensors send real-time updates of traffic flow to a central traffic management platform, which analyses the data and automatically adjusts traffic lights to the traffic situation within seconds. At the same time, historical data is used to predict where traffic can go – and none of these processes require human involvement.

4. SmartParking

Cities are also leveraging intelligent parking solutions that identify when a vehicle has left the parking area. Sensors are built into the ground and report the location of free parking spaces via a mobile app the driverdownloads.Othersusevehiclefeedbacktopreciselypinpointingthelocationofopeningsandguide waiting cars down the path of least resistance. Smart Parking is a reality today and does not require complicated infrastructure and a high investment, making this smart city application ideal for a mid-sized smart city initiative.

5. SmartWasteManagement

Waste management solutions help to optimize the efficiency of waste collection and reduce operational costs while better addressing any and all environmental issues associated with inefficient wastecollection. In these solutions, the waste container receives a level sensor; when a certain threshold is reached, the management platform of a truck driver receives a notification via their smartphone. The message helps them avoid half empty drains by appearing to empty a full container.

APPLICATIONSOFIOTINSMARTHOMES

a) Lighting

Lighting in the house may now be adjusted automatically to meet the demands of the individual. For example,ifpeoplebeginwatchingamovie,thelightsmaybesettodecreaseautomaticallysothattheydo   not become distracted from the storyline. When you go inside your house, the lights may automatically switch on without you having to click a button.

When you leave your house, the system may automatically switch down the lights to save energy, so you don't have to.Yoursmartphone,laptop, and other linked devices can controlall of your house lights. As a result, you may set your app to turn on your light when your alarm goes off in the morning.

b) Bathrooms

In the bathroom, IoT technology may make your daily routine more enjoyable and convenient. Smart mirrorsmay linktoother devicessuchascomputersand smartphones,detect thefaces of family members in front of them, and show information that interests those individuals, such as news articles, weather forecasts, or specific websites.

If no one is in the bathroom, special sensors can detect movement and switch off the water automatically. Smart shower controls may also recognise people and set their preferred water temperature and pressure, as well as limit the amount of time spent in the shower to save water.

Users of automated jacuzzis may relax and enjoy their bath without having to manually modify theirchosen temperature and air-jet regime, or pick their favorite music, because the app will manage all of itfor them.

c) **Gardens**

Sensors may be quite useful for people who want to cultivate their own veggies, fruit, and herbs at home. Usersmay checkon the app to see whether thetemperature is correct,if the plant is sufficiently hydrated, and if it is receiving enough sunshine.

The software can track the present status of the soil, determine whether it has adequate moisture, and, if necessary, activate a smart irrigation system.

The sensor recognises when the amount of moisture reaches the ideal level and turns off the watering system, preventing water waste. IoT technology has resulted in a true breakthrough in gardening, which will fundamentally change the way plants are grown in the future.

d) **Kitchen**

IoT devices can make cooking safer and easier by utilizing AI technologies.Smart sensors can monitorforsmokeand carbonmonoxide,as well as thetemperature and humiditylevelsin yourkitchen,to ensure that everything is in working order.

Specialbuilt-inapplications keeptrackofwhethertheuserhas enoughfoodinthefridge(andreorderitif necessary), offer recipe suggestions, and assess the nutritional worth of meals. Smart spoons, forexample, urge users to eat gently.

e) **SecuritySystems**

When you leavethe house,these controllers can lock the entrance,closethe shutters,switch offelectronic gadgets, and ensure that your home is safe from human and animal intruders. Users may use the app on their phones to check on their homes and manage the temperature, humidity, and lighting remotely. You may also keep an eye on your older relatives and assist them if necessary.

f) **SafetySensors**

Safety sensors are intelligent gadgets that can detect when anything is wrong in your house. They can instantly alert users to possible hazards and even take action to avert them. They only need a smartphone with Internet access and sensors put in their house.

Temperature, humidity, and gas controllers can monitor the air in your house on a regular basis and give you notifications through the Internet if the indications are outside of the ideal range.

Natural calamities, fires, water, and gas leaks may all be prevented with the use of safety sensors. If a criminal tries to enter your house, proximity and video sensors can detect it and instantly activate the alarm and alert the authorities.

g) **TemperatureControl**

With temperature control automation, you can set the temperature in your house to the level that is most comfortable for you. Users may programme smart thermostats to manage the temperature based on their preferences and setups. These thermostats can detect your present activities and adjust the temperatureas needed.

Users may, for example, use the app to automatically increase the temperature when they take a bath or shower. If they choose to work out, do yoga, pilates, or any other form of physical exercise at home, the temperature will drop to assist them stay cool.

h) **DoorsandWindows**

Our future doors will not require keys. The smart door may utilize face recognition to unlock your home. Any visitors who are not recognised as residents must be escorted inside the building by a resident. The doors may also be set to open as you approach your house and close as you depart.

They can also set off a chain reaction in other gadgets in your house. The entry door may detect the authorized users and open, followed by the light turning on; other doors in the house may then open, and the TV and coffee machine may be switched on.

Smart windows can be programmed to respond to signals from other appliances as well as triggering events. You won't have to bother about closing the windows when you leave the house since the system will check for you and close them if necessary.

Windows can be programmed to close or open at specific times, and shutters can open or close based on the time of day. As a result, the shutters may be raised in the morning and dropped at night. Weather conditions such as rain, snow, storms, or severe winds can potentially trigger these devices.

i) **HomeRoutine**

The temperature in your home, the lighting arrangement, and the security system may all be controlled using Al and Ml technologies. The technology can provide you with news updates, locate information on the Internet, give you notifications via an app on the Internet about purchases you need to make, orderyou a meal, organize an appointment, and book you a trip or hotel.

APPLICATIONSOFIOTINSMARTTRANSPORTATION

These benefits of IoT technology in transportation can be applied through a number of applications within the sector. Here are five of the most common applications:

a) **TrafficManagement**

Roading is by far the biggest segment within transportation when it comes to the adoption of IoT technologies and this is expected to grow as we head towards 2023. Within cities, data can be collected from CCTV feeds which transmit vehicle-related data to traffic management centres.Applications using IoT technology include:

- Smartparking
- Trafficlights
- Smartaccidentassistance

b) **TollandTicketing**

Conventional toll systems are becoming rapidly outdated. With the increase in vehicles on the roads, queues at toll booths have become a common sight, not to mention the manpower needed to operate toll booths on busy highways. Whilst automated tolls, using a RFID tag, have improved the flow of traffic, further improvements have been made possible by the use of IoT technology.

Many of today's modern vehicles are equipped with IoT connectivity. A vehicle can be detected up to a kilometre away from a tolling station, correctly identified and the barrier lifted for the vehicle to pass through. Alternatively, for older vehicles, a registered smartphone could serve the same purpose, taking automatic payment from the digital wallet linked on the phone.

c) ConnectedCars

As mentioned above, cars today rely on connectivity and a key part of that is many new cars are now equipped with internet connectivity, sensors and actuators, all monitoring a wide range of applications from brakes and engine to the control of tyre pressure and exhaust gas composition.

In the future, connected cars will use the in-vehicles networks, radar and cameras to help detect and communicate with one other, prevent collisions and to help promote smooth traffic flow.

d) VehicleTrackingSystems

Vehicle tracking systems are typically used within the freight segment to help companies manage their fleetseffectively.Theyalsohelptomonitordriverbehaviourandcancollectdatawhichinformsonidling time and driving style. Examples of IoT-powered functionality include:

- Trip scheduling
- Fleettracking
- Drivingtimesanddriverrestbreakscheduling
- Alertsforspeeding,harshcornering,accelerationorbraking
- Monitoringofvehicle load
- Distancetravelledandfuelconsumption

e) PublicTransportManagement

One key area in which NEC has been operating is smart transportation, with a focus on the public transport segment. IoT technologies are already in wide use in this segment and our solutions, including integratedticketing and automated fare collection,passenger information systems,passengerinformationdisplaysystemsand advanced vehicle Logistics solutions, all utilising IoT technology to help solve social and economic issues such as traffic congestion in public transport.

IoTtechnologyforconnectedpublictransportsystemsprovidesthefollowingbenefits:

- **Real-time vehicle tracking** – this helps public transport agencies better communicate with customers and provide accurate arrival times through both mobile devices and passenger information displays at transit stops and stations
- **Data analysis and real-time management** – the technology allows transit agencies to monitor progress in real-time and make adjustments for unpredicted incidents such as accidents, roadworks, emergencies etc., helping to re-route and make journeys more efficient
- **Personalised travel information** – transit agencies can track and monitor commuter behaviour and travel patterns and deliver personalised information direct to their smart phone on key changes such as delays, station closures or re-routing

APPLICATIONOFIOTINSMARTHEALTHCARE

1. Remotepatientmonitoring

Remote patientmonitoring is the most common application of IoT devicesfor healthcare. IoT devices can automatically collect health metrics like heart rate, blood pressure, temperature, and more from patients who are not physically present in a healthcare facility, eliminating the need for patients to travel to the providers, or for patients to collect it themselves.

When an IoT device collects patient data, it forwards the data to a software application where healthcare professionals and/or patients can view it. Algorithms may be used to analyze the data in order to recommend treatments or generate alerts. For example, an IoT sensor that detects a patient's unusually low heart rate may generate an alert so that healthcare professionals can intervene.

A major challenge with remote patient monitoring devices is ensuring that the highly personal data that these IoT devices collect is secure and private.

2. Glucosemonitoring

Forthemorethan 30million Americanswith diabetes,glucosemonitoringhas traditionally beendifficult. Not only is it inconvenient to have to check glucose levels and manually record results, but doing so reports a patient's glucose levels only at the exact time the test is provided. If levels fluctuate widely, periodic testing may not be sufficient to detect a problem.

3. Heart-ratemonitoring

Like glucose, monitoring heart rates can be challenging, even for patients who are present in healthcare facilities.Periodic heart rate checks don't guard against rapid fluctuations in heart rates, andconventional devices for continuous cardiac monitoring used in hospitals require patients to be attached to wired machines constantly, impairing their mobility.

Today, a variety of small IoT devices are available for heart rate monitoring,freeing patients to move around as they like while ensuring that their hearts are monitored continuously. Guaranteeingultraaccurate results remains somewhat of a challenge, but most modern devices can deliver accuracyrates of about 90 percentor better.

4. Handhygienemonitoring

Traditionally,therehasn'tbeenagoodwaytoensurethatprovidersandpatientsinsideahealthcare facility washedtheirhandsproperlyinordertominimizetheriskofspreadingcontagion.

Today, many hospitals and other health care operations use IoT devices to remind people to sanitize theirhandswhen they enter hospital rooms. The devices can even give instructions on how best to sanitize to mitigate a particular risk for a particular patient.

Amajorshortcomingisthatthesedevicescanonly *remind*peopletocleantheirhands;theycan'tdoitfor them. Still, research suggests that these devices can reduce infection rates by more than 60 percent in hospitals.

5. Depressionandmoodmonitoring

Information about depression symptoms and patients' general mood is another type of data that has traditionally been difficult to collect continuously. Healthcare providers might periodically ask patients how they are feeling, but were unable to anticipate sudden mood swings. And, often, patients don't accurately report their feelings.

"Mood-aware" IoT devicescan address these challenges. By collecting and analyzing data such as heart rate and blood pressure, devices can infer information about a patient's mental state. Advanced IoT devices for mood monitoring can even track data such as the movement of a patient's eyes.

Thekeychallengehereisthatmetricslikethesecan'tpredictdepressionsymptomsorothercausesfor concernwithcompleteaccuracy.Butneithercanatraditionalin-personmentalassessment.

6. Parkinson'sdiseasemonitoring

InordertotreatParkinson'spatientsmosteffectively,healthcareprovidersmustbeabletoassesshowthe severityoftheirsymptomsfluctuatethroughtheday.

IoT sensors promise to <u>make this task much easier</u>by continuously collecting data about Parkinson's symptoms. At the same time, the devices <u>give patients the freedom</u>to go about their lives in their own homes, instead of having to spend extended periods in a hospital for observation.

7. Connectedinhalers

Conditions such as asthma or COPD often involve attacks that come on suddenly, with little warning. <u>IoTconnected inhalers</u>can help patients by monitoring the frequency of attacks, as well as collecting data from the environment to help healthcare providers understand what triggered an attack.

In addition, connected inhalers can alert patients when they leave inhalers at home, placing them at risk of suffering an attack without their inhaler present, or when they use the inhaler improperly.

8. Ingestiblesensors

Collecting data from inside the human body is typically a messy and highly disruptive affair. No no enjoys having a camera or probe stuck into their digestive tract, for example.

With ingestible sensors, it's possible to collect information from digestive and other systems in a much less invasive way. They provide insights into stomach PH levels, for instance, or help pinpoint the source of internal bleeding.

These devices must be small enough to be swallowed easily. They must also be able to dissolve or pass through the human body cleanly on their own. Several companies are <u>hard at work on ingestiblesensors</u> that meet these criteria.

9. Connectedcontactlenses

Smart contact lenses <u>provide another opportunity</u>for collecting healthcare data in a passive, non-intrusive way. They could also, incidentally, include microcameras that allow wearers effectively to take pictures with their eyes, which is probably why companies like Google have <u>patented connected contact lenses.</u>

Whetherthey'reusedtoimprovehealthoutcomesorforotherpurposes,smartlensespromisetoturn humaneyesintoapowerfultoolfordigitalinteractions.

10. Roboticsurgery

By deploying small <u>Internet-connected robots inside the human body,</u>surgeons can perform complex procedures that would be difficult to manage using human hands. At the same time, robotic surgeries performed by small IoT devices can reduce the size of incisions required to perform surgery, leading to a less invasive process, and faster healing for patients.

These devices must be small enough and reliable enough to perform surgeries with minimal disruption. They must also be able to interpret complex conditions inside bodies in order to make the right decisions about how to proceed during a surgery. But IoT robots are already being used for surgery, showing that these challenges can be adequately addressed.