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BUSINESS MANGEMENT

TOPIC1:MANAGERIALECONOMICS TOPIC 2: QUALITY MANAGEMENT
TOPIC3:PRODUCTION&OPERATIONMANAGEMENT
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PRACTICALLABASSIGNMENT&VIVAVOICE

Managerial Economics

MANAGERIALE CONOMICS

One standard definition for economics is the study of the production, distribution, and consumptionofgoodsandservices.Aseconddefinitionisthestudyofchoicerelatedtothe allocation of scarce resources.

The first definition indicates that economics includes any business, nonprofit organization, or administrative unit. The second definition establishes that economics is at the core of what managers of these organizations do.

This book presents economic concepts and principles from the perspective of “managerial economics,” which is a subfield of economics that places special emphasis on the choice aspect in the second definition. The purpose of managerial economics is to provide economic terminology and reasoning for the improvement of managerial decisions.

Most readers will be familiar with two different conceptual approaches to the study of economics: microeconomics and macroeconomics.

Microeconomics studies phenomenarelated to goodsand services from theperspectiveof individual decision-making entities—that is, households and businesses. Macroeconomics approaches the same phenomena at an aggregate level,

for example, the total consumption and production of a region. Microeconomics and macroeconomics each have their merits. The microeconomic approach is essential for understanding the behavior of atomic entities in an economy.

However,understandingthesystematicinteractionofthemanyhouseholdsandbusinesses wouldbetoocomplextoderivefromdescriptionsoftheindividualunits.Themacroeconomic approachprovidesmeasuresandtheoriestounderstandtheoverallsystematicbehaviorof an economy.

Since the purpose of managerial economics is to apply economics for the improvement of managerial decisions in an organization, most of the subject material in managerial economics has a microeconomic focus.

However,sincemanagersmustconsiderthestateoftheirenvironmentinmakingdecisions and the environment includes the overall economy, an understanding of how to interpret and forecast macroeconomic measures is useful in making managerial decisions.

WhyManagerialEconomicsIsRelevantforManagers

Inacivilizedsociety,werelyonothersinthesocietytoproduceanddistributenearlyallthe goods and services we need.

However, the sources of those goods and services are usually not other individuals but organizations created for the explicit purpose of producing and distributing goods and services.

Nearly every organization in our society—whether it is a business, nonprofit entity, or governmental unit—can be viewed as providing a set of goods, services, or both. The responsibility for overseeing and making decisions for these organizations is the role of executives and managers.

Most readerswill readilyacknowledge that the subject matter of economicsappliesto their organizations and to their roles as managers.

However, some readers may question whether their own understanding of economics is essential, just astheymayrecognize thatphysical sciences like chemistryand physics are at work in their lives but have determined they can function successfully without a deep understanding of those subjects.

Whetherornotthereadersareskepticalabouttheneedtostudyandunderstandeconomics perse,mostwillrecognizethevalueofstudyingappliedbusinessdisciplineslikemarketing, production/operations management, finance, and business strategy.

These subjects form the core of the curriculum for most academic business and management programs, and most managers can readily describe their role in their organization in terms of one or more of these applied subjects.

A careful examination of the literature for any of these subjects will reveal that economics provides key terminology and a theoretical foundation.

Althoughwecanapplytechniquesfrommarketing,production/operationsmanagement,and financewithoutunderstandingtheunderlyingeconomics,anyonewhowantstounderstand the why and how behind the technique needs to appreciate the economic rationale for the technique.

Weliveinaworldwithscarceresources,whichiswhyeconomicsisapracticalscience.We cannothaveeverythingwewant.Further,otherswantthesamescarceresourceswewant.

Organizations that provide goods and services will survive and thrive only if they meet the needsforwhichtheywerecreatedanddosoeffectively.Sincetheorganization'scustomers also have limited resources, they will not allocate their scarce resources to acquire something of little or no value.

And even if the goods or services are of value, when another organization can meet the same need with a more favorable exchange for the customer, the customer will shift to the other supplier.

Put another way, the organization must create value for their customers, which is the differencebetweenwhattheyacquireandwhattheyproduce.Thethesisofthisbookisthat those managers who understand economics have a competitive advantage in creating value.

ManagerialEconomicsIsApplicabletoDifferentTypesof Organizations

In this book, the organization providing goods and services will often be called a"business" or a "firm," terms that connote a for-profit organization. And in some portions of the book, we discuss principles that presume the underlying goal of the organization is to create profit.

However, managerial economics is relevant to nonprofit organizations and government agencies as well as conventional, for-profit businesses. Although the underlying objective may change based on the type of organization, all these organizational types exist for the purpose of creating goods or services for persons or other organizations.

Managerial economics also addresses another class of manager: the regulator. As we will discuss in the economic exchanges that result from organizations and persons trying to achieve their individual objectives may not result in the best overall pattern of exchange unless there is some regulatory guidance.

Economics provides a framework for analyzing regulation, both the effect on decision making by the regulated entities and the policy decisions of the regulator.

ManagerialEconomics: Definition

Managerialeconomicsisadisciplinewhichdealswiththeapplicationofeconomictheoryto business management. It deals with the use of economic concepts and principles of business decision making. Formerly it was known as “Business Economics” but the term has now been discarded in favor of Managerial Economics.

Managerial Economics may be defined as the study of economic theories, logic and methodology which are generally applied to seek solution to the practical problems of business.

Managerial Economics is thus constituted of that part of economic knowledge or economic theories which is used as a tool of analysing business problems for rational business decisions. Managerial Economics is often called as Business Economics or Economic for Firms.

DefinitionofManagerialEconomics:

“ManagerialEconomicsiseconomicsappliedindecisionmaking.Itisaspecialbranchof economics bridging the gap between abstract theory and managerial practice.” – Haynes, Mote and Paul.

“BusinessEconomicsconsistsoftheuseofeconomicmodesofthoughttoanalysebusiness situations.” - McNair and Meriam

“Business Economics (Managerial Economics) is the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management.” – Spencerand Seegelman.

“Managerial economics is concerned with application of economic concepts and economic analysistotheproblemsofformulatingrationalmanagerialdecision.”–Mansfield

asdefinedbyEdwinMansfieldis"concernedwithapplicationoftheeconomicconceptsand economic analysis to the problems of formulating rational managerial decision."[1]It is sometimes referred to as business economics and is a branch of economics that applies microeconomic analysis to decision methods of businesses or other management units.

As such, it bridges economic theory and economics in practice. It draws heavily from quantitative techniques such as regression analysis, correlation and calculus.

Ifthereisaunifyingthemethatrunsthroughmostofmanagerialeconomics,itistheattempt tooptimizebusinessdecisionsgiventhefirm'sobjectivesandgivenconstraintsimposedby scarcity, for example through the use of operations research, mathematical programming, game theory for strategic decisions,[4]and other computational methods.

Managerialdecisionareasinclude:

- assessmentofinvestiblefunds
- selectingbusinessarea
- choiceof product
- determiningoptimumoutput
- determiningpriceofproduct
- determininginput-combinationandtechnology
- Salespromotion.

Almostanybusinessdecisioncanbeanalyzed withmanagerialeconomicstechniques,but it is most commonly applied to:

- Risk analysis - various models are used to quantify risk and asymmetric information and to employ them in decision rules to manage risk.
- Production analysis - microeconomic techniques are used to analyze production efficiency, optimum factor allocation, costs, economies of scale and to estimate the firm's cost function.
- Pricing analysis - microeconomic techniques are used to analyze various pricing decisions including transfer pricing, joint product pricing, price discrimination, price elasticity estimations, and choosing the optimum pricing method.
- Capitalbudgeting - Investmenttheoryis used to examine afirm'scapitalpurchasing decisions.[7]

At universities, the subject is taught primarily to advanced undergraduates and graduate business schools. It is approached as an integration subject. That is, it integrates many conceptsfromawidevarietyofprerequisitecourses.Inmanycountriesitispossibletoread for a degree in Business Economics which often covers managerial economics, financial economics, game theory, business forecasting and industrial economics.

NatureofManagerial Economics:

- Theprimaryfunctionofmanagementexecutiveinabusinessorganisationisdecision making and forward planning.
- Decision making and forward planning go hand in hand with each other. Decision making means the process of selecting one action from two or more alternative courses of action. Forward planning means establishing plans for the future to carry out the decision so taken.

- The problem of choice arises because resources at the disposal of a business unit (land, labor, capital, and managerial capacity) are limited and the firm has to make the most profitable use of these resources.

- Thedecisionmakingfunctionisthatofthebusinessexecutive,hetakesthedecision which willensurethemostefficientmeansofattaininga desiredobjective,sayprofit maximisation.

  After taking the decision about the particular output, pricing, capital, raw-materials and power etc., are prepared. Forward planning and decision-making thus go on at the same time.

- A business manager's task is made difficult by the uncertainty which surrounds business decision-making. Nobody can predict the future course of business conditions.

  He prepares the best possible plans for the future depending on past experience and future outlook and yet he has to go on revising his plans in the light of new experience to minimise the failure.

  Managers are thus engaged in a continuous process of decision-making through an uncertain future and the overall problem confronting them is one of adjusting to uncertainty.

- In fulfilling the function of decision-making in an uncertainty framework, economic theory can be, pressed into service with considerable advantage as it deals with a numberofconceptsandprincipleswhichcanbeusedtosolveoratleastthrowsome light upon the problems of business management.

  E.g. are profit, demand, cost, pricing, production, competition, business cycles, national income etc. The way economic analysis can be used towards solving business problems, constitutes the subject-matter of Managerial Economics.

- Thusinbriefwe can saythatManagerialEconomicsisboth ascienceand an art.

ScopeofManagerialEconomics:

The scope of managerial economics is not yet clearly laid out because it is a developing science. Even then the following fields may be said to generally fall under Managerial Economics:

1. DemandAnalysisand Forecasting

2. CostandProductionAnalysis

3. PricingDecisions,PoliciesandPractices

4. Profit Management

5. CapitalManagement

Thesedivisionsofbusinesseconomicsconstituteitssubjectmatter.

Recently, managerial economists have started making increased use of Operation Research methods like Linear programming, inventory models, Games theory, queuing up theory etc., have also come to be regarded as part of Managerial Economics.

1. **Demand Analysis and Forecasting:** A business firm is an economic organisation which is engaged in transforming productive resources into goods that are to be sold in the market. A major part of managerial decision making depends on accurate estimates of demand.

   Aforecastof future sales servesasaguide to managementforpreparingproduction schedules and employing resources. It will help management to maintain or strengthen its market position and profit base.

   Demandanalysisalsoidentifiesa numberof otherfactorsinfluencingthe demandfor a product. Demand analysis and forecasting occupies a strategic place inManagerial Economics.

2. **Cost and production analysis**: A firm's profitability depends much on its cost of production.Awisemanagerwouldpreparecostestimatesofarangeofoutput,identify the factors causing are cause variations in cost estimates and choose the cost-minimising output level, taking also into consideration the degree ofuncertainty in production and cost calculations.

   Production processes are under the charge of engineers but the business manager is supposed to carry out the production function analysis in order to avoid wastages of materials and time.

   Sound pricing practices depend much on cost control. The main topics discussed under cost and production analysis are: Cost concepts, cost-output relationships, Economics and Diseconomies of scale and cost control.

3. **.Pricing decisions, policies and practices**: Pricing is a very important area of ManagerialEconomics.Infact,priceisthegenesisoftherevenueofafirmadassuch the success of a business firm largely depends on the correctness of the price decisions taken by it.

   Theimportantaspectsdealtwiththisareaare:Pricedeterminationinvariousmarket forms, pricing methods, differentialpricing, product-line pricing andprice forecasting.
4. **Profitmanagement:**Businessfirms are generallyorganized forearningprofit and in the long period, it is profit which provides the chief measure of success of a firm. Economics tells us that profits are the reward for uncertainty bearing and risk taking.

   A successful business manager is one who can form more or less correct estimates ofcostsandrevenueslikelytoaccruetothefirmatdifferentlevelsofoutput.Themore successful a manager is in reducing uncertainty, the higher are the profits earned by him.

In fact, profit-planning and profit measurement constitute the most challenging area of Managerial Economics.

5. **Capitalmanagement:**Theproblemsrelatingtofirm'scapitalinvestmentsareperhaps the most complex and troublesome.

   Capital management implies planning and control of capital expenditure because it involves a large sum and moreover the problems in disposing the capital assets off are so complex that they require considerable time and labour.

   Themaintopicsdealtwithundercapitalmanagementarecostofcapital,rateofreturn and selection of projects.

ECONOMICTHEORY&MANAGERIALTHEORY

Economic theory:- it is a system of interrelationships. Among the social sciences, economicsisthemostadvancedintermsoftheoretical orientations.Therearewelldefined theoretical structures in economics.

OneofthemostwidelydiscussedStructuresisthepostulationoraxiomaticmethodoftheory formulation. The theory of competitive equilibrium is entirely based on axiomatic method. Both in deductive inferences and inductive generalizations, the underlying principle is the interrelationships.

Managerial Theory:- Managerial theory refers to those aspects of economic theory and application which are directly relevant to the practice of management and the decision making process. Managerial theory is pragmatic it is concerned with those analytical tools which are useful in improving decision making.

EconomicTheoryVs Managerial Theory

Economic theory deals with the body of principles. But managerial theory deals with the application of certain principles to solve the problem of the firm. Economic theory has the characteristics of both micro and macroeconomics.

Butmanagerialtheoryhasonlymicrocharacteristics.Economictheorydealswiththestudy of individual firm as well as individual consumer. But managerial theory studies only individual firm.

Economictheorydealswithastudyofdistributiontheoriesofrent,wagesinterestandprofits. But managerial theory deals with a study of only profit theories. Economic theory is based on certain assumptions. But in managerial theory these assumptions disappear due to practical situations.

Economic theory is both positive and normative in character but managerial theory is essentially normative in nature. Economic theory studies only economic aspects of the problem whereas managerial theory studies both economic and non economic aspects.

NatureofManagerial Economics

DecisionMaking:-ManagerialEconomicsisascienceapplied todecision making.

Itbridgesthegapbetweenabstracttheoryandmanagerialpractice.ManagerialEconomics is supposed to enrich the conceptual and technical skill of a manager.

Theprimaryfunctionofamanagerinbusinessorganizationisdecisionmakingandforward planning under certain business conditions.

Some of the important managerial decisions: Production decision, inventory Decision, costdecision,marketingdecision,financialdecision,personneldecision,andmiscellaneous decisions. One of the hallmarksof a good executive is the ability to take quick decision, he musthave the clarityof goals, use all the information he can get, weigh pros and cons and make fast decisions.

WhyDecisions aretaken?

Thedecisionsaretakentoachievecertainobjectives.Quantitativetechniquesarealsoused in decision making, but it is important to remember other variables such as human and behavioral considerations, technological forces and environmental factors influence the choices and decisions made by mangers. Steps in Decision Making

- Setobjectives
- Definetheproblem
- Findpossiblealternativesolutions
- Selectthebestsolution
- Andproceedwith thatchoice

ScopeofManagerialEconomics

Managerial Economicsis a developingsubject. The scope of managerial economics refers toitsareaofstudy.Itsscopedoesnotextendtomacro-economictheoryandtheeconomics of public policy. Positive versus NormativeManagerial Economic is fundamentally normative and perspective in nature Subject Matter of Managerial
Economics

- DemandAnalysisand Forecasting,
- Costandproductionanalysis

- Inventorymanagement
- Advertising
- Pricingdecision,policiesandpractices
- Profit management
- Capitalmanagement

1. **Demand Analysis & Forecasting:-**A major part of managerial decision making depends on accurate estimates of demand. When demand is estimated, the manager does not stop at the stage of assessing the current demand but estimates future demand as well.

   This is what is called by demand forecasting. Demand analysis helps in identifying the various factors influencing the demand for a firm's product and provides guide lines to manipulate demand.

   Cost and Production analysis• In decision making, cost estimates are very essential.Thedeterminantsof estimatingcosts,therelationshipbetweencost and output, the forecast of cast and profit are vital to a firm.

2. **InventoryManagement**:-Aninventoryreferstoastockofrawmaterialswhich a firm keeps. Managerial will use such methods as Economic order Quantity (EOQ) approach.

3. **Advertising:-**Toproduceacommodityisonethingandtomarketitisanother. Expenditureonadvertisingandrelatedtypesof promotionalactivitiesiscalled selling costs by economists. Methods of Advertising:

   - PercentageofSalesApproach
   - AllYoucan Afford Approach
   - CompetitiveParityApproach
   - Objective andtaskApproach
   - ReturnonInvestmentApproach

4. **Pricingdecision,Policies&Practices:-**Whenpricingacommodity,thecost of production has to be taken into account. Business decisions are greatly influencedbypervadingmarketstructureandthestructureofmarketsthathas been evolved by the nature of competition existing in the market.

Pricing is actually guided by consideration of cost plan pricing and the policies of public enterprises

5. **ProfitManagement:-**Inappraisingacompany,wemustfirstunderstandhow profits arise. The concept of profit maximization is very useful in selecting the alternatives in making a decision at the firm level. Profit forecasting is an essential function of any management.

   Managerial economics tries to find out the cause and effect relationship by factualstudyandlogicalreasoning.Forexample,thestatementthatprofitsare maximum when marginal revenue is equal to marginal cost, a substantial of economic analysis of this deductive proposition attempts specific conclusions about what should be done.

6. **CapitalManagement:-**Planningandcontrolofcapitalexpenditureisthebasic executive function. The capital budgeting process takes different forms in different industries.

   It involves the equimarginal principle. The objective is to assure the most profitable use of funds, which means that funds must not be applied when the marginal returns are less than in other uses.

Relationtoother Branchesof Knowledge

- ManagerialEconomicsandEconomics
- ManagerialEconomicsandtheoryofdecisionmaking
- ManagerialEconomicsandOperationsresearch
- ManagerialEconomicsandStatistics
- ManagerialEconomicsandAccounting
- ManagerialEconomicsand Mathematics

ManagerialEconomics&Economics

ManagerialEconomicshasbeendescribedaseconomicsappliedtodecisionmaking. It may be studied as a special branch of economics, bridging the gap between pure economic theory and managerial practice.

ManagerialEconomics&TheoryofDecision Making

Decisionmakingisanintegralpartoftoday'sbusinessmanagement.Economistsare interested inthe efficient use of scarce resources hence theyare naturallyinterested inbusinessdecisionproblemsandtheyapplyeconomicsinmanagementofbusiness problems. Hence managerial economics is economics applied in decision making

ManagerialEconomics&OperationResearch

Mathematicians, statistician's engineers and others rearmed up together and developed models and analytical tools which have since grown into specialized subject, known as operation research.The basicpurpose of the approach isto developa scientificmodelof the system which may be utilized for policy making.

ManagerialEconomicsandStatistics

Statisticsisimportanttomanagerialeconomics.Itprovidesthebasisfortheempirical testing of theory. Statistics is important in providing the individual firm with measures of the appropriate functional relationship involved in decision making. Statistics supplies many tools to managerial economics, forecasting has to be done.For this purpose, trend projections are used. Similarly regression technique is used.

ManagerialEconomics&Accounting

Managerialeconomicsiscloselyrelatedtoaccounting.Itisconcernedwithrecordingthe financial operation of a business firm. A business is started with the main aim of earning profit.

Managerialeconomics& Mathematics

Mathematics is another important subject closely related to managerial economics. For the derivation and exposition of economic analysis, we require a set of mathematical tools. The important branches of mathematics generally used by a managerial economist are geometry, algebra, and calculus.

TechniquesorMethodsofManagerial Economics

Managerialeconomicsusesthefollowingmethodstoexplainandsolvebusiness problems of the firm:

- Scientificmethod
- Thestatisticalmethod
- Methodof intellectualexperiment

1) **Scientific Method: -** Scientific method is a branch of study which is concerned with observed facts systematically classified and which includes trustworthy methodfordiscoveryoftruths.Scientificmethodalonecanbringaboutconfidence in the validity of conclusions. We usually adopt an inductive as well as deductive approach in any analysis of managerial behavior.

2) **TheStatisticalMethod:-**Statisticalmethodsareamechanicalprocessdesigned to facilitate the condensation and analysis of the large body of quantitative data.

   Statistical methods are used for such comparison among past, present and futureestimates.Forexample,suchmethodsasextrapolationcanbeappliedforthe purposeofmakingfutureaboutthetrendsofdemandandsupplyofaparticular Commodity.

3) **Method of Intellectual Experiment: -** The fundamental problem in managerial economics is to find out the nature of any relationship between different variables suchascost,priceandoutput.Toanalyzebehaviorweusemodels.Amodelisan abstraction from reality. A model may be in the form of diagram, a verbal description or a mathematical description. It can be classified in three categories:

- Iconic
- Analogue
- symbolic

Modelsareapproximaterepresentationofreality.Modelscanguidebusiness executive to predict the future consequences

4) **The Method of Simulation: -** This method has gained popularity with the developmentofelectroniccomputers.Amanagerhastotakenumerousdecisions in the managementof businesswhich maybe minor ormajor, simple or complex. They have to ensure once the decision is taken it is to be implemented within the minimum time and cost.

5) **TheHistoricalMethod: -**Pastknowledge ispre-requisiteforpresent knowledge. The historical method requires experience not only in collecting data but also in finding out their relations and significance in particular context. For applying historical method, the managerial economist should be familiar with the general field of this topic.

6) **TheDescriptiveMethod: -**Thismethod is usedto describetheorganizationand functioning of the institutions and the policies which have economic significance. This method provides empirical and logical basis for drawing conclusions and gaining knowledge. Thus it enables the managerial economist to describe or present the picture of a phenomenon under investigation

RoleofManagerialEconomistinBusinessDecision

Decisionmakingisintegralpartoftoday’sbusinessmanagement.Makingadecision is one of the most difficult tasks faced by a professional manager.Managerial decisions are based on the flow of information. Decision making is both managerial function and organizational process.

Purpose of the decision

The purpose of the decision making as well as planning is to direct human behavior and effort towards a future goal or objective. A good decision is one that is based on logic, considers all available data and possible alternatives and applies the quantitative approach.

RoleofManagerialEconomistinBusinessDecision

- Thebasicdecisionsarethosewhichareveryimportant,aseriousmistakewillendanger the company's existence.
- Theselectionoflocation
- Theselectionofproductline
- Thedecisionrelatingtomanagethebusinessareallbasic decisions

Decisions

1. **Production decision**

Production is an economic activity which supplies goods and services for sale in a market to satisfy human wants; thereby profit maximization is made possible. A manager may face problems relating to best combination of the factors to gain maximum profit or how to use different machine hours for maximum production advantage

2. **InventoryDecision**

The decision to hold inventories to meet demand is quite importantfor a firm and the level of inventories serves as a guide to plan production and is therefore a strategic management variable.

3. **Cost Decision**:-In the absence of cost control, profits would come down due to increasing cost.
4. **Marketing Decision:-** The marketing executive must make decisions on target market, market positioning, product development, pricing channels of distribution communication and promotion. Marketing Decision are of 2 types:-
   - Sales Decision:- Sales decision is concerned with how much to produce and sell for maximizingprofit.
   - Purchase decision:- The purchase decision is concerned with the objective of acquiring these resources at the lowest possible prices so as to maximize profit.
5. **Investment Decision: -** The problem of risks and imperfect foresight are very crucialfortheinvestmentdecision.Investmentdecisioncoversissueslikethe

decisions regarding the amount of money for capital investment, the source of financing this investment, allocation of this investment among different projects overtime.

6. **PersonnelDecision:-**Personneldecisionscovertheareasofmanpowerlanning, recruitment, selection, training and development, performance appraisal

RoleandResponsibilitiesofaManagerialEconomist

With the advent of managerial revolution and transition from owner- manager to professional executive, the managerial economist have occupied an important place in modern business.

Organizationally,amanagerialeconomistisplacednearertothepolicymakersimple becausehismainroleistoimprovethequalityofpolicymakingasitaffectsshortterm operation and long range planning.

Externaland internal Factors

Theprimedutyofmanagerialeconomististomakeextensivestudyofthebusiness environment and external factors affecting the firm's interest.

i. What are the current trends in the local? ii.

What about the size of the population iii. Is

competition increase or decrease iv. Are

fashions,tastesandpreferencesundergoing

Internal factors:-The managerial economist can help the management in making Decision regarding the internal operations of a firm in respect of such problems as cost structure, forecasting of demand and price.

i. Whatshouldbetheproduction schedule?

ii. What should be the profit? iii. What

typeoftechnologyshouldbeadopted?

iv. Whatstrategieshaveto beadopted?

v. Whatarethefactorsinfluencingthe input cost

ResponsibilitiesofManagerial Economist

The study and interpretation of economic data in the light of problems of the management. The managerial economist should be in a position to spare more time and thought on problems of an economic nature than the firm's administration.

The most important obligation of a managerial economist is that his objective must coincide with that of the business.

The other important is to make accurate forecast A managerial economist should enlargetheareaofcertaintyTodischargehisrolesuccessfully,hemustrecognizehis responsibilities.Amanagershouldcontributetheprofitablegrowthofthefirmthrough his realistic attitude.

INTRODUCTIONTOPRODUCTIONANDOPERATIONS MANAGEMENT

Definition

Production and Operations Management ("POM") is about the transformation of production and operationalinputs into "outputs" that, when distributed, meet the needsof customers.

ConversionProcess

Theprocessintheabovediagramisoftenreferredtoasthe**"ConversionProcess".** Thereareseveraldifferentmethodsofhandlingtheconversionorproductionprocess - **Job, Batch, Flow and Group.**POM incorporates many tasks that are interdependent, but which can be grouped under five main headings:

PRODUCT

Marketers in a business must ensure that a business sells products that meet customer needsand wants.The role of Production andOperations isto ensurethat thebusinessactuallymakesthe requiredproductsin accordancewith theplan.The role of PRODUCT in POM therefore concerns areas such as:

- Performance
- Aesthetics
- Quality
- Reliability
- Quantity
- Productioncosts-Deliverydates

PLANT

To make PRODUCT, PLANT of some kind is needed. This will comprise the bulk of the fixed assets of the business. In determining which PLANT to use, management must consider areas such as:

- Futuredemand(volume,timing)
- Designandlayoutoffactory,equipment, offices
- Productivityandreliabilityofequipment
- Needfor(andcostsof)maintenance
- Health and safety (particularly the operation of equipment) - Environmental issues (e.g. creation of waste products)

PROCESSES

Therearemanydifferentwaysofproducingaproduct.Managementmustchoosethebest process, or series of processes. They will consider:

- Availablecapacity
- Availableskills
- Typeofproduction
- Layoutof plant andequipment
- Safety
- Productioncosts
- Maintenancerequirements

PROGRAMMES

The production PROGRAMME concerns thedatesand timesof theproductsthat are to be produced and supplied to customers. The decisions made about programmer will be influenced by factors such as:

- Purchasingpatterns(e.g.leadtime)
- Cashflow
- Needfor/availabilityof storage
- Transportation

PEOPLE

ProductiondependsonPEOPLE,whoseskills,experienceandmotivationvary.Key people-related decisions will consider the following areas:

- Wagesandsalaries
- Safetyandtraining
- Workconditions
- Leadershipandmotivation
- Unionization
- Communication

INTRODUCTIONTOPRODUCTIONANDOPERATION MANAGEMENT

Productionmanagementbecomestheacceptabletermfrom1930sto1950s.As F.W. Taylor's works become more widely known, managers developed techniquesthat focused on economic efficiency in manufacturing.Workers were studied in great detail to eliminate wasteful efforts and achieve greater efficiency. At the same time, psychologists,socialistsandothersocialscientistsbegantostudypeopleandhuman behavior in the working environment. In addition, economists, mathematicians, and computer socialists contributed newer, more sophisticated analytical approaches. Withthe1970semergetwodistinctchangesinourviews.Themostobviousofthese, Reflectedinthenew nameoperationsmanagementwasashiftintheserviceand manufacturing sectors of the economy. As service sector became more prominent, thechangefrom'production'to'operations'emphasizedthebroadeningofourfieldto service organizations. The second, more suitable change was the beginning of anemphasis on synthesis, rather than just analysis, in management practices.

CONCEPTOF PRODUCTION

Production function is that part of an organization, which is concerned with the transformation of a range of inputs into the required outputs (products) having the requisite quality level. Production is defined as "the step-by-step conversion of one form of material into another form through chemical or mechanical process to create or enhance the utility of the product to the user." Thus production is a value addition process. At each stage of processing, there will be value addition. Edwood Buffa defines production as 'a process by which goods and services are created'. Some examplesofproductionare:manufacturingcustom-madeproductslike,boilerswitha Specific capacity, constructing flats, some structural fabrication works for selected customers,etc.,andmanufacturingstandardizedproductslike,car,bus,motorcycle, radio, television, etc.

PRODUCTION SYSTEM

The production system of an organization isthat part, which produces products of an organization.Itisthatactivitywherebyresources,flowingwithinadefinedsystem,are combinedandtransformedinacontrolledmannertoaddvalueinaccordancewiththe

policiescommunicatedby management.A simplifiedproduction systemisshown above.
Theproduction systemhasthefollowingcharacteristics:

1. Productionisanorganizedactivity,soeveryproductionsystemhasanobjective.
2. Thesystemtransformsthevariousinputstouseful outputs.
3. Itdoesnotoperateinisolationfromtheotherorganizationsystem.
4. Thereexistsafeedbackabouttheactivities,whichisessentialtocontroland improve System performance.

ClassificationofProduction System

Productionsystemscanbeclassifiedas JobShop,Batch,MassandContinuous Production systems.

- **<u>JOBSHOPPRODUCTION</u>**

Job shop production are characterized by manufacturing of one or few quantity of productsDesignedandproducedasperthespecificationofcustomerswithinprefixed time and cost. The Distinguishing feature of this is low volume and high variety of products. A job shop comprises of general purpose machines arranged into different departments. Each job demands unique technological requirements, demands processing on machines in a certain sequence.

Characteristics

TheJob-shopproductionsystem isfollowedwhenthereis:

1. High varietyofproductsandlow volume.
2. Useofgeneralpurposemachinesandfacilities.
3. Highlyskilledoperatorswhocantakeupeachjobasachallengebecauseof uniqueness.
4. Largeinventoryofmaterials,tools,parts.
5. Detailed planning is essential for sequencing the requirements of each product,capacities for each work centre and order priorities.

Advantages

Followingaretheadvantagesofjobshopproduction:

1. Becauseofgeneralpurposemachinesandfacilitiesvarietyofproductscanbe produced.
2. Operatorswillbecomemoreskilledandcompetent,aseachjobgivesthemlearning opportunities.
3. Fullpotentialofoperatorscanbe utilized.
4. Opportunityexistsforcreativemethodsandinnovative ideas.

Limitations

Followingarethelimitationsofjobshop production:

1. Higher costduetofrequentset upchanges.
2. Higherlevelof inventoryatalllevelsandhencehigherinventorycost.
3. Productionplanningiscomplicated.
4. Largerspacerequirements.

- **<u>BATCHPRODUCTION</u>**

Batch production is defined by American Production and Inventory Control Society (APICS) “as a form of manufacturing in which the job passes through the functional departments in lots or batches and each lot may have a different routing.” It is characterized by the manufacture of limited number of products produced at regular intervals and stocked awaiting sales.

Characteristics

Batchproductionsystem isusedunderthefollowingcircumstances:

1. Whenthereisshorterproductionruns.
2. Whenplant and machineryare flexible.
3. Whenplant andmachineryset up isusedforthe production of item in a batch and change of set up is required for processing the next batch.
4. Whenmanufacturingleadtimeandcostarelowerascomparedtojoborder production.

Advantages

Followingaretheadvantagesofbatch production:

1. Betterutilizationofplantandmachinery.
2. Promotesfunctionalspecialization.
3. Costperunit islowerascomparedtojoborderproduction.
4. Lowerinvestment inplantandmachinery.
5. Flexibilityto accommodateandprocessnumberof products.
6. Jobsatisfactionexistsforoperators.

Limitations

Followingarethelimitationsofbatchproduction:

1. Materialhandlingiscomplexbecauseof irregularandlongerflows.
2. Productionplanningandcontroliscomplex.
3. Workinprocessinventoryishighercomparedtocontinuousproduction.
4. 0Higherset upcostsduetofrequentchangesinsetup.

- **<u>MASSPRODUCTION</u>**

Manufacture of discrete parts or assemblies using a continuous process are called mass production. This production system is justified by very large volume of production. The machines are arranged in a line or product layout. Product and process standardization exists and all outputs follow the same path.

Characteristics

Massproductionisusedunderthefollowingcircumstances:

1. Standardizationof productandprocesssequence.
2. Dedicatedspecialpurposemachineshavinghigherproductioncapacitiesand output rates.
3. Largevolumeofproducts.
4. Shortercycletimeofproduction.
5. Lowerin processinventory.
6. Perfectlybalancedproductionlines.
7. Flowofmaterials,componentsandpartsiscontinuousandwithoutanyback tracking.
8. Productionplanningandcontroliseasy.

9. Materialhandlingcanbecompletelyautomatic.

Advantages

Followingarethe advantagesof massproduction:

1. Higherrateofproductionwithreducedcycletime.
2. Highercapacityutilizationduetolinebalancing.
3. Lessskilledoperatorsarerequired.
4. Lowprocess inventory.
5. Manufacturingcostperunit is low.

Limitations

Followingarethelimitationsofmassproduction:

1. Breakdownofonemachinewillstopanentireproductionline.
2. Linelayoutneedsmajorchangewiththechangesintheproductdesign.
3. Highinvestmentinproductionfacilities.

- **CONTINUOUSPRODUCTION**

Production facilities are arranged as per the sequence of production operationsfrom the first operations to the finished product. The items are made to flow through the sequence of operations through material handling devices such as conveyors, transfer devices, etc.

Characteristics

Continuousproductionisusedunderthefollowingcircumstances:

1. Dedicatedplantandequipmentwithzeroflexibility.
2. Materialhandlingisfullyautomated.
3. Processfollowsa predeterminedsequenceofoperations.
4. Componentmaterialscannotbereadilyidentifiedwithfinalproduct.
5. Planningandschedulingisaroutine action.

Advantages

Followingaretheadvantagesofcontinuousproduction:

1. Standardizationof productandprocesssequence.
2. Higherrateofproductionwithreducedcycletime.
3. Highercapacityutilizationduetolinebalancing.
4. Manpowerisnotrequiredformaterialhandlingasitiscompletelyautomatic.
5. Personwithlimitedskillscanbeusedontheproduction line.
6. Unitcost islowerdue to high volumeof production.

Limitations

Followingarethelimitationsofcontinuousproduction:

1. Flexibilityto accommodateand processnumberof productsdoesnotexist.
2. Veryhigh investmentforsettingflowlines.
3. Productdifferentiationislimited.

PRODUCTION MANAGEMENT

Productionmanagementisaprocessofplanning,organizing,directingandcontrolling theactivitiesoftheproductionfunction.Itcombinesandtransformsvariousresources used in the production subsystem of the organization into value added product in a controlled manner as per the policies of the organization.

E.S. Buffa defines production management as, “Production management deals with Decision making related to production processes so that the resulting goods or servicesareproducedaccordingtospecifications,intheamountandbytheschedule demanded and out of minimum cost.”

ObjectivesofProduction Management

Theobjectiveoftheproductionmanagementis‘toproducegoodsservicesofrightquality and quantity at the right time and right manufacturing cost’.

1. **RIGHT QUALITY**

The quality of product is established based upon the customers’ needs. The right quality is not necessarily best quality. It is determined by the cost of the product and thetechnical characteristics as suited to the specific requirements.

2. **RIGHT QUANTITY**

The manufacturing organization should produce the products in right number. If they are produced in excess of demand the capital will block up in the form of inventory and if the quantity is produced in short of demand, leads to shortage of products.

3. **RIGHT TIME**

Timeliness of delivery is one of the important parameter to judge the effectivenessof production department. So, the production department has to make the optimal utilization of input resources to achieve its objective.

4. **RIGHTMANUFACTURINGCOST**

Manufacturing costs are established before the product is actually manufactured. Hence, all attempts should be made to produce the products at pre-established cost, soastoreducethevariationbetweenactualandthestandard(pre-established)cost.

OPERATINGSYSTEM

Operating system converts inputs in order to provide outputs which are required bya customer.Itconvertsphysicalresourcesintooutputs,thefunctionofwhichistosatisfy customer wants i.e., to provide some utility for the customer. In some of the organization the product is a physical good (hotels) while in others it is a service (hospitals). Bus and taxi services, tailors, hospital and builders are the examples of an operating system.

EverettE.Adam&RonaldJ.Ebertdefineoperatingsystemas,“Anoperatingsystem (function) of an organization is the part of an organization that produces the organization’s physical goods and services.”

Ray Wild defines operating system as, “An operating system is a configuration of resources combined for the provision of goods or services.”

Conceptof Operations

An operation is defined in terms of the mission it serves for the organization, technology it employs and the human and managerial processes it involves. Operations in an organization can be categorized into manufacturing operations and service operations. Manufacturing operations is a conversion process that includes manufacturingyieldsatangibleoutput:aproduct,whereas,aconversionprocessthat includes service yields an intangible output: a deed, a performance, an effort.

DistinctionbetweenManufacturingOperationsandService Operations

Following characteristics can be considered for distinguishing manufacturing operations with service operations:

1. Tangible/Intangiblenatureofoutput
2. Consumptionofoutput
3. Natureof work(job)
4. Degreeofcustomercontact5.Customerparticipationinconversion

6.Measurementof performance.

Manufacturingischaracterizedbytangibleoutputs(products),outputsthatcustomers consume overtime, jobs that use less laborand more equipment, little customer contact, no customer participation in the conversion process (in production), and sophisticatedmethodsformeasuringproductionactivitiesandresourceconsumption as product are made. Service is characterized by intangible outputs, outputs that customers consumes immediately, jobs that use more labor and less equipment, direct consumer contact, frequent customer participation in the conversion process, and elementary methods for measuring conversion activities and resource consumption. Some services are equipment based namely rail-road services, telephone

Servicesandsomearepeoplebasednamelytaxconsultantservices,hairstyling.

OPERATIONSMANAGEMENT

FrameworkforManaging Operations

Managing operations can be enclosed in a frame of general management function. Operation managers are concerned with planning, organizing, and controlling the activities which affect human behavior through models.

- **PLANNING**

Activities that establishes a course of action and guide future decision-making is planning. The operations manager defines the objectives for the operations subsystem of the organization, and the policies, and procedures for achieving the objectives. This stage includes clarifying the role and focus of operations in the organization'soverallstrategy.Italsoinvolvesproductplanning,facilitydesigningand using the conversion process.

- **ORGANIZING**

Activities that establishes a structure of tasks and authority. Operation managers establish a structure of roles and the flow of information within the operations subsystem. They determine the activities required to achieve the goals and assign authority and responsibility for carrying them out.

- **CONTROLLING**

Activities that assure the actual performance in accordance with planned performance. To ensure that the plans for the operations subsystems are accomplished, the operations manager must exercise control by measuring actual outputs and comparing them to planned operations management. Controlling costs, quality, and schedules are the important functions here.

- **BEHAVIOUR**

Operation managers are concerned with how their efforts to plan, organize, and control affect human behavior. They also want to know how the behavior of subordinates can affect management's planning, organizing, and controlling actions. Their interest lies in decision-making behavior.

- **MODELS**

As operation managers plan, organize, and control the conversion process, they encounter many problems and must make many decisions. They can simplify their difficulties using models like aggregate planning models for examining how best to use existing capacity in short-term, break even analysis to identify break even volumes, linear programming and computer simulation for capacity utilization, decision tree analysis for long-term capacity problem of facility expansion, simple median model for determining best locations of facilities etc.

ObjectivesofOperations Management

Objectivesofoperationsmanagementcanbecategorizedintocustomerserviceand resource utilization.

CUSTOMERSERVICE

The first objective of operating systems is the customer service to the satisfaction of customer wants. Therefore, customer service is a key objective of operations management.Theoperatingsystem mustprovide somethingtoa specificationwhich can satisfy the customer in terms of cost and timing. Thus, primary objective can be satisfied by providing the 'right thing at a right price at the right time'. These aspects ofcustomer service—specification, cost and timing—are described for four functionsinTheyaretheprincipal sourcesof customersatisfactionandmust,therefore,bethe principal dimension of the customer service objective for operations managers.

Principal customer wants Function Primary considerations Other considerations Manufacture Goods of a given, requested or Cost, i.e., purchase price or cost of obtaining goods. Acceptable specification Timing, i.e., delivery delays from order or request to receipt of goods.

TransportManagementofagiven,requestedCost,i.e.,costofmovements.

Timing, i.e., or acceptable specification 1. Duration or time to move.

2. Wait or delay from requesting to its commencement. Supply Goods of a given, requested or Cost, i.e., purchase price or cost of obtaining acceptable specification goods. Timing, i.e., delivery delay from order or request to receipt of goods. Service Treatment of a given, requested or Cost, i.e., cost of movements. Acceptable specification Timing, i.e.

1. Durationortimerequiredfor treatment.

2. Waitordelayfromrequestingtreatmenttoits commencement.

Generally an organization will aim reliably and consistently to achieve certain standards and operations manager will be influential in attempting to achieve these standards.

Hence,thisobjectivewillinfluencetheoperationsmanager'sdecisionstoachievethe required customer service.

RESOURCEUTILISATION

Anothermajorobjectiveofoperatingsystemsistoutilizeresourcesforthesatisfaction of customer wants effectively, i.e., customer service must be provided with the achievementofeffectiveoperationsthroughefficientuseofresources.Inefficientuse of resources or inadequate customer service leads to commercial failure of an operating system. Operations management is concerned essentially with the utilization of resources, i.e., obtaining maximum effect from resources or minimizing their loss, under utilization or waste.

The extentof the utilization of the resources’ potential might be expressed in terms oftheproportionofavailabletimeusedoroccupied,spaceutilization,levelsofactivity, etc. Each measure indicates the extent to which the potential or capacity of such resources is utilized. This is referred as the objective of resource utilization. Operationsmanagement isalsoconcerned with theachievementofbothsatisfactory customer service and resource utilization.

An improvement in one will often give rise to deterioration in the other. Often both cannot be maximized, and hence a satisfactory performance must be achieved on both objectives. All the activities of operations management must be tackled with these two objectives in mind, and many of the problems will be faced by operations managers because of this conflict. Hence, operations managers must attempt to balance these basic objectives.

Summarizes the twin objectives of operations management. The type of balance Establishedbothbetweenandwithinthesebasicobjectiveswillbeinfluencedby marketConsiderations,competitions,thestrengthsandweaknessesofthe organization, etc. Hence, the operationsmanagers should make a contribution when these objectives are set.

MANAGINGGLOBALOPERATIONS

Theterm‘globalization’describesbusinesses’deploymentoffacilitiesandoperations around the world. Globalization can be defined as a process in which geographic distance becomes a factor of diminishing importance in the establishment and maintenance of cross border economic, political and socio-cultural relations. It can also be defined as worldwide drive toward a globalized economic system dominated by supranational corporate trade and banking institutions that are not accountable to democratic processes or national governments. There are four developments, which have spurred the trend toward globalization. These are:

1. Improvedtransportationandcommunicationtechnologies;
2. Openedfinancialsystems;
3. Increaseddemandforimports;and
4. Reducedimportquotasandothertradebarriers.

Whenafirm setsupfacilitiesabroaditinvolvesomeaddedcomplexitiesinitsoperation. Globalmarkets impose newstandards on quality and time. Managersshould not think about domestic markets first and thenglobalmarkets later, rather itcould bethink globally and act

Thecustomerserviceobjective.

To provide agreed/adequate levels of customer service (and hence customer satisfaction) by providing goods or services with the right specification, at the right cost and at the right time.

The resource utilization objective. To achieve adequate levels of resource utilization (or productivity) e.g., to achieve agreed levels of utilization of materials, machines and labor. Locally. Also, they must have a good understanding of their competitors. Some other important challenges of managing multinational operations include other languages and customs, different management style, unfamiliar laws and regulations, and different costs. Managing global operations would focus on the following key issues:

- To acquire and properly utilize the following concepts and those related to global operations, supply chain, logistics, etc.
- Toassociateglobalhistoricaleventstokeydriversinglobaloperationsfrom different perspectives.
- Todevelopcriteriaforconceptualizationandevaluationofdifferentglobal operations.
- Toassociatesuccessandfailurecasesofglobaloperationstopolitical,social, economical and technological environments.
- Toenvisiontrendsinglobaloperations.
- Todevelopanunderstandingoftheworldvisionregardlessoftheircountryoforigin, residence or studies in a respectful way of perspectives of people from different races, studies, preferences, religion, politic affiliation, place of origin, etc.

SCOPEOFPRODUCTIONANDOPERATIONSMANAGEMENT

Production and operations management concern with the conversion of inputs into outputs,usingphysicalresources,soastoprovidethedesiredutilitiestothecustomer while meeting the other organizational objectives of effectiveness, efficiency and adoptability. It distinguishes itself from otherfunctions such as personnel, marketing, finance, etc., by its primary concern for 'conversion by using physical resources.' Following are the activities which are listed under production and operations management functions:

1. Locationoffacilities
2. Plantlayoutsandmaterialhandling
3. Productdesign
4. Processdesign
5. Productionandplanningcontrol
6. Qualitycontrol
7. Materialsmanagement

1. LOCATIONOF FACILITIES

Location of facilities for operations is a long-term capacity decision which involves a long term commitment about the geographically static factors that affect a business organization. It is an important strategic level decision-making for an organization. It deals with the questions such as 'where our main operations should be based?' The selection of location is a key-decision as large investment is made in building plant and
machinery. An improper location of plant may lead to waste of all the investments made in plant and machinery equipments. Hence, location of plant should be based onthecompany'sexpansionandpolicy,diversificationplanfortheproducts,changing sourcesofrawmaterialsandmanyotherfactors.Thepurposeofthelocationstudyis to find the optimal location that will results in the greatest advantage to the organization.

2. PLANTLAYOUTANDMATERIALHANDLING

Plant layout refers to the physical arrangement of facilities. It is the configuration of departments, work centers and equipment in the conversion process. The overall objective of the plant layout is to design a physical arrangement that meets the required output quality and quantity most economically. According to James Moore, "Plantlayoutisaplanofanoptimumarrangementoffacilitiesincludingpersonnel, operating equipment, storage space, material handling Equipments and all other supporting services along with the design of best structure to contain all these facilities".

'Material Handling' refers to the 'moving of materials from the store room to the machine and from one machine to the next during the process of manufacture'. It is alsodefinedasthe'artandscienceofmoving,packingandstoringofproductsinany form'. It is a specialized activity for a modern manufacturing concern, with 50 to 75% of the cost of production. This cost can be reduced by proper section, operation and maintenance of material handling devices. Material handling devices increases the output, improves quality, speeds up the deliveries and decreases the cost of production. Hence, material handling is a prime consideration in the designing new plant and several existing plants.

3. PRODUCT DESIGN

Productdesigndealswithconversionofideasintoreality.Everybusinessorganization havetodesign,developandintroducenewproductsasasurvivalandgrowthstrategy. Developing the new products and launching them in the market is the biggest challenge faced by the organizations. The entire process of need identification to physical manufactures of product involves three functions: marketing, product development, and manufacturing. Product development trans lattes the needs of customers given bymarketing into technicalspecifications and designing the various features into theproduct tothese specifications. Manufacturinghasthe responsibility ofselectingtheprocessesbywhichtheproductcanbemanufactured.Productdesign anddevelopmentprovideslinkbetweenmarketing,customerneedsandexpectations and the activities required to manufacture the product.

4. PROCESS DESIGN

Process design is a macroscopic decision-making of an overall process route for converting the raw material into finished goods. These decisions encompass the selection of a process, choice of technology, process flow analysis and layout of the facilities.Hence,theimportantdecisionsinprocessdesignaretoanalyzetheworkflow forconvertingrawmaterialintofinishedproductandtoselecttheworkstationforeach included in the workflow.

5. PRODUCTIONPLANNINGANDCONTROL

Production planning and control can be defined as the process of planning the production in advance, setting the exact route of each item, fixing the starting and finishing dates for each item, to give production orders to shops and to follow up the progress of products according to orders. The principle of production planning and controlliesinthestatement'FirstPlanYourWorkandthenWorkonYourPlan'.Main functions of production planning and control includes planning, routing, scheduling, dispatching and follow-up.

- **Planning** isdeciding in advance what to do,howto do it, when to do it and who is to do it. Planning bridges the gap from where we are, to where we want to go. It makes it possible for things to occur which would not otherwise happen.
- **Routing**maybedefinedastheselectionofpathwhicheachpartoftheproductwill follow, which being transformed from raw material to finished products. Routing determines the most advantageous path to be followed from department to department and machine to machine till raw material gets its final shape.

- **Scheduling** determines the programmer for the operations. Scheduling may be definedas'thefixationoftimeanddateforeachoperation'aswellasitdetermines the sequence of operations to be followed.
- **Dispatching** is concerned with the starting the processes. It gives necessary authority so as to start a particular work, which has already been planned under 'Routing' an 'Scheduling'. Therefore, dispatching is 'release of orders and instruction for the starting of production for anytime in acceptance with the route sheetandschedulecharts'.Thefunctionof**follow-up**istoreportdailytheprogress of work in each shop in a prescribed preformed and to investigate the causes of deviations from the planned performance.

6. QUALITYCONTROL

Quality Control (QC) may be defined as 'a system that is used to maintain a desired levelofqualityinaproductorservice'.Itisasystematiccontrolofvariousfactorsthat affect the quality of the product. Quality control aims at prevention of defects at the source, relies on effective feedback system and corrective action procedure.

Quality control can also be defined as 'that industrial management technique by means which product of uniform acceptable quality is manufactured'. It is the entire collection of Activities which ensures that the operation will produce the optimum quality products at minimum cost. The main objectives of quality control are:

- To improve the companies income by making the production more acceptable to the customers i.e., by providing long life, greater usefulness, maintainability, etc.
- Toreducecompaniescostthrough reductionoflossesdueto defects.
- Toachieveinterchangeabilityofmanufactureinlargescaleproduction.
- Toproduceoptimalqualityatreducedprice.
- To ensure satisfaction ofcustomers withproductions or servicesor highquality level, to build customer goodwill, confidence and reputation of manufacturer.
- Tomakeinspectionprompttoensurequalitycontrol.
- Tocheckthevariationduring manufacturing.

MATERIALSMANAGEMENT

Materials management is that aspect of management function which is primarily concernedwiththeacquisition,controlanduseofmaterialsneededandflowofgoods and services connected with the production process having some predetermined objectives in view. The main objectives of materials management are:

- Tominimizematerialcost.
- To purchase, receive, transport and store materials efficiently and to reduce therelated cost.
- To cut down costs through simplification, standardization, value analysis, importsubstitution, etc.
- Totracenewsourcesof supplyand to develop cordial relationswith them in order to ensure continuous supply at reasonable rates.
- To reduce investment tied in the inventories for use in other productive purposes and to develop high inventory turnover ratios.

MAINTENANCEMANAGEMENT

Inmodernindustry,equipmentandmachineryareaveryimportantpartofthetotal productive effort. Therefore, their idleness or downtime becomes are very expensive.

Hence,itisveryimportantthattheplantmachineryshouldbeproperlymaintained. The main objectives of maintenance management are:

1. Toachieveminimumbreakdownandtokeeptheplantingoodworkingcondition at the lowest possible cost.
2. Tokeepthemachinesandotherfacilitiesinsuchaconditionthatpermitsthemto be used at their optimal capacity without interruption.
3. To ensure the availability of the machines, buildings and services required by othersectionsofthefactoryfortheperformanceoftheirfunctionsatoptimalreturn on investment.

QUALITYMANAGEMENT

Qualitymanagementensuresthatanorganization,productorserviceisconsistent. It hasfour main components: quality planning, quality control, quality assurance and quality also the means to achieve it. Quality management therefore uses quality assurance and improvement.Qualitymanagementisfocusednotonlyonproductandservicequality, but

control of processes as well as products to achieve more consistent quality.

Principles

The International Standard for Quality management (ISO 9001:2008) adopts a numberofmanagementprinciplesthatcanbeusedbytopmanagementtoguidetheir organizations towards improved performance.

Customer focus

Since the organizations depend on their customers, they should understand current and future customer needs, should meet customer requirements and should try to exceed the expectations of customers An organization attains customer focus when allpeopleintheorganizationknowboththeinternalandexternalcustomersandalso whatcustomerrequirementsmustbemettoensurethatboththeinternalandexternal customers are satisfied.

Leadership

Leaders of an organizationestablish unityof purpose anddirectionof it.Theyshould goforcreationandmaintenanceofsuchaninternalenvironment,inwhichpeoplecan become fully involved in achieving the organization's quality objective.

Involvementof people

People at all levels of an organization are the essence of it. Their complete involvement enables their abilities to be used for the benefit of the organization.

Process approach

The desired resultcanbe achieved when activities and related resources aremanaged in an organization as a process.

Systemapproachtomanagement

An organization's effectiveness and efficiency in achieving its quality objectives are contributed by identifying, understandingand managing all interrelated processes as a system. QualityControl involves checkingtransformed and transformingresources in all stages of production process.

Continual improvement

One of the permanent quality objectives of an organization should be the continual improvementofitsoverallperformance,leveragingclearandconcisePPMs(Process Performance Measures).

Factualapproachtodecisionmaking

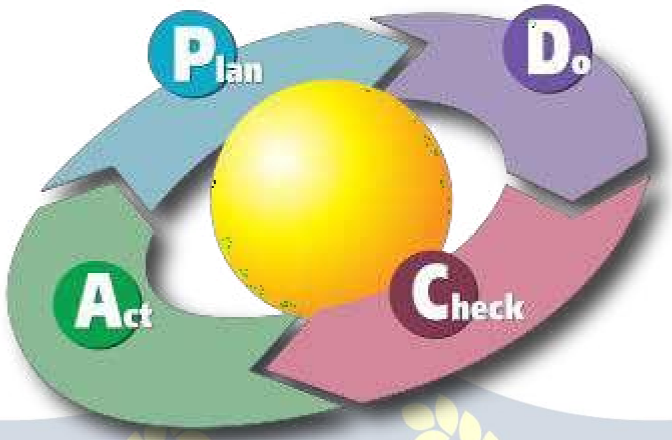
Effectivedecisionsarealwaysbasedonthedataanalysisandinformation.

Mutuallybeneficial supplier relationships

Sinceanorganizationanditssuppliersareinterdependent,thereforeamutuallybeneficial relationship between them increases the ability of both to add value.

These eight principles form the basis for the quality management system standard ISO9001:2008.

Qualityimprovement



The PDCA cycle

Therearemanymethodsforqualityimprovement.Thesecoverproductimprovement, process improvement and people based improvement. In the following list are methods of quality management and techniques that incorporate and drive quality improvement:

Qualitystandards

The International Organization for Standardization (ISO) created the Quality ManagementSystem(QMS)standardsin1987.TheyweretheISO9000:1987series of standards comprising ISO 9001:1987, ISO 9002:1987 and ISO 9003:1987; which wereapplicableindifferenttypesofindustries,basedonthetypeofactivityorprocess: designing, production or service delivery.

The standards are reviewed every few years by the International Organization for Standardization.Theversionin1994wascalledtheISO9000:1994series;consisting of the ISO 9001:1994, 9002:1994 and 9003:1994 versions.

Thelastmajorrevisionwasintheyear2008andtheserieswascalledISO9000:2000 series. The ISO 9002 and 9003 standards were integrated into one single certifiable standard: ISO 9001:2000. After December 2003, organizations holding ISO 9002 or 9003 standards had to complete a transition to the new standard.

ISOreleasedaminorrevision,ISO9001:2008on14October2008.Itcontainsnonew requirements.Manyofthechangesweretoimproveconsistencyingrammar, facilitating translation of the standard into other languages for use by over 950,000 certified organization in the 175 countries (as at Dec 2007) that use the standard.

The ISO 9004:2009 document gives guidelines for performance improvement over and above the basic standard (ISO 9001:2000). This standard provides a measurement framework for improved quality management, similar to and based upon the measurement framework for process assessment.

The Quality Management System standards created by ISO are meant to certify the processes and the system of an organization, not the product or service itself. ISO 9000 standards do not certify the quality of the product or service.

In 2005 the International Organization for Standardization released a standard, ISO 22000,meantfor thefood industry. This standard covers the valuesandprinciplesof ISO 9000 and the HACCP standards. It gives one single integrated standard for the food industry and is expected to become more popular in the coming years in such industry.ISOhasalsoreleasedstandardsforotherindustries.ForexampleTechnical Standard TS 16949 defines requirements in addition to those in ISO 9001:2008 specifically for the automotive industry.ISO has a number of standards that support quality management. One group describes processes (including ISO/IEC 12207 & ISO/IEC 15288) and another describes process assessment and improvement ISO 15504.The Software Engineering Institute has its own process assessment and improvement methods, called CMMi (Capability Maturity Model —integrated) and IDEAL respectively.

ELEMENTSOFAQUALITY SYSTEM

There are several elements to a quality system, and each organization is going to have a unique system. The most important elements of a quality system include participative management, quality system design, customers, purchasing, education and training, statistics, auditing, and technology.

- ✓ **ParticipativeManagement**Theentirequalityprocess,oncestarted,willbean ongoing dynamic part of the organization, just like any other department such as marketing or accounting. It will also need the continuous focus of management. The implementation and management of a successful quality system involves many different aspects that must be addressed on a continuous basis.
- ✓ **Vision and Values.** The starting point for the management and leadership process is the formation of a well-defined vision and value statement. This statement will be used to establish the importance of the quality system and build motivation for the changes that need to take place, whether the organizationplanstoexceedcustomerexpectations,committoadefinedlevel ofcustomersatisfaction,orcommittozerodefects.Theexactformofthevision and values is not as important as the fact that it is articulated and known by everyoneinvolved.Thisvisionandvaluestatementisgoingtobeadriving

forcetohelpmoldtheculturethatisneededthroughouttheorganizationinthe drive for quality. it is not the words of the value statement that produce quality productsandservices;itisthepeopleandprocessesthatdetermineifthereis going to be a change in quality. The vision and value will be very important statements to set agendas for all other processes used to manage the quality system.

- ✓ **Developing the Plan.** The plan for the quality system is going to be different for every organization, but there are similar characteristics:
- ✓ Thereshouldbeclearandmeasurablegoals.✓Therearefinancialresources variable for quality.
- ✓ Thequalityplanisconsistentwiththeorganization'svisionandvalues.

The plan for the quality system might also include pilot projects that would entail setting up small quality projects within the organization. This will allowmanagement to understand how well the quality system is accepted, learn frommistakes, and have greater confidence in launching an organization-wide qualitysystem. The plan should provide some flexibility for employee empowerment,because, as has been demonstrated, the most successful quality systems allowemployees at all levels to provide input.

- ✓ **Communication.** Change, especially a movement toward higher quality, is challenging to communicate effectively, yet the communication process is essential for the company's leaders to move the organization forward. Communicationisthevitallinkbetweenmanagement,employees,consumers, and stakeholders. These communication lines also bring about a sense of camaraderie between all individualsinvolvedandhelpsustainthedriveforthesuccessfulcompletionof longtermqualitygoals.Communicationsystemsalsomustallowforemployees to give feedback and provide possible solutions to issues the company must face. Management needs to allow for this in both formal and informal ways, such as employee feedback slips and feedback roundtable meetings. The responsibilityforfosteringaculturethatvaluescommunicationlieswithsenior management. They alone have to ensure that goals and objectives are communicated to all. They are also responsible for setting up the system for feedback from the employees.

- ✓ **Rewards and Acknowledgment.** Rewards, compensation, and acknowledgment for achievements in quality are very effective ways to motivate employees. They tell employees at the end of the day exactly what management is trying to accomplish. Rewards, compensation, and acknowledgment may also be seen as a form of communication— they are tangible methods that senior management uses to let employees know that quality is important. This could come in the form of individual rewards or team rewards.Rewards,compensation,andacknowledgmenttakemanyforms,and it is up to management to ensure that this type of program is in line with the goals and objectives of the quality system and the goals and objectives of the organization.Organizationshavefoundthatthebestandmostcost-effective reward,compensation,andacknowledgmentprogramsaregearedtomeeting specific criteria.

PrinciplesofQualityManagement

Quality management is becoming increasingly important to the leadership and managementofallorganizations.ItisnecessarytoidentifyQualityManagementasa distinctdisciplineofmanagementandlaydownuniversallyunderstoodandaccepted rules for this discipline. The ISO technical committee working on the ISO9000 standardshadpublishedadocumentdetailingthequalitymanagementprinciplesand applicationguidelines.(Thisarticleisbasedonthesaiddocument).Thelatestrevision (version 2008) of ISO9000 standards are based on these principles.

Definition of QualityManagementPrinciple:

"Aqualitymanagementprincipleisacomprehensiveandfundamentalrule/belief,for leading and operating an organization, aimed at continually improving performance over the long term by focusing on customers while addressing the needs of all other stake holders".

Theeightprinciplesare...

1. Customer-FocusedOrganization

2. Leadership

3. InvolvementofPeople

4. ProcessApproach

5. System Approachto Management

6. ContinualImprovement

7. FactualApproachtoDecisionMaking and

8. MutuallyBeneficialSupplierRelationships.

1. **Principle 1 - Customer-Focused Organization:** "Organizations depend on their customers and therefore should understand current and future customer needs, meet customer requirements and strive to exceed customer expectations".

   Stepsinapplicationofthisprinciple are

   - Understand customer needs and expectations for products, delivery, price, dependability, etc.

- Ensure a balanced approach among customers and other stake holders (owners, people, suppliers, local communities and society at large) needs and expectations.
- Communicatetheseneedsandexpectationsthroughouttheorganization.
- Measurecustomersatisfaction&actonresults,and
- Manage customerrelationships.

2. **Principle2-Leadership:**"Leadersestablishunityofpurposeanddirectionof the organization. They should create and maintain the internal environment in which people can become fully involved in achieving the organization's objectives."

Stepsinapplicationofthisprincipleare...

- Be proactive andleadbyexample.
- Understandandrespondto changesintheexternal environment.
- Consider the needs of all stake holders including customers, owners, people, suppliers, local communities and society at large.
- Establishaclearvisionoftheorganization'sfuture.
- Establish shared values and ethical role models at all levels of the organization.
- Buildtrustandeliminatefear.
- Provide people with the required resources and freedom to act with responsibility and accountability.
- Inspire,encourageandrecognizepeople'scontributions.
- Promote openandhonestcommunication.
- Educate,trainand coach people.
- Setchallenginggoalsandtargets,and
- Implementastrategytoachievethesegoalsandtargets.

3. **Principle3 -InvolvementofPeople:** "People atall levels arethe essence of an organization and their full involvement enables their abilities to be used for the organization's benefit".

Stepsinapplicationofthisprincipleare...

- Acceptownershipandresponsibilitytosolveproblems.
- Actively seek opportunities to make improvements, and enhance competencies, knowledge and experience.
- Freelyshareknowledge&experienceinteams.
- Focuson the creationofvalueforcustomers.
- Beinnovativeinfurtheringtheorganization'sobjectives.
- Improve the way of representing the organization to customers, local communities and society at large.
- Helppeoplederivesatisfactionfromtheirwork,and
- Make peopleenthusiasticandproud tobe partoftheorganization.

4. **Principle4-ProcessApproach:**"Adesiredresultisachievedmoreefficiently when related resources and activities are managed as a process."

Stepsinapplicationofthisprincipleare...

- Definetheprocess toachieve thedesired result.
- Identifyandmeasuretheinputsandoutputsofthe process.
- Identifytheinterfacesofthe processwith thefunctionsoftheorganisation.
- Evaluate possible risks, consequences and impacts of processes on customers, suppliers and other stake holders of the process.
- Establishclearresponsibility,authority,andaccountabilityformanagingthe process.
- Identify internal and external customers, suppliers and other stake holders of the process, and
- Whendesigningprocesses,considerprocesssteps,activities,flows,control measures, training needs, equipment, methods, information, materials and other resources to achieve the desired result.

5. **Principle5-SystemApproachtoManagement:**"Identifying,understanding and managing a system of interrelated processes for a given objective improves the organization's effectiveness and efficiency."

Stepsinapplicationofthisprincipleare...

- Define the system by identifying or developing the processes that affect a given objective.
- Structurethesystemtoachievetheobjectivein themostefficientway.
- Understandtheinterdependenciesamongtheprocessesofthesystem.
- Continually improve the system through measurement and evaluation, and

   Estimatethe resourcerequirements and establish resourceconstraints priorto action.

6. **Principle 6 - Continual Improvement:** "Continual improvement should be a permanentobjectiveoftheorganization."Stepsinapplicationofthisprinciple are...

   - Make continual improvement of products, processes and systems an objective for every individual in the organization.
   - Apply the basic improvement concepts of incremental improvement and breakthrough improvement.
   - Use periodic assessments against established criteria of excellence to identify areas for potential improvement.
   - Continuallyimprovetheefficiencyandeffectivenessofallprocesses.
   - Promotepreventionbasedactivities.
   - Provide every member of the organization with appropriate education and training, on the methods and tools of continual improvement such as the PlanDo-Check-Act cycle, problem solving , process re-engineering, and process innovation.
   - Establishmeasuresandgoalstoguideandtrackimprovements,and Recognize improvements.

7. **Principle7-FactualApproachtoDecisionMaking:**"Effectivedecisionsare based on the analysis of data and information."

Stepsinapplicationofthisprincipleare...

- Takemeasurementsandcollectdataandinformationrelevanttothe objective.

- Ensure that the data and information are sufficiently accurate, reliable and accessible.

- Analysesthedataandinformationusingvalid methods.

- Understandthevalueofappropriatestatisticaltechniques,and
- Makedecisionsandtakeactionbasedontheresultsoflogicalanalysis balanced with experience and intuition.

8. **Principle 8 - Mutually Beneficial Supplier Relationships**: "An organization and its suppliers are interdependent, and a mutually beneficial relationship enhances the ability of both to create value."

   Stepsinapplicationofthisprincipleare...

- Identifyand select keysuppliers.

- Establishsupplierrelationshipsthatbalanceshort-termgainswithlong-term considerations for the organization and society at large.

- Create clearand opencommunications.

- Initiatejointdevelopmentandimprovementofproductsand processes.

- Jointlyestablishaclearunderstandingofcustomers'needs.

- Shareinformationandfutureplans,and

- Recognizesupplierimprovementsandachievements.

QualitySystemDesign

A quality system is composed of the standards and procedures that are developed to ensure that the level of quality desired is repeated in every unit of aproductorservice.Thisportionofthequalitysystem isveryconcreteand can be measured and managed. Before you start,

yourorganizationshouldestablishacoreteamtocarrytheperformancesystemdesign process forward.

The eight stepsofthedesign processare:

1. Understand and map all business structures and processes. This forces employees involved in designing a performance measurement system to think through and understand the entire organization, its competitive position, the environment in which it operates, and its businessprocesses.Thiswillalsoallowforcompleteunderstandingof customer touch points and how the different operations in the organization affect the customer’s perception of quality.
2. Develop business performance priorities. The performance measurement system should support the stakeholders’ requirements from the organization’s strategy through to its business processes. Thisorderofprioritiesmustbeinplacewellbeforetheprocessenters the actual design phase.
3. Understand the current performance measurement system. Every organization has some kind of measurement system in place. For this reason, there are basically two ways to approach the design and implementation of a new performance measurement system. Either you can scrap the old system and introduce a new one as a replacement, or you can redevelop the existing system. Both approachescanwork,buttheformerapproachismorelikelytoleadto trouble. People will cling to the old measurement system and either use both systems simultaneously or use the old one and simply go through the motions of the new one. You can eliminate this outcome by taking the second approach.
4. Develop performance indicators. The most important element of a performancemeasurementsystemisthesetofperformanceindicators you willuse tomeasure yourorganization’sperformanceand business processes. This is the point in the design process where the top-down approach meets the bottom-up design approach and where the broad masses of the organization become involved. The purpose of this step is to develop the performance measurement system with an appropriate number of relevant and accurate performance indicators.
5. Decide how to collect the required data. Developing perfect performanceindicatorsthatwilltellyoueverythingyoueverwantedto know about what goes on in your organization is one thing, but being able to collect the data required to calculate these performance indicators is a completely different matter. This issue must initially be addressed during the development of the performance indicators so that you avoid selecting those that can never actually be measured. There will be trade-offs of cost and time versus the benefits of collecting data, but a likely middle ground between perfect data/high cost and no data/no cost will be found.
6. Design reporting and performance data representation formats. In this step, you decide how the performance data will be presented to the users; how the users should apply the performance data for management,monitoring,andimprovement;andwhowillhaveaccess to performance data. After you finish, you should have a performance measurement system that has a solid place in your organization’s overall measurement based management system.

7. Test and adjust the performance measurement system. Your first attempt at the performance measurement system will probably not be perfect—there are bound to be performance indicators that do notwork as intended, conflicting indicators, undesirable behavior, and problems with data availability. This is to be expected. In this step you shouldextensivelytestthesystem andadjusttheelementsthatdonot work as planned.
8. Implement the performance measurement system. Now it's time to put your system to use. This is when the system is officially in place and everyone can start using it. This step involves issues such as managinguseraccess,training,anddemonstratingthesystem.Thisis not an absolute process that needs to be followed to the letter in order for it to work. In some cases, one or more steps may be unnecessary; in others, additional steps may be needed. It's up to you to make the necessary adjustments to the process to maximize the probability of the system's success.

PRODUCTION AND OPERATIONS MANAGEMENT

Operations management is an area of management concerned with overseeing, designing, and controlling the process of production and redesigning business operations in the production of goods or services. It involves the responsibility of ensuring that business operations are efficient in terms of using as few resources as needed,andeffectiveintermsofmeetingcustomerrequirements.Itisconcernedwith managing the process that converts inputs (in the forms of raw materials, labor, and energy) into outputs (in the form of goods and/or services).

The relationship of operations management to senior management in commercial contexts can be compared to the relationship of line officers to highest-level senior officers in military science. The highest-level officers shape the strategy and revise it overtime, while the line officersmake tacticaldecisionsinsupport ofcarryingout the strategy. In business as in military affairs, the boundaries between levels are not always distinct; tactical information dynamically informs strategy, and individual people often move between roles over time.

According to the United States Department of Education, operations management is the field concerned with managing and directing the physical and/or technical functions of a firm or organization, particularly those relating to development, production, and manufacturing. Operations management programs typically include instruction in principles of general management, manufacturing and production systems, factory management, equipment maintenance management, production control, industrial labor relations and skilled trades supervision, strategic manufacturing policy, systems analysis, productivity analysis and cost control, and materials planning.[1][2]Management, including operations management, is like engineeringin that it blendsart with applied science.People skills, creativity, rational analysis, and knowledge of technology are all required for success.

Operationsmanagement

In 1911 Frederick Taylor published his "The Principles of Scientific Management",[4]in which he characterized scientific management as:

1. Thedevelopmentof a truescience;
2. Thescientificselectionofthe worker;
3. Thescientificeducationanddevelopmentoftheworker;
4. Intimatefriendlycooperationbetweenthemanagementandthe workers.

Taylorisalsocreditedfordevelopingstopwatch timestudy,thiscombinedwithFrank andLillianGilbrethmotionstudygavewaytotimeandmotionstudywhichiscentered on the concepts of standard method and standard time. Other contemporaries of Taylor worth remembering are Morris Cooke (rural electrification in 1920s and implementer of Taylor's principles of scientific management in the Philadelphia's DepartmentofPublicWorks),CarlBarth(speed-and-feed-calculatingsliderules)and Henry Gantt (Gantt chart). Also in 1910 Hugo Diemer published the first industrial engineering book: Factory Organization and Administration.
In 1913 Ford W. Harris published his "How Many parts to make at once" in which he presented the idea of the economic order quantity model. He described the problem as follows:

"Interest on capital tied up in wages, material and overhead sets a maximum limit to the quantityof partswhich canbeprofitablymanufacturedat onetime;"set-up" costs on the job fix the minimum. Experience has shown one manager a way to determine the economicalsizeof lots"[5]

In 1931 Walter Shewhart published his Economic Control of Quality of Manufactured Product, the first systematic treatment [6]of the subject of Statistical Process Control.

Inthe1940sMethods-timemeasurement(MTM)wasdevelopedbyH.B.Maynard,JL Schwab andGJ Stegemerten. MTMwasthefirst of a seriesofpredeterminedmotion time systems, predetermined in the sense that estimates of time are not determined inlocobutarederivedfromanindustrystandard.Thiswasexplainedbyitsoriginators in a book they published in 1948 called "Method-Time Measurement".[7]

In 1943, in Japan, Taiichi Ohno arrived at Toyota Motor company. Toyota evolved a unique manufacturing system centered on two complementary notions: just in time (produce only what is needed) and autorotation (automation with a human touch). Regarding JIT, Ohno was inspired by American supermarkets: workstations functioned like a supermarket shelf where the customer can get products they need, at the time they need and in the amount needed, the workstation (shelf) is then restocked. Autorotation was developed by Toyoda Sakichi in Toyoda Spinning and Weaving:anautomaticallyactivatedloomthatwasalsofoolproof,thatisautomatically detected problems. In 1983 J.N Edwards published his "MRP and Kanban-American style"inwhichhedescribedJITgoalsintermsofsevenzeros:[8]zerodefects,zero (excess) lot size, zero setups, zero breakdowns, zero handling, zero lead time and zero surging. This period also marks the spread of Total Quality Management in Japan, ideas initially developed by American authors such as Deming, Juran and Armand V. Feigenbaum. Schnonberger[9]identified seven fundamentals principles essential to the Japanese approach:

1. Processcontrol:SPCandworkerresponsibilityoverquality
2. Easyable-to-see quality:boards, gauges,meters, etc. and poka-yoke
3. Insistenceoncompliance:"qualityfirst"
4. Line stop:stopthe lineto correctquality problems
5. Correctingone'sownerrors:workerfixed adefective part if heproduced it
6. The100%check:automatedinspectiontechniquesandfoolproofmachines
7. Continualimprovement:ideallyzerodefects

In 1987 the International Organization for Standardization (ISO), recognizing the growing importance of quality, issued the ISO 9000, a family of standards related to quality management systems. There has been some controversy thought regarding the proper procedures to follow and the amount of paperwork involved.

Meanwhile in 1964, a different approach was developed by Joseph Orlicky as a response to the TOYOTA Manufacturing Program: Material Requirements Planning (MRP) at IBM, latter gaining momentum in 1972 when the American Production and InventoryControlSocietylaunchedthe"MRPCrusade".Oneofthekeyinsightsofthis management system was the distinction between dependent demand and independentdemand.Independentdemandisdemandwhichoriginatesoutsideofthe production system, therefore not directly controllable, and dependent demand is demand for components of final products, therefore subject to being directly controllable by management through the bill of materials, via product design.

Recent trends in the field revolve around concepts such as Business Process Reengineering (launched by Michael Hammer in 1993[10]), Lean Manufacturing, Six Sigma (an approach to quality developed at Motorola between 1985-1987) and Reconfigurable Manufacturing Systems.

The term lean manufacturing was coined in the book The Machine that Changed the World.[11]Six Sigma refers to control limits placed at six (6) standard deviations from the mean of a normal distribution, this became very famous after Jack Welch of General Electric launched a company-wide initiative in 1995 to adopt this set of methods. More recently, Six Sigma has included DMAIC (for improving processes) and DFSS (for designing new products and new processes)

Topics

Production systems

In a job shop machines are grouped by technological similarities regarding transformationprocesses,thereforeasingleshopcanworkverydifferentproducts(in this picture four colors). Also notice that in this drawing each shop contains a single machine.

FlexibleManufacturingSystem:inthemiddletherearetworailsfortheshuttletomove pallets between machining centers (there are also FMS which use AGVs), in front of each machining centerthere isa buffer and in left we have a shelf for storing pallets. Usuallyinthebackthereisasimilarsystemformanagingthesetoftoolsrequiredfor different machining operations.

Aproductionsystemcomprisesboththetechnologicalelements(machinesandtools) and organizational behavior (division of labor and information flow). An individual production system is usually analyzed in the literature referring to a single business, therefore it's usually improper to include in a given production system the operations necessarytoprocessgoodsthatareobtainedbypurchasingortheoperationscarried by the customer on the sold products, the reason being simplythat since businesses needtodesigntheirownproductionsystemsthisthenbecomesthefocusofanalysis, modeling and decision making (also called "configuring" a production system) .

A first possible distinction in production systems (technological classification) is between process production and part production.

- Process production means that the product undergoes physical -chemical transformations and lacks assembly operations, therefore the original raw materials cant easily be obtained from the final product, examples include: paper, cement and nylon.
- Part production (excurse and ovens) comprises both manufacturing systems and assembly systems. In the first category we find job shops, manufacturing cells, flexible manufacturing systems and transfer lines, in the assembly categorywe havefixed position systems,assemblylinesandassemblyshops (both manual and/or automated operations).[12]

Delivery lead time is the blue bar, manufacturing time is the whole bar, the green bar isthe difference between the two.

Anotherpossibleclassification[13]isonebasedonLeadTime(manufacturingleadtime vs delivery lead time): Engineer to Order (ETO, Purchase to Order (PTO), Make to Order (MTO), Assemble to Order (ATO) and Make to Stock (MTS). According to this classification different kinds of systems will have different customerorderdecoupling points(CODP),meaningthatWorkinProgress(WIP)cyclestocklevelsarepractically nonexistent regarding operations located after the CODP (except for WIP due to queues). (See Order fulfillment)

The concept of production systems can be expanded to the service sector world keeping in mind that services have some fundamental differences in respect to material goods: intangibility, client always present during transformation processes, no stocks for "finished goods". Services can be classified according to a service process matrix:[14]degree of labor intensity (volume) vs. degree of customization (variety). With a high degree of labor intensity there are Mass Services (e.g., commercialbankingbillpaymentsandstateschools)andProfessionalServices(e.g., personalphysiciansandlawyers), while witha lowdegreeof laborintensitythereare Service Factories (e.g., airlines and hotels) and Service Shops (e.g., hospitals and auto mechanics).

The systems described above are ideal types: real systems may present themselves as hybrids of those categories. Consider, for example, that the production of jeans involves initially carding, spinning, dyeing and weaving, then cutting the fabric in different shapesandassemblingthe parts inpantsor jacketsbycombiningthefabric with thread, zippers and buttons, finally finishing and distressing the pants/jackets before being shipped to stores.

Thebeginningcanbeseenasprocessproduction,themiddleaspartproductionand the end again as process production: it's unlikely that a single company will keep all the stages of production under a single roof, therefore the problem of vertical integration and outsourcing arises. Most products require, from a supply chain perspective, both process production and part production.

Metrics: efficiencyand effectiveness

Operations strategy concerns policies and plans of use of the firm productive resources with the aim of supporting long term competitive strategy. Metrics in operations management can be broadly classified into efficiency metrics and effectiveness metrics. Effectiveness metrics involve:

1. Price(actuallyfixedbymarketing,butlowerboundedbyproductioncost):purchase price, use costs, maintenance costs, upgrade costs, disposal costs
2. Quality:specificationandcompliance
3. Time:productiveleadtime,informationleadtime,punctuality
4. Flexibility:mix,volume,gamma
5. Stockavailability

A more recent approach, introduced by Terry Hill,[16]involves distinguishing competitive variables in order winner and order qualifiers when defining operations strategy. Order winners are variables which permit differentiating the company from competitors,whileorderqualifiersareprerequisitesforengaginginatransaction.This view can be seen as a unifying approach between operations management and marketing (see segmentation and positioning).

Productivity is a standard efficiency metric for evaluation of production systems, broadlyspeaking a ratio between outputs and inputs, and can assume many specific forms, for example: machine productivity, workforce productivity, raw material productivity, warehouse productivity (=inventory turnover).

It isalso usefulto breakup productivityin use U(productive percentage of totaltime) and yield η (ratio between produced volume and productive time) to better evaluate production systems performances. Cycle times can be modeled through manufacturing engineering if the individual operations are heavily automated, if the manual component is the prevalent one, methods used include: time and motion study, predetermined motion time systems and work sampling.

ABCanalysisisamethodforanalyzinginventorybasedonParetodistribution,itposits thatsincerevenuefromitemsoninventorywillbepowerlawdistributedthenitmakes sensetomanageitemsdifferentlybasedontheirpositiononarevenue-inventorylevel matrix, 3 classesareconstructed (A,Band C)fromcumulative itemrevenues,so ina matrixeachitemwillhavealetter(A,BorC)assignedforrevenueandinventory.This methodpositsthatitemsawayfromthediagonalshouldbemanageddifferently:items intheupperpartaresubjecttoriskofobsolescence,itemsinthelowerpartaresubject to risk of stock out.

Throughput is a variable which quantifies the number of parts produced in the unit of time. Although estimating throughput for a single process maybe fairly simple, doing soforanentireproductionsysteminvolvesanadditionaldifficultyduetothepresence of queues which can come from: machine breakdowns, processing time variability, scraps, setups, maintenance time, lack of orders, lack of materials, strikes, bad coordination between resources, mix variability, plus all these inefficiencies tend to compound depending on the nature of the production system.

One important example of how system throughput is tied to system design are bottlenecks: in job shops bottlenecks are typically dynamic and dependent on schedulingwhile on transferlinesitmakessense to speakof "the bottleneck" since it can be univocally associated with a specific station on the line. This leads to the problem of how to define capacity measures, that is an estimation of the maximum output of a given production system, and capacity utilization.

Overall Equipment Effectiveness (OEE) is defined as the product between system availability, cycle time efficiency and quality rate. OEE is typically used as key performance indicator (KPI) in conjunction with the lean manufacturing approach.

Configurationandmanagement

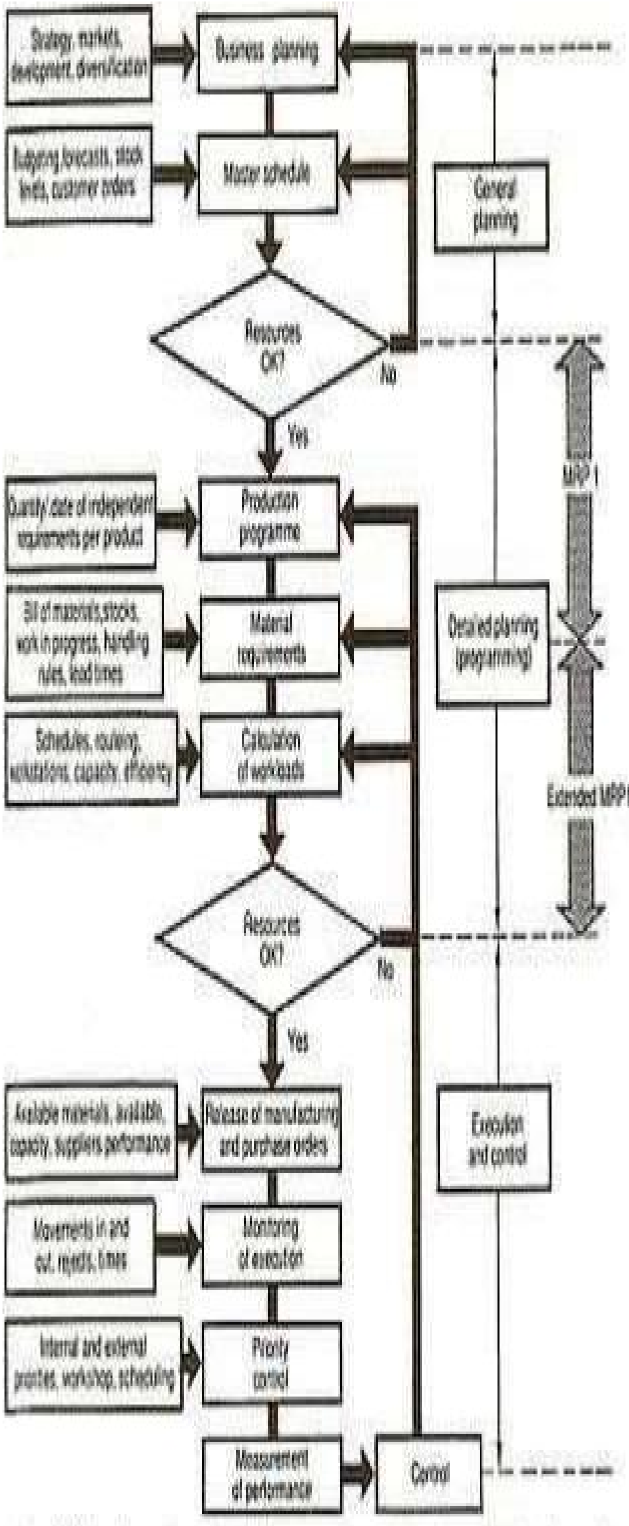
Classic EOQ model: trade-off between ordering cost (blue) and holding cost (red). Total cost (green) admits a global optimum. A typical MRPII construct: general planning (top) concerned with forecasts, capacity planning and inventory levels, programming (middle) concerned with calculation of workloads, rough-cut capacity planning, MPS, capacity requirements planning, traditional MRP planning, control (bottom) concerned with scheduling.

When introducing kanbans in real production systems attaining unitary lot from the startmaybeunfeasible,thereforethekanbanwillrepresentagivenlotsizedefinedby management

Value Stream Mapping, a representation of materials and information flows inside a company, mainly used in the lean manufacturing approach. The calculation of the time-line (bottom) usually involves using Little's Law to derive lead time from stock levels and cycle times

Designing the configuration of production systems involves both technological and organizational variables. Choices in production technology involve: dimensioning capacity, fractioning capacity, capacity location, outsourcing processes, process technology, automation of operations, trade-off between volume and variety (see Hayes-Wheelwright matrix). Choices in the organizational area involve: defining worker skills and responsibilities, team coordination, worker incentives and information flow.

Regarding the planning of production there is a basic distinction between the push approachandthepullapproach,withthelaterincludingthesingularapproachofJust in Time. Pull means that the production system authorizes production based on inventory level, push means that production occurs based on demand (for-casted or present, that is purchase orders). It should be noticed that an individual production system can be both push and pull, for example activities before the CODP may work under a pull system, while activities after the CODP may work under a push system.



Around 1980, over-frequent changes in sales forecasts, entailing continual readjustments in production, as well as the unsuitability of the parameters fixed buy the system, led MRP (Material Requirement Planning) to evolve into a new concept : Manufacturing Resource Planning or MRP2

Regarding the traditional pull approach a number of techniques have been developed based on the workof FordW.Harris[5](1913)which came to be know as the Economic order quantity (EOQ), which formed thebasisofsubsequenttechniquesas the Wagner-Within Procedure, the News Vendor Model, Base Stock Model and the Fixed Time Period Model. These models usually involve the calculation of cycle stocks and buffer stocks, the latter usually modeled as a function of demand variability. The Economic Production Quantity[17](EPQ) differs from the EOQ model only in that it assumes a constant fill rate for the part being produced, instead of the instantaneous refilling of the EOQ model.

Joseph Orlicklyand othersdeveloped MaterialRequirementPlanning(MRP) atIBM,essentiallyapushapproachto inventory control and production planning, which takes as input both the Master Production Schedule (MPS)andtheBillofMaterials(BOM) andgivesasoutputascheduleforthe materials(components)neededinthe production process. MRP therefore is a planning tool to manage purchase orders and production orders (alsocalledjobs).

The MPS can be seen as a kind of aggregate planning for production comingintwofundamentallyopposing varieties: plans which try to chase demand and level plans which try to keep uniform capacity utilization. Many models have been proposed to solve MPS problems:

Analyticalmodels(e.g.MageeBoodmanmodel) Exact optimization algorithmic models (e.g. LP and ILP) Heuristicmodels(e.g.Aucamp model).

MRPcanbebrieflydescribedasa3sprocedure:sum(differentorders),split(inlots),shift (intimeaccordingtoitemleadtime).Toavoidan"explosion"ofdataprocessingin MRP (number of BOMs required in input) planning bills (such as family bills or superbills) can be useful since theyallowa rationalization of input data into common codes.
MRP had some notorious problems such as infinite capacity and fixed lead times, which influenced successive modifications of the original software architecture in the form of MRP II and ERP.

In this context problems of scheduling (sequencing of production), loading (tools to use), part type selection (parts to work on) and applications of operations research have a significant role to play.

Lean Manufacturing isanapproach toproduction whicharose inToyota between the endofWorldWarIIandtheseventies.It comesmainlyfromtheideasofTaiichiOhno andToyodaSakichiwhicharecenteredonthecomplementarynotionsofJustinTime andAutorotation(jidoka),allaimedatreducingwaste(usuallyappliedinPDCAstyle). Someadditionalelementsarealsofundamental:[18]productionsmoothing(Heijunka), capacity buffers, setup reduction, cross-training and plant layout.

- Heijunka:productionsmoothingpresupposesalevelstrategyfortheMPSand a final assembly schedule developed from the MPS by smoothing aggregate production requirements in smaller time buckets and sequencing final assembly to achieve repetitive manufacturing. If these conditions are met, expected throughput can be equaled to the inverse of takt time. Besides volume,heijunkaalsomeansattainingmixedmodelproduction,whichhowever mayonlybe feasible trough setup reduction.A standardtoolforachievingthis is the Heijunka box
- Capacity buffers: ideally a JIT system would work with zero breakdowns, this however is very hard to achieve in practice, and nonetheless Toyota favors acquiring extra capacity over extra WIP to deal with starvation.
- Set-upreduction:typicallynecessarytoachievemixedmodelproduction,akey distinction can be made between internal and external setup. Internal setups (ex: removing a die) refers to tasks when the machine is not working, while external setups can be completed while the machine is running (ex: transporting dies).
- Cross training: important as an element of Autorotation, Toyota cross trained their employees through rotation, this served as an element of production flexibility, holistic thinking and reducing boredom.
- Layout: U-shaped lines or cells are common in the lean approach since they allow for minimum walking, greater worker efficiency and flexible capacity.

A series of tools have been developed mainly with the objective of replicating Toyota success: a very common implementation involves small cards known as kanbans, thesealsocomeinsomevarieties:reorderkanbans,alarmkanbans,trianglekanbans, etc. In the classic kanban procedure with one card:

- Partsarekeptincontainerswiththeirrespective kanbans
- Thedownstreamstationmovesthekanbantotheupstreamstationandstarts producing the part at the downstream station

- The upstream operator takes the most urgent kanban from his list (compare to queue discipline from queue theory) and produces it and attach its respective kanban

The two-cardkanbanprocedurediffersa bit:

- Thedownstreamoperatortakestheproductionkanbanfromhislist
- If required parts are available he removes the move kanban and places them inanother box, otherwise he chooses another production card
- Heproducesthepartandattachitsrespectiveproductionkanban
- Periodically a mover picks up the move kanbans in upstream stations and search for the respective parts, when found he exchanges production kanbans for move kanbans and move the parts to downstream stations

Since the number of kanbans in the production system is set by managers as a constantnumber,the kanbanprocedureworksasWIPcontrollingdevice,whichfora given arrival rate, per Little's Law, works as lead time controlling device.

In Toyota the TPS represented more of a philosophy of production than a set of specifictools,thelatterwouldinclude:SMED,ValueStreamMapping,5S,poka-yoke, elimination of time batching, lot-size reduction, Rank Order Clustering, single point scheduling, multiprocess handling and back flush accounting.

Seen more broadly JIT can include methods such as: product standardization and modularity, group technology, total productive maintenance, job enlargement, job enrichment, flat organization and vendor rating (JIT production is very sensitive to replenishment conditions).

Modeling

Therearealsofieldsofmathematicaltheorywhichhavefoundapplicationsinthefield of operations management such as operations research, mainly mathematical optimization problems and queue theory. Queue theory is employed in modeling queue and processing times in production systems while mathematical optimization drawsheavilyfrommultivariatecalculusandlinearalgebra.Queuetheoryisbasedon Markov chains and stochastic processes. It also worth noticing that computations of safety stocks are usually based on modeling demand as a normal distribution.

When analytical models are not enough, managers may resort to using simulation. Simulation has been traditionally done thought the Discrete event simulation paradigm,wherethesimulationmodelpossessesastatewhichcanonlychangewhen adiscreteeventhappens,whichconsistsofaclockandlistofevents.Themorerecent Transactionlevel modeling paradigm consists of a set of resources and a set of transactions:transactionsmovethroughanetworkofresources(nodes)accordingto a code, called process.

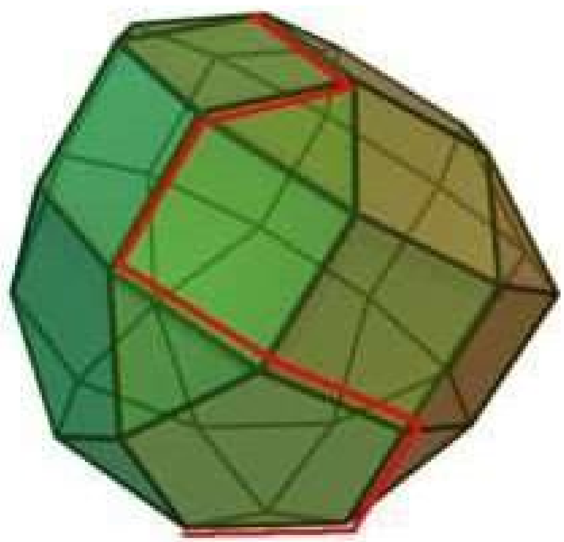
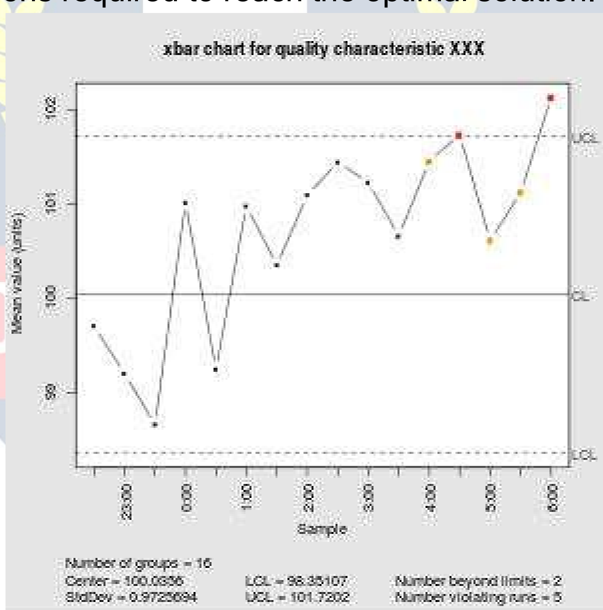


Illustration of the Simplex method, a classical approach to solving LP optimization problems and also integer programming (ex:branch and cut). Mainly used in push approach [19]but also in production system configuration.[20]The interior of the green polypore geometricallyrepresentsthefeasible region,while theredline indicatesthe sequence of pivot operations required to reach the optimal solution.



A control chart: process output variable is modeled by a probability density function and for each statistic of the sample an upper control line and lower control line are fixed, when the statistic moves out of bounds, an alarm is given and possible causes are investigated. In this drawing the statistic of choice is the mean and red points represent alarm points.

Since real production processes are always affected by disturbances in both inputs andoutputs,manycompaniesimplementsomeformofQualitymanagementorquality control.Qualitycontrol tools include check sheets,pareto charts,Ishikawa diagrams, control charts, which are used in approaches like Total quality management and Six

Sigma. Keeping quality under control is relevant to both increasing customer satisfaction and reducing processing waste.

Operationsmanagementtextbooksusuallycoverdemandforecasting,eventhoughit is not strictly speaking an operations problem, because demand is related to some productionsystemsvariables.Forexample,aclassicapproachindimensioningsafety stocksrequirescalculatingstandarddeviationofforecasterrors.Demandforecasting isalsoacriticalpartofpushsystems,sinceorderreleaseshavetobeplannedahead of actual clients orders. Also any serious discussion of capacity planning involves adjusting company outputs with market demands.

Safety,RiskandMaintenance

Other important management problems involve maintenance policies (see also reliability engineering and maintenance philosophy), safety management systems (seealsosafetyengineeringandRiskmanagement),facilitymanagementandsupply chain integration.

ORGNISATIONBEHAVIOUR

INTRODUCTION

Organizations are social systems. If one wishes to work in them or to manage them, it is necessary to understand how they operate. Organizations combine science and people –technology and humanity. Unless we have qualified people to design and implement, techniques alone will not produce desirable results. Human behavior in organizations is rather unpredictable. It is unpredictable because it arises from people'sdeep-seatedneedsandvaluesystems.However,itcanbepartially understood in terms of the framework of behavioral science, management and other disciplines. There is no idealistic solution to organizational problems. All that can be done is to increase our understanding and skills so that human relations at work can be enhanced

ORGNISATIONBEHAVIOUR-CONCEPTS

Organizational Behavior is field of study that investigates the impact that individuals, groups and structure have on behavior within organization. It is the study and applicationofknowledgeabouthowpeopleactwithinorganizations.Itisahumantool for human benefit. It applies broadly to the behavior of people in all types of organizations, such as business, government, schools and services organizations. It covers three determinants of behavior in organizations: individuals, groups, and structure. OB is an applied field. It applies the knowledge gained about individuals, and the effect of structure on behavior, in order to make organizations work more effectively. OB covers the core topics of motivation, leadership behavior and power, interpersonal communication, group structure and process, learning, attitude development and perception, change process, conflict, job design and work stress. Before studying organizational behavior, it is desirable to know the meanings of organization and management.

Organization

Organization as a purposeful system with several subsystems where individuals and activities are organized to achieve certain predetermined goals through division of labor and coordination of activities. Division of labor refers to how the work is divided among the employees and coordination refers to how all the various activities performed by theindividuals are integrated or brought together to accomplish the goals of the organization. The term organizing is used to denote one aspect of the managerial activities when he or she is preparing and scheduling the different tasks that need to be completed for the job to be done.

Management

It refersto the functional processof accomplishing the goals of theorganization through thehelpofothers.Amanagerisanindividualwhoisgiventheresponsibilityforachieving the goals assigned tohim or her as part of the overall goals of theorganization and who is expected to get the job done. The terms o f top management, lower management are frequently used to indicate the hierarchical levels of those who are engaged in the process of getting the goals of the organization accomplished.

KeyElementsofOrganizationalBehavior

Thekeyelementsinorganizationalbehaviorarepeople,structure,technologyandthe external elements in which the organization operates. When people join together in an organization to accomplish an objective, some kind of infrastructure is required. People also use technology to help get the job done, so there is an interaction of people, structure and technology. In addition, these elements are influenced by the external environment, and they influence it. Each o f the four elements o f organizational behavior will be considered briefly.

People

People make up the internal social system of the organization. They consist of individualsandgroups,andlargegroupsaswellassmallones.Peoplearetheliving, thinking, feelings beings who created the organizations. It exists to achieve their objectives. Organizations exist to serve people. People do not exist to serve organizations. The work force is one of the critical resources t hat need to be managed. In managing human resources, managers have to deal with:

i) Individual employee who are expected to perform the tasks allotted to themii) Dyadic relationships such as superior-subordinate interactionsiii) Groups who work as teams and have the responsibility for getting the job done,iv) People outside the organization system such as customers and government officials

Structure

Structuredefinestheofficialrelationshipsofpeopleinorganizations.Differentjobsare required to accomplish all of an organization's activities. There are managers and employees, accountants and assemblers. These people have to be related in some structuralwaysothattheirworkcanbeeffective.Themainstructurerelatestopower andtoduties.Forexample,onepersonhasauthoritytomakedecisionsthataffectthe workofotherpeople.Someofthekeyconceptsoforganizationstructurearelistedas below:

a) **Hierarchy of Authority:**This refers to the distribution of authority among organizational positions and authority grants the position holder certain rights including right to give direction to others and the right to punish and reward.

b) **Division of Labor:** This refers to the distribution of responsibilities and the way in whichactivitiesaredividedupandassignedtodifferentmembersoftheorganization is considered to be an element of the social structure.

c) **Span of Control:**This refers to the total number of subordinates over whom a manager has authority

d) **Specialization:**This refers to the number of specialties performed within the organization.

e) **Standardization:**It refers to the existence of procedures for regularly recurring events or activities

f) **Formalization:**This refers to the extent to which rules, procedures, and communications are written down

g) **Centralization:**Thisreferstotheconcentrationofauthoritytomakedecision.

h) **Complexity:** This refers to both vertical differentiation and horizontal differentiation. Vertical differentiation: outlines number of hierarchical levels; horizontal differentiation highlights the number of units within the organization (e.g. departments,divisions)Organizationscanbestructuredasrelativelyrigid,formalized systems or as relatively loose, flexible systems. Thus the structure of the organizations can range on a continuum of high rigidity to high flexibility. There are two broad categories of organization:

- Mechanisticformof organization
- OrganicformofOrganization

MechanisticformofOrganization

It is characterized by high levels of complexity, formalization and centralization. A highlymechanisticsystemischaracterizedbycentralizeddecisionmakingatthetop, a rigid hierarchy of authority, well but narrowly defined job responsibilities especially at lower levels, and extensive rules and regulations which are explicitly make known toemployeesthroughwrittendocuments.Inmechanisticorganization,laborisdivided and subdivided into many highly specialized tasks (high complexity), workers are granted limited discretion in performing theirs t a skis and rules and procedures are carefully defined (high formalization); and there is limited participation in decision making which tends to be conducted at the highest levels of management high centralization.

OrganicformofOrganization

A highly organic system is characterized by decentralized decision-making which allows people directly involved with the job to make their own decisions, very few levelsinthehierarchywithflexibleauthorityandreportingpatters,looselydefinedjob responsibilitiesformembers,andveryfewwrittenrulesandregulations.Itisrelatively simple, informal and decentralized. Compared with mechanistic organizations, employeesinorganicorganizations,suchasdesignfirmsorresearchlabs,tendtobe more generalist in their orientation.

JobsandTasks

Job refersto the sumtotalof anindividual’sassignmentat the workplace.Tasksrefer to the various activities that need to be performed to get the job done. The nature of tasks,it’s executives by various individuals, nature of interdependence and inter-relatedness,groupactivitiesetchaveimplicationfororganizationaleffectiveness.Thus the jobs and tasks have to be designed and managed properly

Core Job Characteristics: There are five job characteristics which are central to providing potential motivation to workers. They are: Skill variety, Task identity, Task significance, Autonomy, and Feedback from the job itself.

i) T**ask Variety:** This denotes the extent to which any particularly job utilizes a range of skills, abilities and talents of the employees. If number of different skills is used by the employee on the job, the job is going to provide challenge and growth experience to the workers.

ii) T**ask Identity:** This indicates the extent to which the job involves a 'whole' and identifiable piece of work. If the job involves the whole components (eg –painting a portrait), then the individual can identify with the ultimate creation turned out by him and derive pride and satisfaction from having done a good job.

iii) T**ask significance:** This refers to the meaningfulness or significance of the impact that a job has on the lives of others –both inside and outside of the organization. If what one does has an impact on the well being of others, the job becomes psychologically rewarding to the person who performs it.

iv) A**utonomy:** This refers to the extent to which the job provides an employee the freedom, independent and discretion to schedule work and make decision and formulate the procedures to get the job done without interference from others. The greater the degree of autonomy, the more the person doing the job feels in control.

v) F**eedback from the Job itself:** This indicates the extent to which the person who is working on the job can assess whether they are doing things right or wrong even as they are performing the job. That is, the job itself is stimulating one and enjoyable.

JobDesign:Jobscanbedesignedtorangefromhighlysimpletohighlycomplextasksin terms of the use of the workers skill. Some of the job design options are as follows:

i) Job Simplification: The jobs are broken down into very small parts as in the assembly line operations where a fragmented task is repeatedly done over and over again by the same individual.

ii) JobRotation: Thisinvolvesmovingemployeesamongdifferenttasksovera period of time. Management doesnot have tobotherwith combiningtasks, but at the same time, the workers do not get bored with doing one simple task over several years. The employee is periodically

Rotatedfromonejobto anotherwithin theworksetting

iii) Job Enlargement: This involves simply adding more tasks to the job so that the workers have a variety of simple tasks to perform rather than doing just one task repetitively. Two or more tasks are combined and the individual does the combined tasks altogether.

iv) JobEnrichment: Thisoffersagreaterchallengetotheworkersbecauseit requires the use of variety of skills possessed by them. This involves building in motivatingfactorsintothejob,givingtheworkersmoreresponsibilityandcontrolover work, and offering learning opportunities for the individual on the job.

Technology

Organizations have technologies for transforming inputs and outputs. These technologies consist of physical objects, activities and process, knowledge, all of which are brought to bear on raw materials labor and capital inputs during a transformation process. The core technology is that set of productive components most directly associated with the transformation process, for example, production or assemblylineinmanufacturingfirm.Technologyprovidesthephysicalandeconomic resources with which people work. They cannot accomplish much with their bare hands, so they build buildings, design machines, create work processes and assemble resources. The technology that results has a significant influence on workingrelationships.Anassemblylineisnotthesameasaresearchlaboratory,and asteelmilldoesnothavethesameworkingconditionsasahospital.Thegreatbenefit of technology is that it allows people to do more and better work, but it also restricts people in various ways. It has costs as well as benefits.

ClassificationofTechnology:

Thomson classified technology into three categories: Long-linked technology, Mediating Technology and Intensive Technology.

i) **Long linked Technology:** In this, tasks are broken into a number of sequential and interdependent steps, where the outputs of one unit become the input of the next. (E.g. Assembly line) this facilitates to have high volume of output and efficiency. This technology calls for mechanistic structures with high levels of specialization, standardization and formalization.

ii) **Mediating Technology:** This links different parties who need to be brought togetherin a direct or indirect way (eg. Banks –use mediating technology to lend money to borrowers by taking money from depositors)

iii) **IntensiveTechnology:**Itisusedwhenagroupofspecialistsarebroughttogether to solve complex problems using a variety of technologies (eg. Hospital –parties are treated with the help of experts drawn from different fields of specialization). Coordination of the different activities is achieved in the system primarily through mutual adjustment among those engaged in solving the problem in the different units. Organic structures would fit in this system using intensive technology.

Environment

All organizations operate within an external environment. A single organization does not exist alone. It ispart of a largersystem that contains thousand of otherelements. All these mutually influence each other in a complex system that becomes the life styleofthepeople.Individualorganization,suchasafactoryorschoolcannotescape from being influenced by this external environment. It influences the attitudes of people,affectsworkingconditions,andprovidescompetitionforresourcesandpower.
Every organization interacts with other members of its environment. The interactions allowtheorganizationtoacquirerawmaterial,hireemployees,securecapital,obtain knowledge, and build, lease or buy facilities and equipment. Since the organization process a product or service for consumption by the environment, it will also interact with its customers. Other environmental actions, who regulate or over see these exchanges, interact with the organization as well (distributors, advertising agencies, trade associations, government of the countries in which business is conducted)

TwoDistinct SetsofEnvironment:

i) **Specific Environment:** This includes the suppliers, customers, competitors, governments' agencies, employees, unions, political parties etc.

ii) **General Environment:** It includes the economic, political, cultural, technological and social factors in which the organization embedded. Organizations are embedded in an environment within which they operate. Some of the external factors may be completely beyond the control of the organization to change, such as the cultural, social or economic, or governmental aspects. However, many of the other factors such as sizing up the market, being in tune with the technological changes takes place, being a step ahead of competition, or stocking up and buffering supplies when certain materials are likely to be in short supply, are all within the control of the organization. Effectively managing these situations, however, requires constant and close vigilance, adaptability to changes, and being able to manage problematical situations through good decisions making. Those organizationswhichareproactive(thatis,watchfulandtakeactionbeforecrisis situationsoccur)andcanmanagetheirexternalenvironmentaremoreeffective than those that are reactive (that is, caught off guard and wake up afterfacing the crises situation) and are unable to cope effectively.

BasicApproachesofOrganizational Behavior

i) **AnInterdisciplinaryApproach:**Itisintegratingmanydisciplines.Itintegrates socialsciencesandotherdisciplinesthatcancontributetotheOrganizational Behavior. It draws from these disciplines any ideas that will improve the relationships between people and organization. Its interdisciplinary nature is similar to that of medicine, which applies physical, biological and social scienceinto a workable medical practice. Organizations must have people, and people working toward goals must have organizations, so it is desirable to treat the two as a working unit.

ii) **ScientificManagementApproach:**Thefundamentalconcernofthescientific managementschoolwastoincreasetheefficiencyoftheworkerbasically through good job design andappropriate trainingof the workers.Tayloristhe father of the scientific management movement and he developed many ides to increase organizational efficiency. Taylor showed that through proper job design, worker selection, employee training and incentives, productivity can beincreased.Thescientificmanagementschooladvocatedthatefficiencycan be attained by finding the right methods to get the job done, through specialization on the job, by planning and scheduling, by using standard operating mechanisms, establishing standard times to do the job, by proper selection and training of personnel and through wage incentives.

iii) **AHumanResources(Supportive)Approach:**Itisdevelopmentalapproach concernedwiththegrowthanddevelopmentofpeopletowardhigherlevelsof competencycreativityandfulfillment,becausepeoplearethecentralresource in any organizations and any society. It helps people grow in self-control and responsibility and then it tries to create a climate in which all employees may contribute to the limitsof theirimproved abilities. It isassumed thatexpanded capabilities and opportunities for people will lead directly to improvements in operating effectiveness. Work satisfaction will be a direct result when employees make fuller use of their capabilities. Essentially, the human resources approach means that better people achieve better results.

iv) **AContingencyApproach**:Traditional management relieson onebasic principle – thereisonebestwayofmanagingthingsandthesethingscanbeappliedacross the board in all the instances. The situational effect will be totally ignored in this traditional management. Situations are much more complex than first perceived and the different variables may require different behavior which means that differentenvironmentsrequireddifferentbehaviorforeffectiveness.Eachsituation muchbeanalyzedcarefullytodeterminethesignificantvariablesthatexistinorder to establish the kindsof practicesthat will bemoreeffective. Contingencytheorist argues that the external environment and several aspects of the internal environment govern the structure of the organization and the process of management.Effectivemanagementwill varyin different situationsdependingon the individual and groups in the organization, the nature of jobs, technology, the type of environment facing the organization and its structure. For example, if the employees are highly matured and willing to take more responsibility, the managers can follow delegating style and give full freedom to their employees. If the employees are not so matured and avoid taking any responsibility, the managers must follow directing style. Depends upon the situation, that is, employees level of maturity, managers will adopt different style of leadership to ensure more successful results.

v) **A Systems Approach:**This implies that organization consists of many inter relatedandinterdependentelementsaffectingoneanotherinordertoachievethe overall results. Conceptually a system implies that there are a multitude of variables in organization and that each of them affects all the others in complex relationships. An event that appears to affect one individual or one department actually may have significant influences elsewhere in the organization. Systems theoristsdescribetheorganizationas“opentoitsexternalenvironment”,receiving certain inputs from the environment such as human resources, raw materials etc, andengaginginvariousoperationstotransformthoserawmaterialsintoafinished products and finally turning out the “outputs” in its final form to be sent to the environment. The organization, since it is open to the environment, also receives feedback from the environment and takes corrective action as necessary. This input-transformation process-output model with the feedback mechanism can be illustrated through a simple example.

MANAGEMENTFUNCTIONS

Management is the process of designing and maintaining an environment for the purposeof efficientlyaccomplishing selected aims. Managers carryout thefunctions of planning, organizing, staffing, leading and controlling. Managing is an essential activity at all organizational level. However, the managerial skills required vary with organizational levels. The functions of managers’ provide a useful framework for organizing management knowledge.

MANAGEMENTFUNCTIONS

Henri Fayol proposed that all managers are required to perform five management functionsinordertoexecutetheirday-to-dayactivities.Theyare:planning,organizing, commanding, coordinating and controlling.

- **Planning:** The planning function involves the process of defining goals, establishing strategy for achieving those goals, and developing plans to integrate and coordinate activities.

- **Organizing:**It includesthe processof determiningwhat tasksareto bedone, who is to do them, how the tasks are to be grouped, who reports to whom at what level decisions are made.

- **Commanding:** It is the influencing of people so that they will contribute to organization and group goals. Leading involves motivating, communicating employees to accomplish goals and objectives of an organization

- **Controlling:** It is the measuring and correcting of activities of subordinates to ensure that events conform to plans. It measure performance against goals and plans, shows negative deviations exit and by putting in motion actions to correct deviation, helps ensure accomplishment of plans.

Planning

Itisaprocessthatinvolvesdefiningtheorganization’sobjectivesorgoals,establishing an overall strategy for achieving those goals, and developing a comprehensive hierarchyofplanstointegrateandcoordinateactivities.Itisconcernedwithbothwhat is to be done (ends) as well as how it is to be done (means). The purposes of the planning are:

i) It establishes coordinated effort. It gives direction to managers and no managers alike.

ii) Itreducesuncertaintybyforcingmanagerstolookahead,anticipatechange, consider the impact of change and develop appropriate response

iii) Itreducesoverlappingandwasteful activities.

iv) It establishesobjectivesorstandardsthat areusedin controlling.

Planning process

Thefollowingfourstepsofplanningprocesscanbeadaptedtoallactivitiesatall organizational levels.

Step 1: Establisha goal orset of goals: Planning begins with decision about what the organization or department wants to achieve. Identifying priorities and being specific about their aims are key factors in planning.

Step 2: Define the present situations. The current state of affaires has to be analyzedconsideringtheavailabilityofresourcesandthegoalstobeachievedbefore drawing up the planning process..

Step 3: Identify the aids and barriers to the goals: Anticipating internal and externalproblems and opportunities likely to arise in the future is an essential part of planning.

Step 4: Develop a plan or set of actions for reaching the goals: It involves developing various alternative courses of action for reaching the desired goals, evaluating these alternatives, and choosing from among them the most suitable alternative for reaching the goal.

Majorcomponentsof planning

i) Goal: A future target or end result that an organization wishes to

achieveii)Plan:Themeansdevisedforattemptingtoreachagoaliii)

Mission: The organizations purpose or fundamental reason for

existence.

Typesof Planning

Basedonthelengthoftheplanninghorizon,planningmaybeclassifiedasStrategic Planning, Tactical Planning and Operational Planning.

1) **Strategic Planning:** These plans are organization-wide, establish overall objectives, and position an organization in long term of its environment such as

i) Longrangeissueswithbroadertechnologicalandcompetitiveaspectsofthe organizationaswellasallocationsof resources

ii) Long term actions to be taken to achieve the goals between five and fifteen years.

iii) Developed by top management in consultation with the board of directors and middle level managers.

2) **Tactical Planning:** It typically addresses intermediate issues involving periods between two and five years which are relatively specific, concrete and more detailed such as

i) outlinethestepsforparticulardepartmentstoachieve the goals

ii) Generally developed by middle managers who weigh the pros and cons of several possibilities before settling on one issue.

iii) Importanttostrategicplan success.

3) **OperationalPlanning:**Theseplansspecifydetailsonhowoverallobjectivesaretobe achieved. The key aspects of operational planning are

i) Focuses mainly for short-range issues usually developed by lower-level managers inconjunction with middle management.

ii) Identify what must be accomplished over a short period, mostly day-to-day operationalactivates such as work methods, inventory planning etc.

Organizing

Organizingreferstothewayinwhichworkisarrangedandallocatedamongmembersof the organization so that the goals of the organization can be efficiently achieved.

StepsinvolvedinOrganizingProcess:

i) Assigntasksandresponsibilitiesassociatedwithindividualjobs.

ii) Dividing the total work load into activities that can logically and comfortably be performed by one person or group of individuals. iii) Combining the work of employees into units in a logical and efficient manner.iv) Delegating appropriate authority and power to an individual to discharge his duties.

v) Settingupamechanismtocoordinatetheworkofemployeesintoaunified, harmonious whole.

vi) Monitoring the effectiveness of the organization and making adjustments to maintain or increase effectiveness.

Keyelementsof OrganizationStructure

1) WorkSpecialization: Itdealswithdivisionoflabor.Thewholejobisnot donebyonepersonbutinsteadisbrokendownintostepsandeachstep is completed by a different persons. Some Key characteristics are:

i)Itincreasesemployeesskillandefficiencyatperforminga task, ii)

Generates higher employee productivity

iii) Insomejobsemployeesarelikelytogetboredom,fatigue,stress,poor quality work, increased absenteeism, higher turnover due to repetitive nature of work.

2) Departmentalization. Itreferstothebasisonwhichjobsaregroupedinorderto accomplish organizational goals. Some key characteristics are:

i) Groupingcanbedonebythehomogeneityoftasks(Functional, departmentalization), ii)Groupingjobsbyproductline

(Productdepartmentalization)

iii)Groupingjobsonthebasisof territoryorgeography(Geographic, departmentalization) iv) Grouping jobs on the basis of

productorcustomerflow

v) Facilitatesutilizationofcommonskills,knowledgeandorientationtogetherinto Common units.

3) Chainofcommand: Thisshows theflow of authority directedfrom the upper levels oftheorganizationtothelowestlevelsanddelineateswhoreportstowhom.Thisconcept incorporates three key elements:

i) Authority (right to issue order and expecting the orders to be obeyed), ii) Responsibility (obligation to perform assigned duties) iii) Unity of command (reporting authority to whom they are responsible)

4) Spanofcontrol: Thisdealswithhowmanysubordinatesonecaneffectivelymanage under his/her control. There are two types of span of control.

i) Widerspanofcontrolwhichhasfewerlevelsandeachlevelmanagersarecontrolling more people

ii) Narrow span of control has more levels and in each level managers have limited number of people to supervise.

iii) The effectiveness of narrow or wider span of control depends upon task structure, employee’s maturity, environmental uncertainty, technology, work culture etc. **5) Centralization and decentralization:** The decision making latitude given at the top or lower level determines whether the organization is centralized or decentralized.

i) If top management makes key decisions with no input from lower level employees, thenthe organization is centralized.

ii) If lowerlevelemployeesareprovidedmoreinputand given morediscretion to make decision, it is decentralized.

iii) Theeffectivenessofcentralizationordecentralizationdependsuponsomanyfactors such as environment, technology, employees, size of the company, strategies etc.

6) Formalization: This refers to the extent, to which the employees are governed by rules, Regulations and standardized operating procedures to maintain consistency and uniformity in maintaining the output.

i) In a highly formalized organization, there are explicit job descriptions, lots ofrules andclearly defined procedures covering work process.

ii) This eliminates flexibility, innovativeness and freedom in discharging the duties and responsibilities.

Commanding

It is the process of influencing a group towards the achievement of goals. There are certain characteristics that differentiate leaders from non-leaders There are three categories of leadership theories which highlight the key determinants of leadership effectiveness.TheyareTraitTheories,BehavioralTheoriesandSituationalTheories.

Trait Theories:

There are six traits associated with effective leadership include drive, the desire to lead, honesty and integrity, self-confidence, intelligence and job-relevant knowledge.

i) **Drive:**Leadersexhibitahigheffortlevel.Theyhavearelativelyhighdesirefor achievement, they are ambitious, they have a lot of energy, they are tirelessly persistent in their activities and they show initiative.

ii) **Desire to lead:** Leaders have a strong desire to influence and lead others. They demonstrate the willingness to take responsibility

iii) **Honesty and Integrity:** Leaders build trusting relationship between themselves and followers by being truthful and non-deceitful and by showing high consistency between word and deed.

iv) **Self-confidence:** Followers look to leaders for an absence of self-doubt. Leaders thereforeneed to showself-confidence inorder to convincefollowers of the rightness of goals and decisions.

v) **Intelligence:** Leaders need to be intelligent enough to gather synthesize and interpret large amounts of information; and to be able to create vision, solve problems and make correct decision.

vi) **Job-relevantknowledge:**Effective leadershave ahigh degreeof knowledge about the company, the industry and technical matters. In-depth knowledge allows leaders to make well-informed decision and to understand the implications of those decisions.

Controlling

The control process is a three-step process that involves measuring actual performance, comparing actual performance against a standard, and taking managerial action to correct deviations or inadequate standards. Before considering each step in detail, we should be aware that the control process assumes that performance standardsalreadyexist. Thesestandards arethe specificgoalscreated during the planning against which performance progress can be measured.

StepI: Measuring: This is the first step in the controlprocess. Four common source of information frequently used by managers to measure actual performances are personal observation, statistical reports, oral reports and written reports. Each has particular advantage and drawbacks; however, a combination of information sources increases both the number of input sources and the probability of getting reliable information. It is desirable to useboth quantitative and qualitative criteria to measure the actual performance. For instance, a production manager use number of paper cups produced per hour, percentage of rejects retuned by customers, scrap rate etc. Similarly, marketing managers often use measures such as percentage of market held, average dollar per sale, number of customer visits per sales person etc.

StepII:Comparing: Thecomparingstepdeterminesthedegreeofvariationbetween actualperformanceandthestandard.Somevariationinperformancecanbeexpected in all activities. It is critical, therefore, to determine the acceptable range of variation. Deviation that exceeds this range become significant and need the manager's attention.Inthecomparisonstage,managersareparticularlyconcernedwiththesize and direction of the variation.

StepIII:TakingManagerialAction: Managerscanchooseamongthreepossible course of action:

- they candonothing,
- theycancorrecttheactual performance

- theycan revise the standards.

Correct Actual Performance: If the sourceof performance variation is unsatisfactory work, the manager will want to take corrective action. Examples of such corrective actionmightincludechangingthestrategy,thestructure,compensationpracticesor trainingprograms,redesigningjobsorfiringemployeesetc.Amanagerwhodecides actual performance has to make another decision: Should immediate or basic corrective action be taken?

Immediate corrective action corrects problems at once to get performance back on track. Basic corrective action looks at how and why performance has deviated and then proceeds to correct the source of the deviation. It is not unusual for managers to rationalize that they do not have the time to take basic corrective action and, therefore, musts be content to perpetually 'put out fires' with immediate corrective action. Effective managers analyze deviations and, when the benefits justify it, take the time to pinpoint and correct the causes of variance.

2.2ManagementRoles:

Mint berg proposed ten managerial roles a typical manager has to perform in discharginghisday-to-dayactivities.Mintberg'stenmanagerialrolescanbegrouped as those concerned with interpersonal relationships, those concerned with transfer of information, and those concerned with decision-making.

1 InterpersonalRole:

Thisreferstothosetypes'ofmanagerialrolesthatinvolvepeopleandotherdutiesthatare ceremonial and symbolic in nature. There are three types of interpersonal roles:

i) **Figure head Role:** Manager performs a role as symbolic head and accordingly he is obliged to perform a number of routine duties of a legal or social nature. The typical activities include greeting visitors, signing legal documents etc.

ii) **Leader Role:** As a leader of the department, manager gives direction to his employees and other subordinates to fulfill the assigned goals and objectives. He is responsiblefor themotivation and activation of subordinates.Alsohe is responsefor staffing,trainingandassociatedactivities.Someofthetypicalactivitiesincludegoals setting, providing guidance, review the progress of work etc.

iii) **LiaisonRole:**Themanagerisrequiredtomaintaincontactwithexternalsources thatprovidevaluableinformation.Thesesourcesareindividualor groupsoutsidethe managers unit and may be inside or outside the organization. For this he as to maintainself-developednetworkofoutsidecontactsandinformerswhoprovidefavors and information, for example, acknowledging mail, doing external board work etc.

2 Informational Roles:

Thisreferstothosetypesofmanagerialrolesthatinvolvereceiving,collectinganddisseminating information. There are three types of informational roles:

Monitor: Typically, manager is spanning the boundaries of the organization and trying to get information from outside though various sources such as reading magazines, taking with other to learn current developments, movements of competitors planning, program etc. Manager seeks and receives variety of special information(muchofitcurrent)todevelopthoroughunderstandingoforganizationand environment. He emerges as nerve centre of internal and external information about the organization.

Disseminator: Manageractsasconduitsofinformationtoorganizational members.Heis expectedtotransmitinformationreceivedfromoutsideorfromsubordinatestomemberof the organization. Some information is factual and some may involve interpretation and integrating of diverse value positions of organizational influencers. Some of the typical activities of this role include holding informational meetings, making phone calls to relay information etc.

Spokesman: Manager represents the organization to outsiders by performing the role as spokesman. . In this context, the manager transmits information to outsiders on organization's plans, policies, results, achievements, serves as expert on the chosen field by giving value suggestion to the community etc. As mentioned earlier, he holds board meeting periodically and gives information to the media.

3 Decisional Roles:

Thisreferstothosetypesofmanagerialrolesthatrevolvearoundmakingdecision.There are four types of decisional roles.

Entrepreneur: As entrepreneur, manager initiates and oversees new projects that will improve their organization's performance. He thoroughly analyses the strengths of the organization and the opportunities available in the environment and takes initiativetoimplementimprovementprojectstobringaboutworthwhilechangeswithin the organization and continuously supervise designing new developmental projects. Some of the typical activities include organizing strategy and review sessions to develop new programs, instrumental in venturing novel projects etc.

Disturbance Handler: As disturbance handler, managers take corrective action in response to unforeseen problems within as well as outside the organization. Whenever any conflicts occur among the subordinates regarding the sharing of resources, allocation of funds etc, and the manager intervene appropriately and resolve those issues.He is responsiblefor corrective action whenorganization faces important, unexpected disturbances.

Resources Allocator: Manager is responsible for the allocation of organizational resources–physical,human,monetaryresourcesofallkindandineffect,themaking or approval of all significant organizational decision. In order to perform this activity, he will be schedule meetings, requesting authorization, and performing any activity that involves budgeting and the programming of subordinates work.

Negotiator: Manager also performs as negotiators when they discuss and bargain with other groups to gain advantage for their own units. Manager will negotiate with business partners in case the organization is seeking alliances to ventureprojects or extend their operation in new marketing.

CHALLENGESANDOPPORTUNITIESFORORGANISATIONAL BEHAVIOR

There are many challenges and opportunities for managers to use Organizational Behavior concepts to enhance the overall effectiveness of individuals, groups and organization. The following are some of the critical issues confronting managers for which the knowledge of Organizational Behavior offers worthy solutions based on behavioral science and other interdisciplinary fields.

SIGNIFICANTPROBLEMSIN MANAGEMENT

The following are some of the significant problems: i) Improving People Skills ii) Improving Quality and Productivity iii) Managing Workforce Diversity iv) RespondingtoGlobalizationv)Empowering People vi) Coping with Temporariness vii) Stimulating Innovation and Change viii) Emergence of the e-organization ix) Improving Ethical Behavior

1. **Improving People Skills:** Technological changes, structural changes, environmental changes are accelerated at a faster rate in businessfield.Unlessemployeesandexecutivesareequippedtopossess therequiredskillstoadaptthosechanges,theachievementofthetargeted goals cannot be achieved in time. There two different categories of skills – managerialskillsandtechnicalskills.Someofthemanagerialskillsinclude listening skills, motivating skills, planning and organizing skills, leading skills, problem solving skill, decision making skills etc. These skills can be enhanced by organizing a series of training and development programmers, career development programmers, induction and socialization etc. **Implications for Managers:** Designing an effective performance appraisal system with built-in training facilities will help upgradetheskillsoftheemployeestocopeupthedemandsoftheexternal environment.The lower level cadreinmanagementis required to possess moreoftechnicalskills.Astheymovetowardsupwarddirection,theirroles

willberemarkablychangedandexpectedtohave moreofhumanrelations and conceptual skills

2. **Improving Quality and Productivity:** Quality is the extent to which the customers or users believe the product or service surpasses theirneedsandexpectations.Forexample,acustomerwhopurchasesan automobile has certain expectation, one of which is that the automobile engine will start when it is turned on. If the engine fails to start, the customer's expectations will not have been met and the customer will perceive the quality of the car as poor. Deming defined quality as a predictable degreeof uniformityand dependability, at lowcost and suited to the market. Juran defined it as fitness for use. The key dimensions of quality as follows:

- **Performance:**Primaryoperatingcharacteristicsofaproductsuch as signal coverage, audio quality, display quality etc
- **Features:** Secondary characteristics, added features, such as calculators, and alarm clock features in hand phone
- **Conformance:** Meeting specifications or industry standards, workmanship of the degree to which a product's design or operating characteristics match reestablished standards
- **Reliability:** The probability of a product's failing within t a specified period of time
- **Durability**: It is a measure of product's life having both economic and technical dimension
- **Services:**Resolutionofproblemandcomplaints,easeof repair
- **Response:**Human tohuman interface, suchasthe courtesyofthe dealer
- **Aesthetics:**Sensorycharacteristicssuchexteriorfinish
- **Reputations:**Pastperformanceandotherintangibles,suchasbeing ranked first. More and more managers are confronting to meet the challengestofulfillthespecificrequirementsofcustomers.Inorderto improvequalityandproductivity,theyareimplementingprogramslike total quality management and reengineering programs that require extensive employee involvement.

3. **Managing Workforce Diversity:** This refers to employing different categories of employees who are heterogeneous in terms of gender, race, ethnicity, relation, community, physically disadvantaged, homosexuals, elderlypeopleetc.Theprimaryreasontoemployheterogeneouscategoryof employees is to tap the talents and potentialities, harnessing the innovativeness, obtaining synergetic effect among the divorce workforce. In general, employees wanted to retain their individual and cultural identity, valuesandlifestyleseventhoughtheyareworkinginthesameorganization withcommonrulesandregulations.Themajorchallengefororganizationsis to become moreaccommodating to diverse groups of people by addressing their different life styles, family needs and work styles.Implications for Managers: Managers have to shift their philosophy from treating everyone alike to recognizing individual differences and responding to those differences in ways that will ensure employee retention and greater productivitywhile,atthesametimenotdiscriminating.If workforcediversity

is managed more effectively, the management is likely to acquire more benefits such as creativity and innovation as well as improving decision making skills by providing different perspectives on problems. If diversity is not managed properly and showed biases to favor only a few categories of employees, there is potential for higher turnover, more difficulty in communicating and more interpersonal conflicts.

4. **Responding to Globalization:** Today's business is mostly market driven;whereverthedemandsexistirrespectiveofdistance,locations,climatic conditions, the business operations are expanded to gain their market share andtoremaininthetopranketc.Businessoperationsarenolongerrestricted toaparticularlocalityorregion.Company'sproductsorservicesarespreading across the nations using mass communication, internet, faster transportation etc.AnAustralianwineproducernowsellsmorewinethroughtheInternetthan through outlets acrossthe country. More than 95% of Nokia hand phones are beingsoldoutsideoftheirhomecountryFinland.Japanesecarsarebeingsold indifferentpartsofglobe.SriLankanteaisexportedtomanycitiesacrossthe globe.ExecutivesofMultinationalCorporationareverymobileandmovefrom one subsidiary to another more frequently.

   Implications for Managers: Globalization affects a managerial skills in at least two ways:

   i) an Expatriate manager have to manage a workforce that is likelyto have very different needs, aspirations and attitudes from the ones that they are used to manage in their home countries. ii) Understanding the culture of local people and how it has shaped them and accordingly learn to adapt onesmanagementstyle to thesedifferencesisverycriticalforthe success of business operations. One of the main personality traits required for expatriate managers is to have sensitivity to understand the individual differences among people and exhibit tolerance to it.

5. **Empowering People** The main issue is delegating more power and responsibility to the lower level cadre of employees and assigning more freedom to make choices about their schedules, operation, procedures and the method of solving their work-related problems. Encouraging the employees to participate in work related decision will sizably enhance their commitmentatwork.Empowermentisdefinedasputtingemployeesincharge of what they do by eliciting some sort of ownership in them. Managers are doingconsiderablyfurtherbyallowingemployeesfullcontrolof theirwork.An increasing number of organizations are sing self-managed teams, where workers operate largely without boss. Due to the implementation of empowerment concepts across all the levels, the relationship between manager and the employees is reshaped. Managers will act as coaches, advisors,sponsors,facilitatorsandhelptheirsubordinatestodotheirtaskwith minimal guidance

   Implications for Manager: The executive must learn to delegate their tasks to the subordinates and make them more responsible in their work. And in so doing, managershaveto learnhowto give up controland employeeshave to learn how to take responsibility for their work and make appropriate decision. Ifalltheemployeesareempowered,itdrasticallychangesthetypeof leadership styles, power relationships, the way workis designed and the way organizations are structured.

6. **Copingwith'Temporariness":-**Inrecenttimes,theProductlifecycles are slimming, the methods of operations are improving, and fashions are changing very fast. In those days, the managers needed to introduce major change programs once or twice a decade. Today, change is an ongoing activity for most managers. The concept of continuous improvement implies constant change. In yester years, there used to be a long period of stability and occasionally interrupted by short period of change, but at present the change process is an ongoing activity due to competitiveness in developing new products and services with better features. Everyone in the organization faces today is one of permanent temporariness. The actual jobs that workers perform are in a permanent state of flux. So, workers need to continually update their knowledge and skills to perform new job requirements. **ImplicationsforManager:**Managersandemployeesmustlearntocopewith temporariness. They have to learn to live with flexibility, spontaneity, and unpredictability. The knowledge of Organizational Behavior will help understand better the current state of a work world of continual change, the methods of overcoming resistance to change process, the ways of creating a better organizational culture that facilitates change process etc.
7. **Stimulating Innovation and Change:-** Today's successful organizations must foster innovation and be proficient in the art of change; otherwisetheywillbecomecandidatesforextinctioninduecourseoftimeand vanishedfromtheirfieldofbusiness.Victorywillgotothoseorganizationsthat maintain flexibility, continually improve their quality, and beat the competition tothemarketplacewithaconstantstreamofinnovativeproductsandservices. For example, Compaq succeeded by creating more powerful personal computers for the same or less money than IBNM or Apple, and by putting their products to market quicker than the bigger competitors. Amazon.com is putting a lot of independent bookstores out of business as it proves you can successfullysellbooksfromanInternetwebsite.**ImplicationsforManagers:** Someofthebasicfunctionsofbusinessarebeingdisplacedduetotheadvent of a new systems and procedures. For example –books are being sold only through internet. Internet selling an organization's employees can be the impetusfor innovation and change; otherwise they can be amajorhindrance. The challenge for managers is to stimulate employee creativity and tolerance for change.
8. **EmergenceofE-Organization:-**
    - **E- Commerce:** It refers to the business operations involving electronic modeoftransactions.Itencompassespresentingproductsonwebsites and filling order.The vast majority of articlesand media attention given tousingtheInternetinbusinessaredirectedaton-lineshopping.Inthis process, the marketing and selling of goods and services are being carried outovertheInternet.Ine-commerce,thefollowingactivitiesare being taken place quite often - the tremendous numbers of people who are shopping on the Internet, business houses are setting up websites where they can sell goods, conducting the following transactions such as gettingpaid andfulfillingorders. It is a dramatic change in the waya

companyrelates to itscustomers.Atpresente-commerceis exploding. Globally, e-commerce spending was increasing at a tremendous rate from US$ 111 billion in 1999 to US$ 1.3 trillion by 2003.

- **E-business:** It refers to the full breadth of activities included in a successful Internet based enterprise. As such, e-commerce is a subset of e-business. E-business includes developing strategies for running Internet-based companies, creating integrated supply chains, collaborating with partners to electronically coordinate design and production, identifying a different kind of leader to run a 'virtual' business, finding skilled people to build and operate intranets and websites, and running the back room or the administrative side. E-business includes the creation of new markets and customers, but it's alsoconcernedwiththeoptimumwaystocombineComputers,theWeb and Application Software. A sizable number of multinational corporations are selling goods and services via the Internet.
- **Growth rate of e-business:** The application of Internet operations are initially covers a small part of the business. At this point, their e-commerce operations are secondary to their traditional business. An increasingly popular application of e-business is merely using the Internettobettermanageanongoingbusiness.Later,therearemillions offirmsthatarenowsellinganythingovertheInternet,buttheyareusing e-business applications to improve communications with internal and external stakeholders and to better perform traditional business functions.Some companiesareputting maximum effortinimproving its internal efficiency and providing support to its wide-reaching dealer network and to on-line sellers by creating a shared and integrated network. The companies wanted to make creasing
- **E-Organizations:** This embraces e-commerce and e-business. State and central governments, municipal corporations are using the Internet for extending all the public utility services more efficiently through internet.
- **Implications for Managers**: The employees must acquire skills, knowledge, attitudes in learning new technology, overcoming any resistance

9. **ImprovingEthicalbehavior:**Thecomplexityinbusinessoperationsis forcing the workforce to face ethical dilemmas, where they are required to define right and wrong conduct in order to complete their assigned activities. For example, Should the employees of chemical company blow the whistle if theyuncover thedischarging its untreated effluentsinto the river arepolluting its water resources?

   Do managers give an inflated performance evaluation to an employee they like, knowing that such an evaluation could save that employee's job? The groundrulesgoverningtheconstituentsofgoodethicalbehaviorhasnotbeen clearly defined. Differentiating right things from wrong behavior has become more blurred. Following unethical practices have become a common practice such as successful executives who use insider information for personal financial gain, employees in competitor business participating in massive cover-upsofdefectiveproductsetc.**ImplicationsforManagers:**Managers must evolve code of ethics to guide employees through ethical dilemmas. Organizing seminars, workshops, training programs will help improve ethical behavior of employees. Retaining consultants, lawyers, voluntary service organizations to assist the company in dealing with ethical issues will ensure positiveethicalbehavior.Managersneedtocreateanethicallyhealthyclimate for his employees where they can do their work productively and confront a minimal degree of ambiguity regarding what constitutes right and wrong behavior.

HUMAN RESOURCE MANAGEMENT

IntroductiontoHumanResourceManagement

Introduction

Humanbeingsaresocialbeingsandhardlyeverliveandworkinisolation.Wealways plan, develop and manage our relations both consciously and unconsciously. The relationsaretheoutcomeofouractionsanddependtoagreatextentuponourability tomanageouractions.Fromchildhoodeachandeveryindividualacquireknowledge and experience on understanding others and how to behave in each and every situations in life. Later we carry forward this learning and understanding in carrying and managing relations at our workplace. The whole context of Human Resource Management revolves around this core matter of managing relations at work place. Since mid 1980's Human Resource Management (HRM) has gained acceptance in both academic and commercial circle.

HRM is a multidisciplinaryorganizational function that draws theories and ideasfrom various fields such as management, psychology, sociology and economics. There is no best way to manage people and no manager has formulated how people can be managed effectively, because people are complex beings with complex needs. Effective HRM depends very much on the causes and conditions that an organizational setting would provide. Any Organization has three basic components, People,Purpose,andStructure.In1994,anotedleaderinthehumanresources(HR) field made the following observation: Yesterday, the company with the access most to the capital or the latest technology had the best competitive advantage;

Today, companies that offer products with the highest quality are the ones with a leg up on the competition; But the only thing that will uphold a company's advantage tomorrow is the caliber of people in the organization. That predicted future is today's reality.Mostmanagersinpublic-andprivatesectorfirmsofallsizeswouldagreethat people truly are the organization's most important asset.

Having competent staff on the payroll does not guarantee that a firm's human resources will be a source of competitive advantage. However in order to remain competitive,togrow,anddiversifyanorganizationmustensurethatitsemployeesare qualified, placed in appropriate positions, properly trained, managed effectively, and committed to the firm's success. The goal of HRM is to maximize employees' contributions in order to achieve optimal productivity and effectiveness, while simultaneously attaining individual objectives (such as having a challenging job and obtaining recognition), and societal objectives (such as legal compliance and demonstrating social responsibility).

WhatisHuman Resource Management?

HRM is the study of activities regarding people working in an organization. It is a managerial function that tries to match an organization's needs to the skills and abilities of its employees.

Definitionsof HRM

Human resources management (HRM) is a management function concerned with hiring, motivating and maintaining people in an organization. It focuses on people in organizations. Human resource management is designing management systems to ensure that human talent is used effectively and efficiently to accomplish organizational goals.

HRM is the personnel function which is concerned with procurement, development, compensation, integration and maintenance ofthe personnel of an organization for thepurposeofcontributingtowardstheaccomplishmentsoftheorganization's objectives. Therefore, personnel management is the planning, organizing, directing, and controlling of the performance of those operative functions (Edward B. Philippo).

According to the Invancevich and Glueck, "HRM is concerned with the most effective use of people to achieve organizational and individual goals. It isthe wayof managing people at work, so that they give their best to the organization".

According to Dessler (2008) the policies and practices involved in carrying out the "people" or human resource aspects of a management position, including recruiting, screening, training, rewarding, and appraising comprises of HRM.

Generally HRM refers to the management of people in organizations. It comprises of the activities, policies, and practices involved in obtaining, developing, utilizing, evaluating, maintaining, and retaining the appropriate number and skill mix of employees to accomplish the organization's objectives. The goal of HRM is to maximize employees' contributions in order to achieve optimal productivity and effectiveness, while simultaneously attaining individual objectives (such as having a challenging job and obtaining recognition), and societal objectives (such as legal compliance and demonstrating social responsibility). In short Human Resource Management (HRM) can be defined as the art of procuring, developing and maintaining competent workforce to achieve the goals of an organization in an effective and efficient manner.

NatureofHRM

HRM is a management function that helps manager's to recruit, select, train and develop membersforanorganization.HRMisconcernedwithpeople'sdimensioninorganizations. The following constitute the core of HRM

1. **HRM Involves the Application of Management Functions and Principles.** The functions and principles are applied to acquiring, developing, maintaining and providing remuneration to employees in organization.
2. **DecisionRelatingtoEmployeesmustbeintegrated.**Decisionsondifferent aspects of employees must be consistent with other human resource (HR) decisions.
3. **Decisions Made Influence the Effectiveness of an Organization.** Effectiveness of an organization will result in betterment of services to customers in the form of high quality products supplied at reasonable costs.
4. **HRM Functions are not Confined to Business Establishments Only** but applicable to no business organizations such as education, health care, recreation and like. HRM refers to a set of programmers, functions and activitiesdesignedandcarriedoutinordertomaximizebothemployeeaswell as organizational effectiveness.

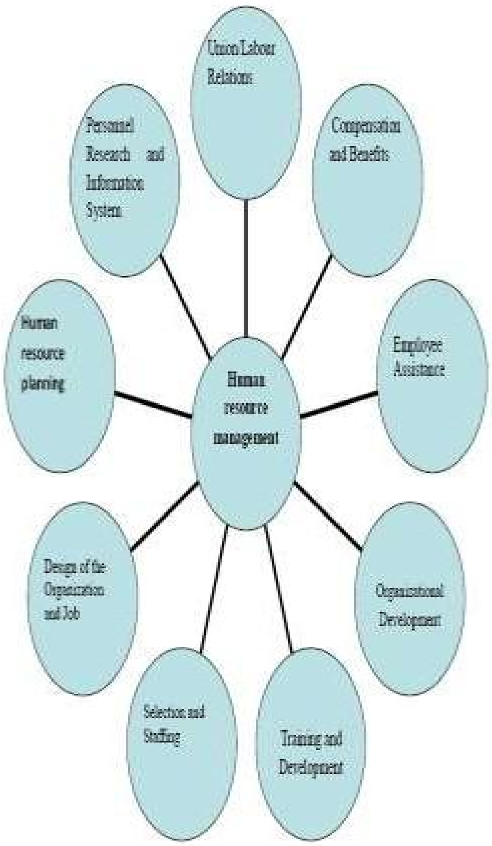


Figure 1.1: Scope of HRM

ScopeofHRM

ThescopeofHRMisindeedvast.All majoractivitiesintheworkinglifeofa worker –from the time of his or her entry into an organization until he or she leaves the organizations comes underthepurviewofHRM.Themajor HRM activities include HR planning, job analysis, job design, employee hiring, employee and executive remuneration, employee motivation, employee maintenance, industrial relations and prospects of HRM.

Thescopeof Human Resources Managementextendsto:

- Allthedecisions,strategies,factors, principles, operations, practices, functions, activities and methods related to the management of people as employees in any type of organization.
- All the dimensions related to people intheiremploymentrelationships,andall thedynamics thatflowfromit.

The scope of HRM is really vast. All major activities n the working life of a worker – from the time of his or her entry into an organization until he or she leaves it comes under the purview of HRM. American Society for Training and Development (ASTD) conducted fairly an exhaustive study in this field and identified nine broad areas of activities of HRM.

Thesearegiven below:

- HumanResource Planning
- DesignoftheOrganizationandJob
- SelectionandStaffing
- TrainingandDevelopment
- OrganizationalDevelopment
- CompensationandBenefits
- EmployeeAssistance

- Union/LabourRelations
- PersonnelResearchandInformationSystem

a) **Human Resource Planning:** The objective of HR Planning is to ensure that the organization has the right types of persons at the right time at the right place. It prepares human resources inventory with a view to assess present and future needs, availability and possible shortages in human resource. Thereupon, HR Planning forecast demand and supplies and identify sources of selection. HR Planning develops strategies both long-term and short-term, to meet the manpower requirement.

b) **DesignofOrganizationandJob:**Thisisthetaskoflayingdownorganization structure, authority, relationship and responsibilities. This will also mean definitionofworkcontentsforeachpositionintheorganization.Thisisdoneby “jobdescription”.Anotherimportantstepis“Jobspecification”.Jobspecification identifiestheattributesofpersonswhowillbemostsuitableforeachjobwhich is defined by job description.

c) **Selection and Staffing:** This is the process of recruitment and selection of staff. This involves matching people and their expectations with which the job specifications and career path available within the organization.

d) **Training and Development:** This involves an organized attempt to find out training needs of the individuals to meet the knowledge and skill which is needednot onlyto perform current job but also tofulfill thefuture needs of the organization.

e) **Organizational Development:** This is an important aspect whereby “Synergetic effect” is generated in an organization i.e. healthy interpersonal and inter-group relationship within the organization.

f) **Compensation and Benefits:** This is the area of wages and salaries administrationwherewagesandcompensationsarefixedscientificallytomeet fairness and equity criteria. In addition labor welfare measures are involved which include benefits and services.

g) **Employee Assistance:** Each employee is unique in character, personality, expectationandtemperament.Byandlargeeachoneof themfacesproblems everyday.Somearepersonalsomeareofficial.Intheircaseheorsheremains worried. Such worries must be removed to make him or her more productive and happy.

h) **Union-Labour Relations:** Healthy Industrial and Labour relations are very importantfor enhancing peaceand productivityin an organization.This is one of the areas of HRM.

i) **Personnel Research and Information System:** Knowledge on behavioral science and industrial psychology throws better insight into the workers expectations,aspirationsandbehavior.Advancementoftechnologyofproduct and production methods have created working environment which are much different from the past.

Globalization of economy has increased competition many fold. Science of ergonomics gives better ideas of doing a work moreconveniently by an employee. Thus, continuous research in HR areas is an unavoidable requirement. It must also take special care for improving exchange of information through effective communication systems on a continuous basis especiallyonmoralandmotivation.HRMisabroadconcept;personnel management(PM)andHumanresourcedevelopment(HRD)areapartof HRM.

ObjectivesofHRM

TheprimaryobjectiveofHRMistoensuretheavailabilityofcompetentandwilling workforce to an organization. The specific objectives include the following:

1) Humancapital:assistingtheorganizationinobtainingtherightnumberandtypes of employees to fulfill its strategic and operational goals
2) Developing organizational climate: helping to create a climate in which employeesareencouragedtodevelop andutilizetheirskillstothefullestandto employ the skills and abilities of the workforce efficiently
3) Helping to maintain performance standards and increase productivity through effective job design; providing adequate orientation, training and development; providing performance-related feedback; and ensuring effective two-way communication.
4) Helpingtoestablishandmaintainaharmoniousemployer/employeerelationship
5) Helpingtocreateandmaintainasafe andhealthywork environment
6) Developing programs to meet the economic, psychological, and social needsof the employees and helping the organization to retain the productive employees
7) Ensuring that the organization is in compliance with provincial/territorial and federallaws affectingthe workplace(suchashuman rights,employmentequity, occupational health and safety, employment standards, and labour relations legislation). To help the organization to reach its goals
8) Toprovideorganizationwithwell-trainedandwell-motivatedemployees
9) Toincreasetheemployeessatisfactionandself-actualization10)Todevelopand maintain the quality of work life 11) To communicate HR policies to all employees.
12) to help maintain ethical polices and behavior.

TheabovestatedHRMobjectivescan be summarized under four specific objectives: societal, organizational, and functional and personnel.

1) **Societal Objectives**: seek to ensure that the organization becomessociallyresponsibleto theneedsandchallengesofthe society while minimizing the negativeimpact of suchdemandsupon the organization. The failure of the organizations to use their resources for the society's benefit in ethical ways may lead to restriction.
2) **Organizational Objectives**: it recognizes the role of HRM in bringing about organizationaleffectiveness.ItmakessurethatHRMisnotastandalone

department, but rather a means to assist the organization with its primary objectives. The HR department exists to serve the rest of the organization.

3) **FunctionalObjectives:** isto maintainthe department's contribution at a level appropriate to the organization's needs. Human resources are to be adjusted tosuittheorganization'sdemands.Thedepartment'svalueshouldnotbecome too expensive at the cost of the organization it serves.
4) **Personnel Objectives:** it is to assist employees in achieving their personal goals,atleastasfarasthesegoalsenhancetheindividual'scontributiontothe organization. Personal objectives of employees must be met if they are to be maintained, retained and motivated. Otherwise employee performance and satisfaction may decline giving rise to employee turnover.

Functionsof HRM

Human Resources management has an important role to play in equipping organizations to meet the challenges of an expanding and increasingly competitive sector. Increase in staff numbers, contractual diversification and changes in demographic profile which compel the HR managers to reconfigure the role and significance of human resources management. The functions are responsive to currentstaffingneeds,butcanbeproactiveinreshapingorganizationalobjectives.All the functions of HRM are correlated with the core objectives of HRM For example personal objectives is sought to be realized through functions like remuneration, assessment etc.

Functions ofHRM

HRMObjectivesand Functions

HRM Objectives		Supporting Functions
1.	Societal Objectives	Legal compliance Benefits Union- management relations
2.	Organizational Objectives	Human Resource Planning Employee relations Selection Training and development Appraisal Placement Assessment
3.	Functional Objectives	Appraisal Placement Assessment
4.	Personal Objectives	Training and development Appraisal Placement Compensation Assessment

Functions ofHRM

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- **Strategic HR Management:** As a part of maintaining organizational competitiveness, strategic planning for HR effectiveness can be increased through the use of HR metrics and HR technology. Human resource planning (HRP) function determine the number and type of employees needed to accomplish organizational goals. HRP includes creating venture teams with a balanced skillmix, recruiting the right people, and voluntary team assignment. This function analyzes and determines personnel needs in order to create effective innovation teams. The basic HRP strategy is staffing and employee development.
- **Equal Employment Opportunity:** Compliance with equal employment opportunity (EEO) laws and regulations affects all other HR activities.
- **Staffing:** The aim of staffing is to provide a sufficient supply of qualified individualstofilljobsinanorganization.Jobanalysis,recruitmentandselection are the main functions under staffing.

  Workers job design and job analysis laid the foundation for staffing by identifying what diverse people do in their jobs and how they are affected by them. Job analysis is the process of describing the nature of a job and specifyingthehumanrequirementssuchasknowledge,skills,andexperience neededtoperformthejob.Theendresultofjobanalysisisjobdescription.Job description spells out work duties and activities of employees. Through HR planning,managersanticipatethefuturesupplyofanddemandforemployees and the nature of workforce issues, including the retention of employees. So HRP precedes the actual selection of people for organization. These factors areused when recruitingapplicantsforjobopenings.The selectionprocessis concernedwithchoosingqualified individualstofillthosejobs.Intheselection function, the most qualified applicants are selected for hiring from among the applicants based on the extent to which their abilities and skills are matching with the job.

- **TalentManagementandDevelopment:**Beginningwiththeorientationofnew employees, talent management and development includes different types of training. Orientation isthefirststep towards helping anewemployee to adjust himself to the new job and the employer. It is a method to acquaint new employees with particular aspects of their new job, including pay and benefit programmers', working hours and company rules and expectations. Training and Development programs provide useful means of assuring that the employees are capable of performing their jobs at acceptable levels and also more than that. All the organizations provide training for new and in experienced employee.

In addition, organization often provides both on the job and off the job training programmed for those employees whose jobs are undergoing change. Likewise, HR development and succession planning of employees and managers is necessary to prepare for future challenges. Career planning has developed as result of the desire of many employees to growin their jobs and to advance in their career. Career planning activities include assessing an individual employee's potential for growth and advancement in the organization. Performance appraisal includes encouraging risk taking demanding innovation, generating or adopting new tasks, peer evaluation, frequent evaluations, and auditing innovation processes.This function monitors employee performance to ensure that it is at acceptable levels. This strategy appraises individual and team performance so that there is a link between individual innovativeness and company profitability. Which tasks shouldbeappraisedandwhoshouldassessemployees'performancearealso taken into account.

- **TotalRewards:** Compensation intheform ofpay, incentives andbenefitsare the rewards given to the employees for performing organizational work. Compensation management is the method for determining how much employees should be paid for performing certain jobs. Compensation affects staffinginthatpeoplearegenerallyattractedtoorganizationsofferingahigher levelofpayinexchangefortheworkperformed.Tobecompetitive,employers develop and refine their basic compensation systems and may use variable pay programs such as incentive rewards, promotion from within the team, recognition rewards, balancing team and individual rewards etc.

  Thisfunctionusesrewardsto motivate personneltoachieveanorganization's goalsofproductivity,innovationandprofitability.Compensationisalsorelated to employee development in that it provides an important incentive in motivatingemployeestohigherlevelsofjobperformancetohigherpayingjobs in the organization. Benefits are another form of compensation to employees other than direct pay for the work performed. Benefits include both legally required items and those offered at employer's discretion. Benefits are primarilyrelatedtotheareaofemployeemaintenanceastheyprovideformany basic employee needs.

- **Risk Management and Worker Protection: HRM** addresses various workplaceriskstoensureprotectionofworkersbymeetinglegal requirements and beingmore responsive to concerns forworkplace health and safety along with disaster and recovery planning.

- **Employee and Labor Relations:** The relationship between managers and their employees must be handled legally and effectively. Employer and employee rights must be addressed. It is important to develop, communicate, andupdateHRpoliciesandproceduressothatmanagersandemployeesalike know what is expected. In some organizations, union/management relations mustbeaddressedaswell.Thetermlaborrelationreferstotheinteractionwith employees who are represented by a trade union. Unions are organization of employeeswhojointogethertoobtainmorevoiceindecisionsaffectingwages, benefits, working conditions and other aspects of employment. With regard to laborrelationsthemajorfunctionofHRpersonnelincludesnegotiatingwiththe unions regarding wages, service conditions and resolving disputes and grievances.

RoleofHRM

The role of HRM is to plan, develop and administer policies and programs designed to make optimum use of an organizations human resources. It is that part of management which is concerned with the people at work and with their relationship within enterprises.

Itsobjectivesare:

a) effectiveutilizationofhuman resources,

b) Desirableworkingrelationshipsamongallmembersoftheorganizations,and (*c*) maximum individual development. Human resources function as primarily administrativeandprofessional.HRstafffocusedonadministeringbenefitsand otherpayrollandoperationalfunctionsanddidn'tthinkofthemselvesasplaying a part in the firm's overall strategy.

HRprofessionalshaveanallencompassingrole.Theyarerequiredtohavea thorough knowledge of the organization and its intricacies and complexities. TheultimategoalofeveryHRpersonshouldbetodevelopalinkagebetween the employee and organization because employee's commitment to the organization is crucial.

The first and foremost role of HR personnel is to impart continuous education to the employees about the changesand challengesfacing the countryin general and their organizationinparticular.Theemployeesshouldknowaboutthebalancesheetofthe company, sales progress, and diversification of plans, share price movements, turnover and other details about the company. The HR professionals should impart such knowledge to all employees through small booklets, video films and lectures. The primary responsibilities of Human Resource managers are:

- To develop a thorough knowledge of corporate culture, plans and policies. Toact as an internal change agent and consultant
- Toinitiatechangeand actasanexpertandfacilitator
- Toactivelyinvolved incompany'sstrategyformulation
- To keep communication line open between the HRD function and individuals and groups both within and outside the organization
- ToidentifyandevolveHRDstrategiesinconsonancewithoverallbusiness strategy.
- Tofacilitatethedevelopmentofvariousorganizationalteamsandtheirworking relationship with other teams and individuals.

- Totryandrelate peopleandworksothattheorganizationobjectivesareachieved efficiently and effectively.
- Todiagnoseproblemsanddetermineappropriatesolutionparticularlyinthehuman resource areas.
- Toprovideco-ordinationandsupportservicesforthedeliveryofHRDprogrammer and services
- To evaluate the impact of an HRD intervention or to conduct research so as to identify, develop or test how HRD In general has improved individual and organizational performance.

Different management gurus have deliberated different roles for the HR manager based on the major responsibilities that they full fill in the organization. Few of the commonly accepted models are enumerated below.

Pat McLaganhassuggestednine rolesthatareplayedbyHR practitioners

1. To bring the issues and trends concerning an organization's external and internalpeopletotheattentionofstrategicdecisionmakersandtorecommend long term strategies to support organizational excellence and endurance.
2. TodesignandprepareHRsystemsandactionsforimplementationsothatthey can produce maximum impact on organizational performance and development.3.Tofacilitatethedevelopmentandimplementationofstrategies for transforming one's own organization by pursuing values and visions.
4. Tocreateapositiverelationshipwiththecustomer'sbyprovidingthemwiththe best services; to utilize the resources to the maximum and to create commitment among the people who help the organization to meet the customer's needs whether directly connected or indirectly connected to the organization.
5. Toidentifythelearningneedshencetodesignanddevelopstructuredlearning programmers and materials to help accelerate learning for individuals and groups.
6. Toenabletheindividualsandgroupstoworkinnewsituationsandtoexpend \and change their views so that people in power move from authoritarian to participative models of leadership.
7. Tohelpemployeestoassesstheircompetencies,valuesandgoalssothatthey can identify, plan and implement development plans.
8. He also assists the individual employee to add values in the workplace and to focus on the interventions and interpersonal skills for helping people change and sustain change.
9. He assesses the HRD practices and programmer and their impact and to communicate results so that the organization and its people accelerate their change and development.

AccordingtoDaveUlrich HRplay'sfourkeyroles.

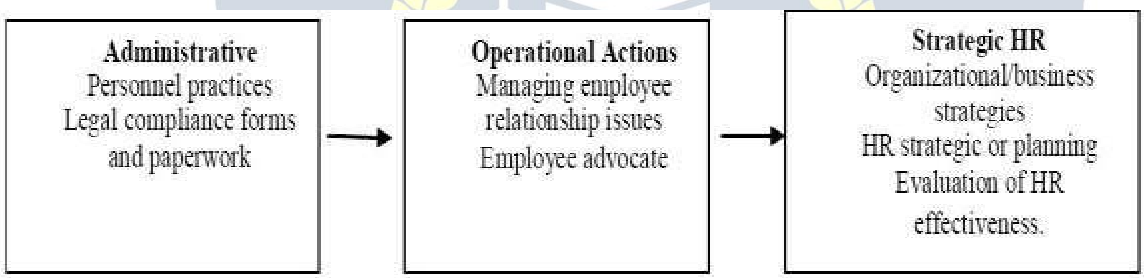
1. **Strategic Partner Role**-turning strategy into results by building organizations that create value;
2. **ChangeAgentRole**-makingchangehappen,andinparticular,helpithappenfast

3. **Employees Champion Role**–managing the talent or the intellectual capital within a firm
4. **AdministrativeRole**–tryingtogetthingstohappenbetter,fasterandcheaper.

The role HR in organizations has undergone an extensive change and many organizations have gradually oriented themselves from the traditional personnel management to a human resources management approach. The basic approach of HRMistoperceivetheorganizationasawhole.Itsemphasisisnotonlyonproduction and productivity but also on the quality of life. It seeks to achieve the paramount development of human resources and the utmost possible socio-economic development.

CurrentClassificationofHRroles

AccordingtoR.LMathisandJ.H.Jackson(2010)severalrolescanbefulfilledbyHR management. The nature and extent of these roles depend on both what upper managementwantsHRmanagementtodoandwhatcompetenciestheHRstaffhave demonstrated. Three roles are typically identified for HR.



1. AdministrativeRoleofHR

The administrative role of HR management has been heavily oriented to administration and recordkeeping including essential legal paperwork and policy implementation.Majorchangeshavehappenedintheadministrativeroleof HRduring therecentyears.Twomajorshiftsdrivingthetransformationoftheadministrativerole are: Greater use of technology and Outsourcing. Technology has been widely used to improve the administrative efficiency of HR and the responsiveness of HR to employees and managers, more HR functions are becoming available electronically or are being done on the Internet using Web-based technology.

Technology is being used in most HR activities, from employment applications and employee benefits enrollments to e-learning using Internet-based resources. Increasingly,manyHRadministrativefunctionsarebeingoutsourcedtovendors.This outsourcing of HR administrative activities has grown dramatically in HR areas such as employee assistance (counseling), retirement planning, benefits administration, payroll services, and outplacement services.

2. OperationalandEmployeeAdvocateRoleforHR

HR managers manage most HR activities in line with the strategies and operations that have been identified by management and serves as employee "champion" for employee issues and concerns HR often has been viewed as the "employee advocate" in organizations. They act as the voice for employee concerns, and spend considerable time on HR "crisis management," dealing with employee problems that are both work-related and not work-related. Employee advocacy helps to ensure fair and equitable treatment for employees regardless of personal background or circumstances.SometimestheHR'sadvocaterolemaycreate conflictwithoperating managers. However, without the HR advocate role, employers could face even more lawsuits and regulatory complaints than they do now.

TheoperationalrolerequiresHRprofessionalstocooperatewithvariousdepartmental and operating managers and supervisors in order to identify and implement needed programsandpoliciesintheorganization.Operationalactivitiesaretacticalinnature. Compliance with equal employment opportunity and other laws is ensured, employment applications are processed, current openings are filled through interviews, supervisors are trained, safety problems are resolved, and wage and benefit questions are answered. For carrying out these activities HR manager matches HR activities with the strategies of the organization.

3. StrategicRoleforHR

The administrative role traditionally has been the dominant role for HR. However, as figureindicatesthatabroadertransformationinHRisneededsothatsignificantlyless HR time and fewer HR staffs are used just for clerical work. Differences between the operational and strategic roles exist in a number of HR areas. The strategic HR role means that HR professionals are proactive in addressing business realities and focusing on future business needs, such as strategic planning, compensation strategies, the performance of HR, and measuring its results. However, in some organizations, HR often does not play a key role in formulating the strategies for the organizationasawhole;insteaditmerelycarriesthemoutthroughHRactivities.Many executives,managers,andHRprofessionalsareincreasinglyseeingtheneedforHR management

to become a greater strategic contributor to the "business" success of organizations. HR should be responsible for knowing what the true cost of human capital is for an employer. For example, it may cost two times key employees' annual salaries to replace them if they leave. Turnover can be controlled though HR activities, and if it is successful in saving the company money with good retention and talent management strategies, those may be important contributions to the bottom line of organizational performance.

TheroleofHRasa*strategicbusinesspartner*isoftendescribedas"havingaseatat thetable,"andcontributingtothestrategicdirectionsandsuccessoftheorganization. That means HR is involved in *devising* strategy in addition to *implementing* strategy. PartofHR'scontributionistohavefinancialexpertiseandtoproducefinancialresults, not just to boost employee morale or administrative efficiencies. Therefore, a significant concern for chief financial officers (CFOs) is whether HR executives are equippedtohelpthemtoplanandmeetfinancialrequirements.However,eventhough this strategic role of HR is recognized, many organizations still need to make significant progress toward fulfilling it.

Someexamplesof areaswherestrategiccontributionscan be madebyHRare:

- Evaluatingmergersandacquisitionsfororganizational“compatibility,”structural changes, and staffing needs
- Conductingworkforceplanningtoanticipatetheretirementofemployeesatall levels and identify workforce expansion in organizational strategic plans
- Leadingsiteselectioneffortsfornewfacilitiesortransferringoperationsto international outsourcing
- locationsbasedonworkforce needs
- InstitutingHRmanagementsystemstoreduceadministrativetime,equipment,and staff by using HR technology
- Workingwithexecutivestodeveloparevised sales
- compensationandincentivesplanasnewproducts

It is the era when for the competitive triumph of the organization there is a need to involve HRM significantly in an integrated manner, which demands such capabilities from the HR specialists. The role of HR shifted from a facilitator to a functional peer with competencies in other functions, and is acknowledged as an equal partner by others. The HR is motivated to contribute to organizational objectives of profitability and customer satisfaction, and is seen as a vehicle for realization of quality development. The department has a responsibility for monitoring employee satisfaction, since it is seen as substitute to customer satisfaction.

According to McKinsey’s 7-S framework model HR plays the role of a catalyst for the organization. According to this framework, effective organizational change is a complex relationship between seven S’s. HRM is a total matching process between the three Hard S’s (Strategy, Structure and Systems) and the four Soft S’s (Style, Staff, Skills and Superordinate Goals). Clearly, all the S’s have to complement each otherandhave to be aligned towards a single corporate vision forthe organization to be effective. It has to be realized that most of the S’s are determined directly or indirectlybythewayHumanResourcesaremanaged,andtherefore, *HRMmustbea part of the total business strategy.*

HRMintheNew Millennium

HumanResourceshaveneverbeenmoreindispensablethantoday.Thecompetitive forces that we face today willcontinue tofacein thefuturedemandingorganizational excellence. In order toachieve thisextendedquality, organization’sneed tofocuson learning,qualitydevelopment,teamwork,andreengineering.Thesefactorsaredriven by the way organizations implement things and how employees are treated.

1. **HR Can Help in Dispensing Organizational Excellence:** To achieve this paradigm shift in the organization excellence there is a need for organizations to reform the way in which work is carried out by the Human Resource department. Bydesigninganentirelynewroleandagendathatresultsinenrichingthe

organization’s value to customers, investors and employees, HR can help in delivering organizational excellence.

This can be carried out by helping line managers and senior mangers in moving planningfrom the conference room to the market place and bybecomingan expert in the way work is organized and executed. HR should be a representative of the employees and should help the organization in improving its capacity for change. HR will help the organizations in facing the competitive challenges such as globalization, profitability through growth, technology, intellectual capital, and other competitive challenges that the companies are facing while adjusting to uncontrollably challenging changes in business environment. The novel role of HR is to rapidly turn strategy into action; to manage processes intelligently and efficiently; to maximize employee contribution and commitment and to construct favorable conditions for flawless change.

2. **Human Resource Should be a Strategy Partner:** HR should also become a partner in strategy executions by propelling and directing serious discussions of how the company should be organized to carry out its strategy. Creating the conditions for ths discussion involves four steps.

   First HR need to define an organizational architecture by identifying the company’s way of doing business. Second, HR must be held responsible for conducting an organizational audit. Third, HR as a strategic partner needs to identifymethodsforrestoringthepartsoftheorganizationalarchitecturethatneed it. Fourth and finally, HR must take stock of its own work and set clear priorities. In their new role as administrative experts they will need to shed their traditional image and still make sure all routine work for the company is done well.

3. **HR Accountability Should be Fixed to Ensure Employee Commitment:** HR must be held accountable for ensuring that employees feel committed to the organization and contribute fully. They must take responsibility for orienting and traininglinemanagementabouttheimportanceofhighemployeemoraleandhow to achieve it. The new HR should be the voice of employees in management discussions. The new role for HR might also involve suggesting that more teams beusedonsomeprojectsorthatemployeesbegivenmorecontrolovertheirown work schedules.

4. **The New HR Must Become a Change Agent:** The new HR must become a change agent, which is building the organization’s capacity to embrace and capitalizeonchange.Eventhoughtheyarenotprimarilyresponsibleforexecuting changeitisthedutyoftheHRmanagertomakesurethattheorganizationcarries out the changes framed for implementation.

5. **ImprovingtheQualityofHR:** The most important thingthat managerscan do to drivethenewmandateforHRistoimprovethequalityoftheHRstaffitself.Senior executives must get beyond the stereotypes of HR professionals as incompetent support staff and unleash HR’s full potential.

6. **ChangeinEmploymentPractices:**Thebalancesheetofanorganizationshows human resource as an expense and not as a Capital. In the information age, it is

perceived that the machines can do the work more efficiently than most people however; technology to work is dependent on people. The challenges for Employment Practice in the New Millennium will require that there should be strategic involvementof the peopleand labour-management partnerships as they both have to take organization ahead.

7. **BenchmarkingToolMustbeMasteredbyHRProfessionals:**HRprofessionals mustmaster benchmarking, which is a toolfor continuous improvement- directing the human side associated with the strategic path adopted by the organization. Throughthis,HRdepartmentwillstartappreciatingthechangeshappeningwithin and outside the environment while expanding the knowledge about how to add value to decision making at the highest level of the organization.

8. **Aligning Human Resources to Better Meet Strategic Objectives:** Too often organizations craft their strategy in a vacuum. Some organizations don't even include key people during strategy formulation resulting in lacunae between the actual problems and the solutions implemented- as critical inputs are not sought from those individualswho are supposed to implement thenewstrategies. Apast CEO of Sony once said that organizations have access to the same technology and the same information.

Thedifferencebetweenanytwoorganizationsisthe"people"-thehumanresource. Empoweringtheworkforceisanessentialtoolforaligninghumanresourceswiththe achievement of corporate objectives. It is the duty of HR manager to hire talented humanresourceandtoprovidethemwithapositiveenvironment wheretheywillbe abletoutilizetheirskillsandpotentialsandtocreateanenvironmentinwhichthese individuals are comfortable taking risks.

9. **Promote From Within and Invest in Employees:** Promoting employees from within sends a powerful message that the organization's employees are valued. New blood and fresh ideas often come from newcomers to the organization. To avoidstagnationofthefirm,newideasandapproachesarecritical.Yettoimprove employee morale, promoting individuals from within the organization is essential. This communicates that the organization values their employees and invests in their human resources.

10. **Review the Recruitment and Selection Process:** A key element of human resource planning is ensuring that the supply of appropriate employees (with the right skill mix) is on board when needed. This requires a proactive approach whereby the organization anticipates its needs well in advance. It is important to identify the competencies being sought. That is, the criteria upon which selection decisions are to be made should be decided in advance.

firm must identify those skill sets required by employees to be successful. Charles O'Reillysuggeststhatcompaniesshouldhireforattitude(perhapsevenmoresothan technicalskills).Thatis,thefitoftheindividualwiththevaluesoftheorganizationand thecultureofthefirmshouldalsobeconsideredwhenselectingemployees.Thishas beenreferredtoastheperson-organizationfit.Itisnolongerenoughtosimply consider the person’s fit (and technical skill set) with the job. Part of the employee’s fit with the organization should focus on the core values and beliefs of the organization.Thiswillincreaseemployees’contributionstotheoverallsuccessofthe organization if theyalreadyembrace the core values of the organization prior to their selection.

11. **Communicate Mission and Vision:** If employees are expected to contribute to the attainment of the organization’s strategic objectives, they must understand what their role is. This can be achieved in part by clearly communicating the mission and vision statements of the firm. The old adage is certainly true. If a persondoesnotknowwhereheorsheisgoing,anyroadwillgethimorherthere. Themissioncommunicatestheidentityandpurposeoftheorganization.Itprovides a statement of who the firm is and what their business is. Only those employees who understand this purpose can contribute to the fullest extent possible. The vision statement provides a picture of the future state of the firm. It should be a stretch to attain.

Thiskeepsalltheorganization’semployeespullinginthesamedirectionwitha common end point. It is much easier to align human resources with corporate objectiveswhentheseemployeesarefamiliarwiththemissionandvisionofthefirm. As themission andvision statementsarearticulated,organizationalmembersbegin tomorecloselyembracetheirverymeaningonanindividuallevel.Thesestatements provide a road map leading employees down the road to achieve organizational objectives. Employees then identify how they can contribute their unique talents toward the attainment of these goals.

12. **UseTeamstoAchieveSynergy:** Synergycan be conciselydefined as“two plus twoequalsfive”.Inotherwords,thewholeisgreaterthanthesumoftheparts.So much more can be achieved as people work together. Through the effective use ofteams,organizationscanoftenachievesynergy.Teamgoals,however,mustbe aligned with the organization’s strategic objectives. Aligning team objectives with overallcorporateobjectivesensuresthatpeopleareworkingtowardthesamegoal .

HumanResourcePlanning

Introduction

As told in the last chapter Human resource management has started to play a significantroleintheoverallstrategicdevelopmentoftheorganization.AtpresentHR strategies aredesigned in tune with theoverallbusinessstrategyof the organization. HR strategyshould sub serve the interestof the organization, translating firm’s goals andobjectivesintoaconsistent,integratedandcomplimentarysetofprogrammerand policiesformanagingpeople.Firstpartof HumanresourcestrategyisHRP –Human Resource Planning. All other HR activities like employee hiring, training and development,remuneration,appraisalandlabourrelationsarederivedfromHRP.HR planning is important in a wide variety of industries and firms. HR planning affects what employers do when recruiting, selecting, and retaining people, and of course these actions affect organizational results and success. The challenges caused by changingeconomicconditionsduringrecentyear’sshowwhyHR workforceplanning shouldoccur.StaffinganorganizationisanHRactivitythatisbothstrategicand operational in nature. As the HR Headline indicates, HR planning is important in a wide variety of industries and firms. HR planning affects what employers do when recruiting, selecting, and retaining people, and, of course these actions affect organizational results and success. Human Resources planning mean different means to different organizations. To some companies, human resources planning mean management development. It involve helping executives to make better decisions,communicatemoreeffectively,andknowmoreaboutthefirm.Thepurpose of HRP is to make the manager a better equipped for facing the present and future.

HumanResourcePlanning(HRP)

Human resourceplanning is important for helping both organizations and employees to prepare for the future. The basic goal of human resource planning is to predict the future and based on these predictions, implement programmed to avoid anticipated problems. Very briefly humans resource planning is the process of examining an organization'sorindividual'sfuturehumanresourceneedsforinstance,whattypesof skills will be needed for jobs of the future compared to future human resource capabilities(suchasthetypesofskilledemployeesyoualreadyhave)anddeveloping human resource policies and practices to address potential problems for example, implementing training programmers to avoid skill deficiencies.

DefinitionofHumanResourcePlanning

AccordingtoVetter,"HRPistheprocessbywhichmanagementdetermineshowthe organization should move from its current man power position to desired manpower position. Through planning, management strives to have the right time, doing things which result in both the organization and individual receiving maximum long run benefits".AccordingtoGordonMcBeath,"HRPisconcernedwithtwothings:Planning of manpower requirements and Planning of Manpower supplies".

According to Beach, "HRP is a process of determining and assuming that the organization will have an adequate number of qualified persons, available at proper times, performing jobs which meet the needs of the enterprise and which provides satisfaction for the individuals involved" Simply HRP can be understood as the process of forecasting an organization's future demands for and supply of the right type of people in the right number. In other words HRP is the process of determining manpower needs and formulating plans to meet these needs.

HRPisaFour-PhasedProcess.

- **The first phase** involves the gathering and analysis of data through manpower inventories and forecasts,
- **Thesecondphase**consistsofestablishingmanpowerobjectivesandpoliciesand gaining top management approval of these.
- **The third phase** involves designing and implementing plans and promotions to enable the organization to achieve its manpower objectives.
- **The fourth phase** is concerned with control and evaluation of manpower plans to facilitate progress in order to benefit both the organization and the individual. The long run view means that gains may be sacrificed in the short run for the future grounds.Theplanningprocessenablestheorganizationtoidentifywhatits

manpowerneedsisandwhatpotentialmanpowerproblemsrequiredcurrentaction. This leads to more effective and efficient performance.

NatureofHRP

Human resource planning is the process of analyzing and identifying the availability and the need for human resources so that the organization can meet its objectives. The focus of HR planning is to ensure that the organization has the right number of humanresources,withtherightcapabilities,attherighttimes,andintherightplaces. InHRplanning,anorganizationmustconsidertheavailabilityandallocationofpeople to jobs over long periods of time, not just for the next month or the next year. HRP is a sub system in the total organizational planning. Actions may include shifting employeestootherjobsintheorganization,layingoffemployeesorotherwisecutting backthenumberofemployees,developingpresentemployees,and/orincreasingthe number of employees in certain areas. Factors to consider include the current employees'knowledge,skills,andabilitiesandtheexpectedvacanciesresultingfrom retirements, promotions, transfers, and discharges. To do this, HR planning requires efforts by HR professionals working with executives and managers.

ObjectivesofHumanResourcePlanning

1. Toensureoptimumutilizationofhumanresourcescurrentlyavailableinthe organization.
2. Toassessorforecastthefuture skillrequirementoftheorganization.
3. To provide control measures to ensure that necessary resources are available as and when required.
4. Aseriesofspecifiedreasonsaretherethatattachesimportancetomanpower planning and

forecastingexercises.Theyareelaboratedbelow:

- Tolinkmanpowerplanningwiththeorganizationalplanning Todeterminerecruitment levels.
- Toanticipateredundancies.
- Todetermineoptimumtraininglevels.
- Toprovideabasisformanagementdevelopmentprograms.
- Tocostthemanpower.
- Toassistproductivitybargaining.
- Toassessfutureaccommodation requirement.
- Tostudythe costof overheadsandvalueofservice functions.
- Todecidewhethercertainactivityneedstobesubcontracted,etc.

HRP exists as a part of planning process of business. This is the activity that aims to coordinatetherequirementsfortheavailabilityofthedifferenttypesofemployers.The major activities are the forecasting, (future requirements), inventorying (present strength), anticipating (comparison of present and future requirements) and planning (necessaryprogramtomeettherequirements).TheHRforecastsareresponsiblefor estimating the number of people and the jobs needed by an organization to achieve itsobjectivesandrealizeitsplansinthemostefficientandeffectivemanner.HRneeds arecomputedbysubtractingHRsuppliesornumberof theemployeesavailablefrom expected HR demands or number of people required to produce a desired level of outcome.TheobjectiveofHRistoproviderightpersonnelfortherightworkand optimum utilization of the existing human resources. The objectives of human resource planning may be summarized as below:

- ***Forecasting Human Resources Requirements:*** HRP is essential to determine the future needs of HR in an organization. In the absence of this plan it is very difficult to provide the right kind of people at the right time.
- ***Effective Management of Change:*** Proper planning is required to cope with changesinthedifferentaspectswhichaffecttheorganization.Thesechangesneed continuationofallocation/reallocationandeffectiveutilizationofHRinorganization.
- ***Realizing the Organizational Goals:*** In order to meet the expansion and other organizational activities the organizational HR planning is essential.
- ***Promoting Employees:*** HRP gives the feedback in the form of employee data which can be used in decision-making in promotional opportunities to be made available for the organization.
- ***Effective Utilization of HR:*** The data base will provide the useful information in identifying surplus and deficiency in human resources. The objective of HRP is to maintain and improve the organizational capacity to reach its goals by developing appropriate strategies that will result in the maximum contribution of HR.

NeedforHRPinOrganizations

Majorreasonsfortheemphasison HRPat theMacro level:

1) **Employment-Unemployment Situation:** Though in general the number of educated unemployment is on the rise, there is acute shortage for a variety of skills. This emphasizes on the need for more effective recruitment and employee retention.
2) **Technological Change:** The changes in production technologies, marketing methods and management techniques have been extensive and rapid. Their effecthasbeenprofoundonthejobcontentsandjobcontexts.Thesechanges have caused problems relating to redundancies, retention and redeployment. All these suggest the need to plan manpower needs intensively and systematically.
3) **DemographicChange:**Thechangingprofileoftheworkforceintermsofage, sex,literacy,technicalinputsandsocialbackgroundhasimplicationsforHRP.
4) **Skill Shortage:** Unemployment does not mean that the labour market is a buyer’s market. Organizations generally become more complex and require a wide range of specialist skills that are rare and scare. A problem arises in an organization when employees with such specialized skills leave.
5) **Governmental Influences:** Government control and changes in legislation with regard to affirmative action for disadvantages groups, working conditions and hours of work, restrictions on women and child employment, causal and contractlabor,etc.havestimulatedtheorganizationstobebecomeinvolvedin systematic HRP.
6) **Legislative Control:** The policies of “hire and fire” have gone. Now the legislation makes it difficult to reduce the size of an organization quickly and cheaply. It is easy to increase but difficult to shed the fat in terms of the numbers employed because of recent changes in labor lawrelating to lay-offs

andclosures.Thoseresponsibleformanagingmanpowermustlookfarahead and thus attempt to foresee manpower problems.

7) **Impact of the Pressure Group:** Pressure groups such as unions, politicians and persons displaced from land by location of giant enterprises have been raising contradictory pressure on enterprise management such as internal recruitment and promotion, preference to employees' children, displace person, sons of soil etc.
8) **Systems Approach:** The spread of system thinking and advent of the macro computerasthepartoftheon-goingrevolutionininformationtechnologywhich emphasisplanningandnewerwaysofhandlingvoluminouspersonnelrecords.
9) **LeadTime:**Thelogleadtimeisnecessaryintheselectionprocessandtraining and deployment of the employee to handle new knowledge and skills successfully.

Importance ofHRP

HRP is the subsystem in the total organizational planning. Organizational planning includes managerial activities that set the company's objective for the future and determines the appropriate means for achieving those objectives. The importance of HRP is elaborated on the basis of the key roles that it is playing in the organization.

1. **Future Personnel Needs:** Human resource planning is significant because it helps to determine the future personnel needs of the organization. If an organization is facing the problem of either surplus or deficiency in staff strength,thenitistheresultoftheabsenceofeffectingHRplanning.Allpublic sector enterprises find themselves overstaffed now as they never had any planning for personnel requirement and went of recruitment spree till late 1980's. The problem of excess staff has become such a prominent problem that many private sector units are resorting to VRS 'voluntary retirement scheme'. The excess of labor problem would have been there if the organizationhadgoodHRPsystem.EffectiveHRPsystemwillalsoenablethe organization to have good succession planning.
2. **Part of Strategic Planning:** HRP has become an integral part of strategic planning of strategic planning. HRP provides inputs in strategy formulation process interms of deciding whether the organization has gotthe right kindof humanresourcestocarryoutthegivenstrategy.HRPisalsonecessaryduring the implementation stage in the form of deciding to make resource allocation decisions related to organization structure, process and human resources. In someorganizations HRP play as significant role as strategic planning and HR issues are perceived as inherent in business management.
3. **Creating Highly Talented Personnel**: Even though India has a great pool of educated unemployed, it is the discretion of HR manager that will enable the company to recruit the right person with right skills to the organization. Even the existing staff hope the job so frequently that organization face frequent shortage of manpower. Manpower planning in theform of skill development is required to help the organization in dealing with this problem of skilled manpower shortage
4. **International Strategies:** An international expansion strategy of an organization is facilitated to a great extent by HR planning. The HR department's ability to fill key jobs with foreign nationals and reassignment of employees from within or across national borders is a major challenge that is

being faced by international business. With the growing trend towards global operation,theneedforHRPwillaswellwillbetheneedtointegrateHRPmore closely with the organizations strategic plans. Without effective HRP and subsequent attention to employee recruitment, selection, placement, development, and career planning, the growing competition for foreign executivesmayleadtoexpensiveandstrategicallydescriptiveturnoveramong key decision makers.

5. **FoundationforPersonnelFunctions:**HRPprovidesessentialinformationfor designing and implementing personnel functions, such as recruitment, selection, training and development, personnel movement like transfers, promotions and layoffs.
6. **Increasing Investments in Human Resources:** Organizations are making increasing investments in human resource development compelling the increased need for HRP. Organizations are realizing that human assets can increase in value more than the physical assets. An employee who gradually develops his/ her skills and abilities become a valuable asset for the organization. Organizations can make investments in its personnel either throughdirecttrainingorjobassignmentandtherupeevalueofsuchatrained, flexible, motivated productive workforce is difficult to determine. Top officials have started acknowledging that quality of work force is responsible for both short term and long term performance of the organization.
7. **Resistance to Change:** Employees are always reluctant whenever they hear about change and even about job rotation. Organizations cannot shift one employeefromonedepartmenttoanotherwithoutanyspecificplanning.Even for carrying out job rotation (shifting one employee from one department to another) there is a need to plan well ahead and match the skills required and existing skills of the employees.
8. **Uniting the Viewpoint of Line and Staff Managers:** HRP helps to unite the viewpoints of line and staff managers. Though HRP is initiated and executed by the corporate staff, it requires the input and cooperation of all managers within an organization. Each department manager knows about the issues faced by his department more than anyone else. So communication between HR staff and line managers is essential for the success of HR Planning and development.
9. **SuccessionPlanning:** Human ResourcePlanningprepares peopleforfuture challenges. The 'stars' are picked up, trained, assessed and assisted continuouslysothatwhenthetimecomessuchtrainedemployeescanquickly take the responsibilities and position of their boss or seniors as and when situation arrives.
10. **Other Benefits:** (a) HRP helps in judging the effectiveness of manpower policies and programmers of management. (b) It develops awareness on effective utilization of human resources for the overall development of organization.(c)Itfacilitatesselectionandtrainingofemployeeswithadequate knowledge, experience and aptitudes so as to carry on and achieve the organizational objectives (d) HRP encourages the company to review and modify its human resource policies and practices and to examine the way of utilizing the human resources for better utilization.

FactorsAffectingHRP

HRP is influenced by several factors. The most important of the factors that affect HRPare

(1) typeand strategyoforganization
(2) organizationalgrowthcyclesandplanning
(3) environmentaluncertainties
(4) time horizons
(5) typeandqualityofforecastinginformation(6)natureofjobsbeingfilledand
(7)offloadingthework.

1. **Type andStrategyofthe Organization:** Type of the organization determines the production processes involve, number and type of staff needed and the supervisory and managerial personnel required. HR need is also defined by the strategic plan of organization. If the organization has a plan for organic growth then organization need to hire additional employees.

   OntheotherhandIftheorganizationisgoingformergersandacquisition,then organization need to plan for layoffs, as mergers can create, duplicate or overlap positions that can be handled more efficiently with fewer employees. Organization first decides whether to be reactive or proactive in HRP. Organizations either carefully anticipate the needs and systematically plan to fill the need in advance (proactive) or can simply react to the needs as they arise(reactive).Likewise,theorganizationmustdeterminethewidthoftheHR plan. Organization can choose a narrow focus by planning in only one or two HR areas like recruitment and selection or can have a broad perspective by planning in all areas including training and remuneration.

   The nature of HR plan is also decides upon the formality of the plan. It can decidestohave an informalplan thatliesmostlyin themindsof themanagers andpersonnelstafforcanhaveaformalplanwhichisproperlydocumentedin writing The nature of HR plan is also depended upon the flexibility that is practicedintheorganization.HRplanshouldhavetheabilitytoanticipateand deal with contingencies. Organizations frame HRP in such a way that it can containmanycontingencies,whichreflectdifferentscenariosstherebyassuring that the plan is flexible and adaptable.

   determines the nature and extends of HRP. Small organizations in the earlier stages of growth may not have well defined personnel planning. But as the organization enters the growth stage they feel the need to plan its human resource. At this stage organization gives emphasis upon employee development. But as the organization reaches the mature stage it experience lessflexibilityandvariabilityresultinginlowgrowthrate.HRplanningbecomes more formalized and less flexible and less innovative and problem like retirement and possible retrenchment dominate planning.

   Summarizes the five factors that influence an organization while framing it"s strategic HRP.

2. Organizational growth Cycles and Planning: all organizations from the day of its inception.ThestageofgrowthinwhichanorganizationisDuringthedecliningstageofthe organization HRP takes a different focus like planning to do the layoff, retrenchment and retirement. Indecliningsituation planningalways becomes reactive in naturetowards the financial and sales distress faced by the company.

Table 2.1 : Degree of Uncertainty and Length of Planning Period

Short Planning period- uncertainty/ instability	Long planning period- certainty/ stability
Many new competitors Rapid changes in social and economic conditions	Strong competitive position Evolutionary, rather than rapid social, political and technological change
Unstable product/ service demand patterns Small organizational size, poor management practices (crisis Management)	Stable demand patterns Strong management practices.

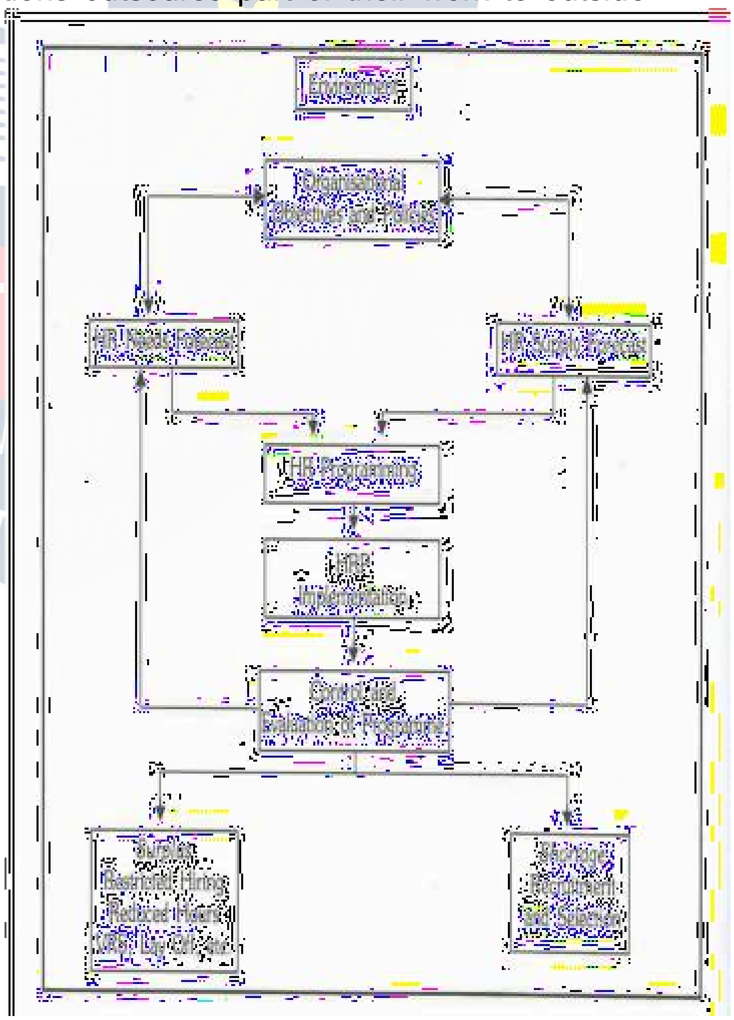
3. **Environmental Uncertainties:** Political, social and economic changes affect allorganizationsandthefluctuationsthatarehappeningintheseenvironments affect organizations drastically. Personnel planners deal with such environmental uncertainties by carefully formulating recruitment, selection, training and development policies and programmers. The balance in the organization is achieved through careful succession planning, promotion channels, layoffs, flexi time, job sharing, retirement, VRS and other personnel related arrangements.
4. **Time Horizons:** HR plans can be short term or long term. Short term plans spansfromsixmonthsto one year,while longterm plansspreadoverthreeto twentyyears.Theextentoftimeperioddependsuponthedegreeofuncertainty that is prevailing in an organizations environment. Greater the uncertainty, shorter the plan time horizon and vice versa.

5. **TypeandQualityofinformation:**Theinformationusedtoforecastpersonnel needs originatesfroma multitude of sources. The forecast depends to a large extent upon the type of information and the quality of data that is available to personnel planners. The quality and accuracy of information depend upon the

claritywithwhichtheorganizationaldecisionmakershavedefinedtheir strategy, structure, budgets, production schedule and so on.

Strategic Information	General Organizational Information	Specific Information Necessary for HRP
Product mix Customer mix	Organizational structure Information flows	Job analysis Skills inventories
Competitive emphasis	Operating and capital budgets Functional area objectives	Management inventories
Geographic limits of market	Production schedules Distribution channels	Available training and development programmes
	Sales territories Production processes	Recruitment sources
	Level of technology Planning horizons	Labour market analysis Compensation programmes Constitutional provisions and labour laws
		Retirement plans Turnover data.

6. **NatureofJobsBeingFilled:**Personnelplannersneedtobereallycarefulwith respect to the nature of the jobs being filled in the organization. Employees belonging to lower level who need very limited skills can be recruited hastily but,whilehiringemployeesforhigherposts,selectionandrecruitmentneedto be carried out with high discretion. Organization need to anticipate vacancies far in advance as possible, to provide sufficient time to recruit suitable candidate.
7. **Outsourcing:** Several organizations outsource part of their work to outside partiesintheformof subcontract. Outsourcing is a regular feature both in the public sector as well as in the private sector companies. Manyoftheorganizationshave surplus labor and hence instead of hiring more people they go for outsourcing. Outsourcingisusuallydonefor non critical activities. Outsourcing of non- critical activities through subcontracting determines HRP.



HRPProcess

HRP effectively involves forecasting personnel needs, assessing personnel supplyandmatchingdemand – supply factors through personnel related programmers. The HR planning process is influenced by overall organizationalobjectives andenvironment of business.

EnvironmentalScanning:
Itreferstothesystematicmonitoringoftheexternalforcesinfluencingtheorganization. The following forces are essential for pertinent HRP.

- Economicfactors,includinggeneral and regionalconditions.
- Technologicalchanges
- Demographic changes including age, composition and literacy, Political and legislative issues, including laws and administrative rulings Social concerns, including child care, educational facilities and priorities.

By scanning the environment for changes that will affect an organization, managers can anticipate their impact and make adjustments early.

Organizational Objectives and Policies: HR plan is usually derived from the organizational objectives. Specific requirements in terms of number and characteristics of employees should be derived from organizational objectives Once the organizational objectives are specified, communicated and understood by all concerned,theHRdepartmentmustspecifyitsobjectivewithregardtoHRutilization in the organization.

HRDemand Forecast:
Demand forecasting is the process of estimating the future quantity and quality of peoplerequiredtomeetthefutureneedsoftheorganization.Annualbudgetandlong- term corporate plan when translated into activity into activity form the basis for HR forecast. For eg: in the case of a manufacturing company, the sales budget will form the basis for production plan giving the number and type of products to be produced in each period. This will form the basis upon which the organization will decide the numberof hours to beworked by each skilled categoryof workers.Once the number hours required is available organization can determine the quality and quantity of personnel required for the task.

Demand forecasting is influenced by both internal factors and external factors: external factors include competition, economic climate, laws and regulatory bodies, changes in technology and social factors whereas internal factors are budget constraints,productionlevel,newproductsandservices,organizationalstructureand employee separations.

Demandforecastingisessentialbecauseithelpstheorganizationto

1. Quantifythejobs,necessaryforproducinga given numberofgoods,
2. Todetermine thenatureofstaffmixrequired in the future,
3. To assess appropriate levels in different parts of organization so as to avoid unnecessary costs to the organization,
4. To prevent shortages of personnel where and when, they are needed by the organization.
5. Tomonitorcompliances with legal requirements with regard toreservation of jobs. Techniques like managerial judgment, ratio- trend analysis, regression analysis, work studytechniques, Delphi techniques aresomeof the major methodsusedby the organization for demand forecasting.

HRSupplyForecast:

Supply forecast determines whether the HR department will be able to procure the requirednumberofworkers.Supplyforecastmeasuresthenumberofpeoplelikelyto be available from within and outside an organization, after making allowance for absenteeism, internal movements and promotions, wastage and changes in hours, and other conditions of work.

Supplyforecastisrequired becauseit isneeded asit

1. Helpstoquantifythenumberofpeopleandpositionsexpectedtobeavailableinfuture to help the organization realize its plans and meet its objectives
2. Helpstoclarifythestaffmixesthatwillariseinfuture
3. Itassessesexistingstaffingindifferentpartsof theorganization.
4. Itwillenabletheorganizationtopreventshortageofpeoplewhereandwhentheyare most needed.
5. Italsohelpstomonitorfuturecompliancewithlegalrequirementsofjobreservations. Supplyanalysis covers theexistinghuman resources, internal sources of supplyand external sources of supply.

HRProgramming:

Onceanorganization'spersonneldemandandsupplyareforecastedthedemandand supply need to be balanced in order that the vacancies can be filled by the right employees at the right time.

HRPlanImplementation:

HR implementation requires converting an HR plan intoaction. A series of action are initiated as a part of HR plan implementation. Programmes such as recruitment, selection andplacement, training and development, retraining and redeployment, retention plan, succession plan etc when clubbed together form the implementation part of the HR plan.

ControlandEvaluation:

Control and evaluation represent the final phase of the HRP process. All HR plan include budgets, targets and standards. The achievement of the organization will be evaluatedandmonitoredagainsttheplan.Duringthisfinalphaseorganizationwillbe evaluating on the number of people employed against the established (both those who are in the post and those who are in pipe line) and on the number recruited against the recruitment targets. Evaluation is also done with respect to employment cost against the budget and wastage accrued so that corrective action can be taken in future.

RequisitesforSuccessfulHRP

1. HRPmustberecognized asanintegralpart ofcorporateplanning
2. Support of topmanagement is essential
3. There should be some centralization with respect to HRP responsibilities in order to have co-ordination between different levels of management.
4. Organizationrecordsmustbe complete,up todateandreadilyavailable.

5. TechniquesusedforHRplanningshouldbethosebestsuitedtothedataavailable and degree of accuracy required.
6. Data collection, analysis, techniques of planning and the plan themselves need to be constantly revised and improved in the light of experience.

BarrierstoHRP

Human Resource Plannersface significant barriers while formulating an HRP.The major barriers are elaborated below:

1) HRpractitionersareperceivedasexpertsinhandlingpersonnelmatters,butare not experts in managing business.
2) The personnel plan conceived and formulated by the HR practitioners when enmeshedwithorganizationalplan,mightmaketheoverallstrategicplanofthe organization ineffective
3) HR information often is incompatible with other information used in strategy formulation.Strategicplanningeffortshavelongbeenorientedtowardsfinancial forecasting, often to the exclusion of other types of information. Financial forecasting takes precedence over HRP.
4) Conflict may exist between short term and long term HR needs. For example, there can be a conflict between the pressure to get the work done on time and longtermneeds,suchaspreparingpeopleforassuminggreaterresponsibilities. Many managers are of the belief that HR needs can be met immediately because skills are available on the market as long as wages and salaries are competitive. Therefore, long times plans are not required, short planning are only need.
5) ThereisconflictbetweenquantitativeandqualitativeapproachestoHRP.Some peopleviewHRPasanumbergamedesignedtotracktheflowofpeopleacross the department. Others take a qualitative approach and focus on individual employeeconcernssuchaspromotionandcareerdevelopment.Bestresultcan be achieved if there is a balance between the quantitative and qualitative approaches.
6) Non-involvement of operating managers renders HRP ineffective. HRP is not strictly an HR department function. Successful planning needs a co-ordinate effort on the part of operating managers and HR personnel.

JobAnalysisandJob Design

Introduction

Manpowerplanningisconcernedwithdeterminationofquantitativeandqualitative requirements of manpower for the organization. Determination of manpower requirements is one of the most important problems in manpower planning. Job analysis and job design, provide this knowledge. Before going through the mechanism of job analysis and job design, it is relevant to understand the terms which are used in job analysis and job design.

- **Job:** A job may be defined as a “collection or aggregation of tasks, duties andresponsibilitieswhichasawhole,areregardedasaregularassignment to individual employees,” and which is different from other assignments, In other words, when the total work to be done is divided and grouped into packages, we call it a “job.” Each job has a definite title based upon standardized trade specifications within a job; two or more grades may be identified, wherethe workassignment maybe graded accordingto skill, the difficultyofdoingthem,orthequalityofworkmanship.Thus,itmaybenoted thatapositionisa“collectionotasksandresponsibilitiesregularlyassigned to one person;” while a job is a “group of position, which involve essentially thesameduties,responsibilities,skillandknowledge.”Apositionconsistsof aparticularsetofdutiesassignedtoanindividual.DecenzoandP.Robbins define other terms as follows:

- **Task:** Itisa distinct workactivitycarriedoutforadistinct purpose.
- **Duty:**Itisanumber of tasks.
- **Position:** It refers to one or more duties performed by one person in an organization, There are at least as many positions as there are workers in the organization; vacancies may create more positions than employees.
- **Job:**It isatype of position within the organization.
- **JobFamily:**Itisgroupoftwoormorejobsthateithercallforsimilarworker characteristicsorcontainparallelworktasksasdeterminedbyjobanalysis.
- **Occupation:** It isagroup ofsimilarjobsfound acrossorganizations.
- **Career:** It represents a sequence of positions, jobs, or occupations that a person has over his working life.

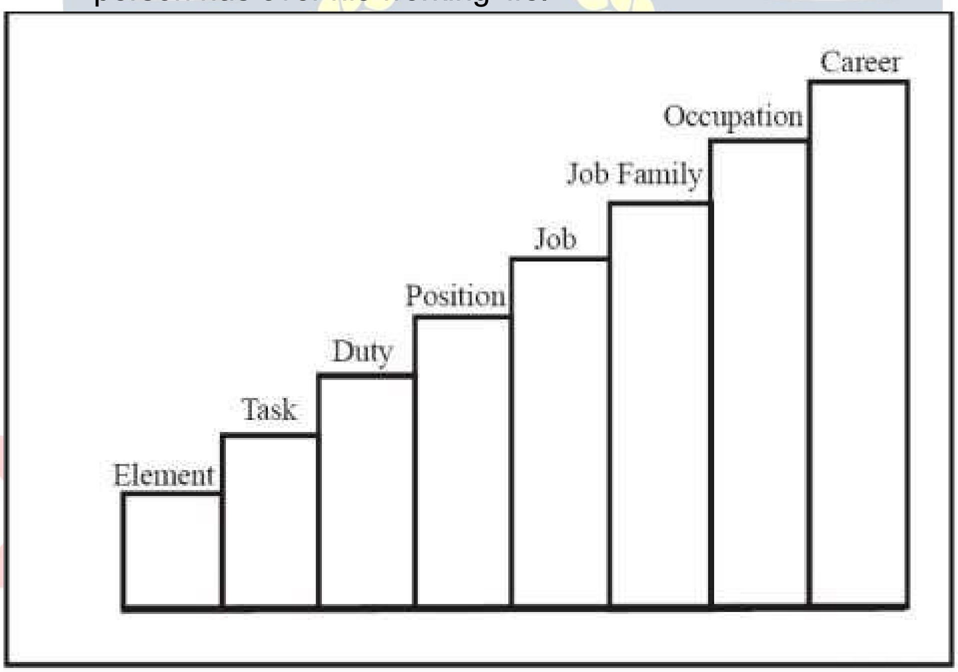


Figure 3.1: Job Analysis Information Hierarchy

JobAnalysisDefined

Developinganorganizationalstructure,resultsinjobswhichhavetobestaffed.Job analysisistheprocedurethroughwhichyoudeterminethedutiesandnatureofthe jobsandthekindsofpeople(intermsofskillsandexperience)whoshouldbehired for them.’ It provides you with data on job requirements, which are then used for developingjobdescriptions(whatthejobentails)andjobspecifications(what kind of people to hire for the job). Some of the definitions of job analysis ate given as follows, to understand the meaning of the term more clearly:

According to Michael L. Jucius, “Job analysis refers to the process of studying the operations, duties and organizational aspects of jobs in order to derive specifications or as they called by some, job descriptions.”

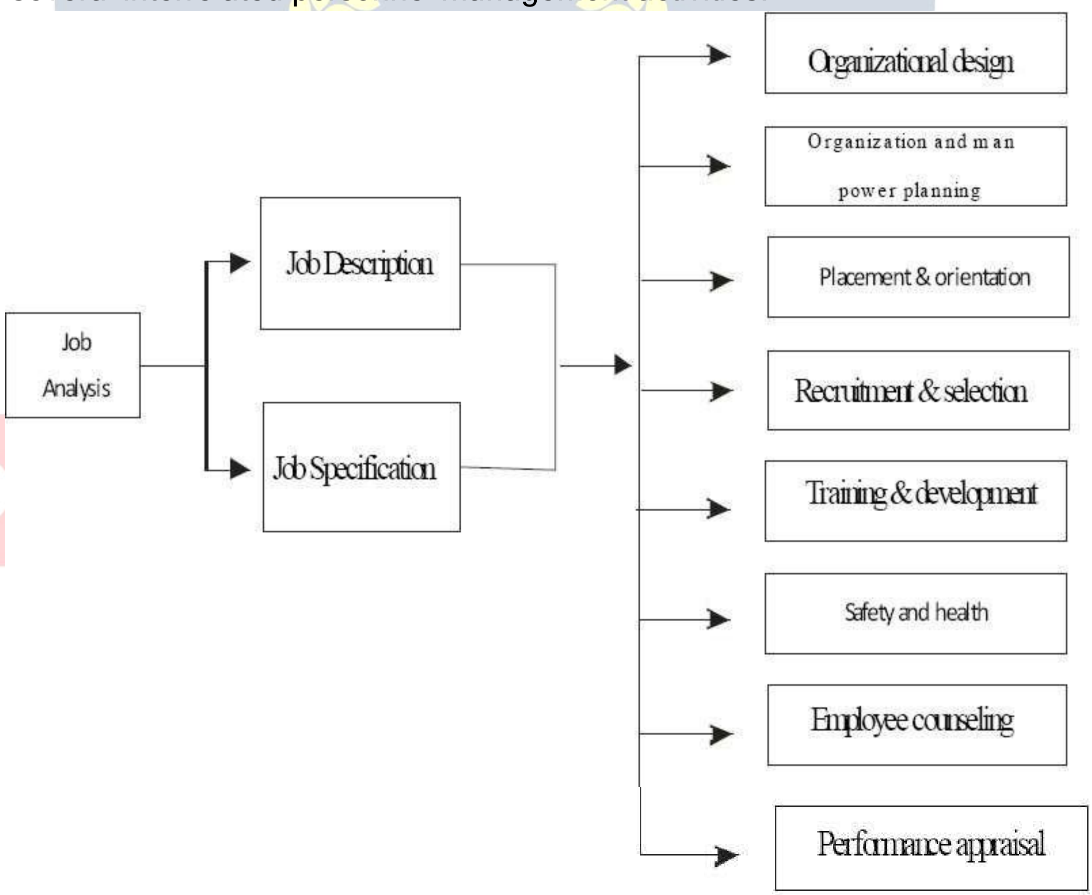
According to DeCenzo and P. Robbins, "A job analysis is a systematic exploration of the activities within a job. It is a basic technical procedure, one that is used to define the duties, responsibilities, and accountabilities of a job."

AccordingtoHerbertGHerman"Ajobisacollectionoftasksthatcanbeperformed by a single employee to contribute to the production of some product or service provided by the organization. Each job has certain ability requirements (as well as certain rewards) associated with it. Job analysis process used to identify these requirements."

Flippo has offered a more comprehensive definition of job analysis as, "Job analysisistheprocessofstudyingandcollectinginformationrelatingtotheoperations and responsibilities of a specific job. The immediate products of the analysis are job descriptions and job specifications" Thus, job analysis involves the process of identifyingthenatureofajob(jobdescription)andthequalitiesofthelikelyjobholder (job specification).

UsesofJobAnalysis

As summarized in Figure 3.2 the information generated by the job analysis is used as a basis of several interrelated personnel management activities:



1. AchievementofGoals: WeatherandDavishave stated,"Jobsareatthe coreof every organization's productivity, if they are designed well and done right, the organization makes progress towards its objectives. Otherwise, productivity suffers, profitsfall, and the organization is less able to meet the demands of society, customer, employees, and other with a stake in its success."

2. Organizational Design: Job analysis will be useful in classifying the jobs and the interrelationships among the jobs. On the basis of information obtained through job analysis, sound decisions regarding hierarchical positions and functional differentiation can be taken and this will improve operational efficiency.

3. **Organization and Manpower Planning:** It is helpful in organization planning,for it defines labor in concrete terms and co-ordinates the activities of the work force, and clearly divides duties and responsibilities.

4. **RecruitmentandSelection:**Jobanalysisprovidesyou with information on what the job entails and what human requirements are required to carry out these activities. This information is the basis on which you decide what sort of people to recruit and hire.

5. **PlacementandOrientation:**Jobanalysishelpsinmatchingthejob requirementswiththeabilities,interestsandaptitudesofpeople.Jobswillbeassigned to personson the basis of suitability for the job. The orientation programmer will help the employee in learning the activities and understanding duties that are required to perform a given job more effectively.

6. **Employee Training and Management Development:** Job analysis provides the necessary information to the management of training and development programmers. It helps in to determine the content and subject matter of in training courses.Italsohelpsincheckingapplicationinformation,interviewingtestresultsand in checking references.

7. JobEvaluationandCompensation:Jobevaluationistheprocessof determining the relative worth of different jobs in an organization with a view to link compensation,bothbasicandsupplementary,withtheworthofthejobs.Theworthof a job is determined on the basisof job characteristics and job holder characteristics. Job analysis provides both in the forms of job description and job specification.

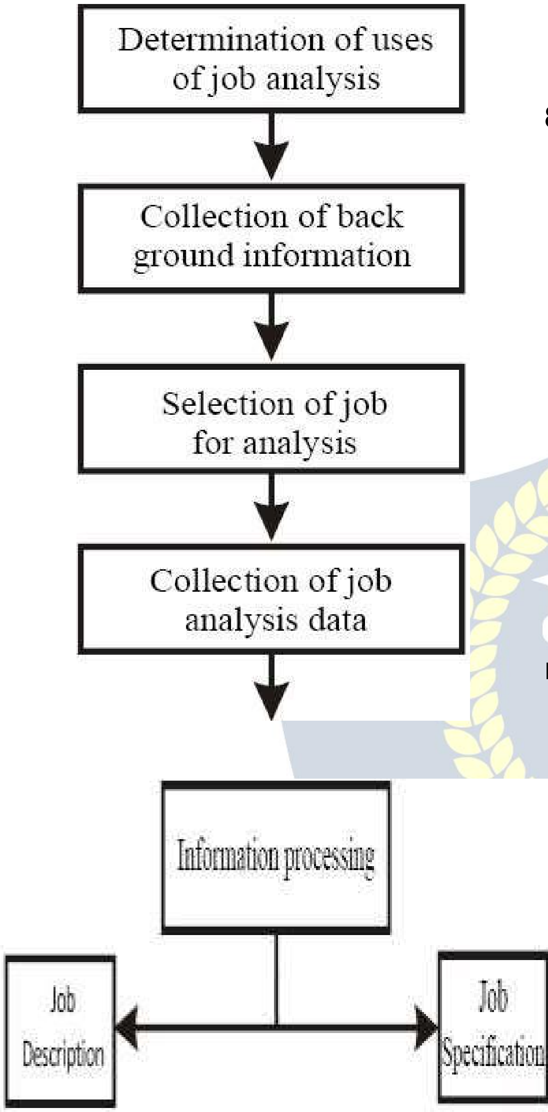
8. Performance Appraisal: Performance appraisal involves comparing each employee's actual performance with his or her desired performance. Through job analysis industrial engineers and other experts determinestandardstobeachievedand specific activities to be performed.

9. Health and Safety: It provides an opportunity for identifying hazardous conditionsandunhealthyenvironmental factorssothatcorrectivemeasuresmay be taken to minimize and avoid the possibility of accidents.

10. Employee Counseling: Job analysis provides information about career choices and personal limitation. Such information is helpful in vocational guidance and rehabilitation counseling. Employeeswhoareunabletocopewith the hazards and demands of given jobs maybeadvisedtooptforsubsidiaryjobs or to seek premature retirement.

Steps inJobAnalysis

Thesixstepsof jobanalysisare showninfigure3.3:



JobAnalysis Process

1. **DeterminetheUseoftheJob Analysis Information:** Start by identifying the use to which the information will be put, since this will determine the type of data you collect and the technique you use to collect them.
2. **Collection of Background Information:** According to Terry, "The make-up of a job, its relation to other jobs, and its requirements for

competent performance are essential information neededfora jobevaluation. This information can be had by reviewing available background information such as organization charts (which show how the job in question relates to otherjobsandwheretheyfitintotheoverallorganization);classspecifications (which describe the general requirements of the class of job to which the job under analysis belongs); and the existing job descriptions which provide a starting point from which to build the revised job description".

3. **SelectionofJobsforAnalysis:**Todojobanalysisisacostlyandtimeconsuming process. It is hence, necessary to select a representative sample of jobs for purposes of analysis. Priorities of various jobs can also be determined. A job may be selected because it has undergone undocumented changes in job content. The request for analysis of a job may originate with the employee, supervisor, or a manager. When the employee requests an analysis it is usually because new job demandshavenotbeenreflectedinchangesinwages.Employee'ssalaries are,in part, based upon the nature of the work that they perform. Some organizations establisha *timecyclefortheanalysisofeach*job. Forexample: A job analysismay be required for all jobs every three years. New jobs must also be subjected to analysis.

4. **Collection of Job Analysis Data:** Job data on features of the job, requited employee qualification and requirements, should be collected either form the employees who actually perform a job; or from other employees (such as foremenorsupervisors)whowatchtheworkersdoingajobandtherebyacquire knowledgeaboutit;orfromtheoutsidepersons,knownasthetradejobanalysis who are appointed to watch employees performing a job. The duties of such a trade job analyst are
   (i) To outline the complete scope of a job and to consider all the physical and mental activities involved in determining what the worker does.;
   (ii) find out why a worker does a job; and for this purpose he studies why each task is essential for the overall result; and
   (iii) The skill factor which may be needed in the worker to differentiate between jobs and establish the extent of the difficulty of any job.

5. **Processing the Information:** Once job analysis information has been collected, the next step is to place it in a form that will make it useful to those chargedwiththevariouspersonnelfunctions.Severalissuesarisewithrespect to this. First, how much detail is needed? Second, can the job analysis information be expressed in quantitative terms? These must be considered properly.

6. **PreparingJobDescriptionsandJobClassifications:**Jobinformationwhich hasbeen collected must be processed to prepare the job description form. It is a statement showing full details of the activities of the job. Separate job description forms may be used for various activities in the job and may be compiled later on. The job analysis is made with the help of these description forms. These forms may be used as reference for the future.

7. **Developing Job Specifications:** Job specifications are also prepared on the basisofinformationcollected.Itisastatementofminimumacceptablequalities of the person to be placed on the job. It specifies the standard by which the qualitiesofthepersonaremeasured.Jobanalystpreparessuchstatement

takingintoconsiderationtheskillsrequiredinperformingthejobproperly.Such statement is used in selecting a person matching with the job.

MethodsforCollectingJobAnalysisData

As discussed earlier, information is to be collected for job analysis. Such informationmaybecollectedbythetrainedjobanalysis,superiorsconcernedand job holders themselves. Job information is collected through the following methods:

1. **ParticipantDiary/Logs:**Workerscan beto keepparticipant diary/longorlists of things they do during the day. For every activity he or she engages in, the employee records the activity (along with the time) in a log. This can provide you with a very comprehensive picture of the job, especially when it's supplemented with subsequent interviews with the worker and his or her supervisor. This method provides more accurate information if done faithfully. However, it is quite time consuming. Further, each job holder may maintain recordsaccording tohis own way which presentsproblemsinanalysis atlater stage. Therefore, it has limited application.

2. **Interview:** There are three types of interviews you can use to collect job analysisdata:individualinterviewswitheachemployee;groupinterviewswith groupsofemployeeshavingthesamejob;andsupervisorinterviewswithone or more supervisors who are thoroughly knowledgeable about the job being analyzed. The group interview is used when a large number of employees are performing similar or identical work, since this can be a quick and inexpensivewayof learningaboutthejob.Asa rule,theworker'simmediate supervisor would attend the group session; if not, you should interview the supervisor separately to get that person's perspective on the duties and responsibilities of the job.
3. **CriticalIncidents**:Inthismethod,jobholdersareaskedtodescribeincidents concerning the job on the basis of their past experience. The incidents so collected are analyzed and classified according to the job areas they describe, A fairly picture of actual job requirements can be obtained by distinguishing between effective and ineffective behaviors of workers on the job. However, this method is time consuming. The analyst requires a high degree of skill to analyze the contents of descriptions given by workers.
4. **Technical Conference Method:** This method utilizes supervisors with extensive knowledge of the job. Here, specific characteristics of a job are obtained from the "experts." Although it is a good data gathering method, it often overlooks the incumbent worker's perception about what they do on their job.
5. **Job Performance:** Under this method, the job analyst actually performs the job understudyto getfirst-handexperience of the actualtasks,andphysical andsocialdemandsof thejob.Thismethodcanbeused only forjobswhere skillrequirementsarelowandcanbelearntquicklyandeasily.Thisisatime consuming method and is not appropriate for jobs requiring extensive training.
6. **Functional Job Analysis:** Functional job analysis (FJA) is employee-oriented analytical approach of job analysis. This approach attempts to describe the whole person on the job. The main features of FJA include the following:
    - The extent to which specific instruction are necessary to perform the task
    - The extent to which reasoning and judgment are required to perform the task ➢The mathematical ability required to perform the task and
    - Theverbalandlanguagefacilitiesrequiredtoperformthetask.
7. **ObservationMethod:** Using this method, a job analyst watches employees directly on the job. Observations are made on various tasks, activities, the pace at which tasks are carried out, and the way different activities are performed.Thismethodissuitableforjobsthatinvolvemanual,standardized, andshortjobcycleactivities.Thismethodalsorequiresthattheentirerange of activities be observable; possible with some jobs.
8. **Questionnaires:** The method is usually employed by engineering consultants. Properly drafted questionnaires are sent out to job-holders for completion and are returned to supervisors. However, the information received is often unorganized and incoherent. The idea in issuing questionnaire is to elicit the necessary information from job -holders so that

any error may first be discussed with the employee and, after corrections,may be submitted to the job analyst

QuestionnaireforJobAnalysis
1. YourName
....
2. TitleorDesignationofyourjob
.... 3. Regular or Extra
----
4. YourDepartment..
5. Towhomdoyoureportdirectly(NameandTitle):.........................
6. Descriptionofwork:(a)DailyDuties:
(b) PeriodicalDuties:
(c) OccasionalDuties:
7. YourknowledgeRequirements:
(A) StoreProcedureandMethods:
(B) Merchandise:
8. WhatEquipmentdo youuse?
9. WhatMaterialsdoyouworkwith or sell?
10. If yousupervise theworkofothers,statehowmanyandwhattheirjobs are.
11. Towhat jobwould younormallyexpect tobepromoted?
12. From what jobwereyou transferred toyourpresentjob?

This technique is time consuming and generally does not yield satisfactory results because manyemployeesdonotcompletethequestionnaireorfurnishincorrectinformationbecause of their own limitations. The use of questionnaire is recommended only in case of those technical jobs where the job contents are not completely known to the supervisor or the operation is too complex to observe. There are certain standardized questionnaires developedbyafewagencieswhichareusedbyvariousorganizationsforjobanalysis.Most of these questionnaires are of two types: position analysis questionnaire and management position description questionnaire that are described as follows:

a. **Position Analysis Questionnaire.** Position analysis questionnaire (PAQ)isahighlyspecializedinstrumentforanalyzingajobintermsof employee activities. The PAQ developed by Purdue University is a comprehensive questionnaire for collecting information for job analysis. In this questionnaire, various job elements have been groupedintosixcategorieswitheachcategorycontainingrelevantjob elements resulting into 195 elements

Job Aspects	No. of elements
Information input - Where and how do employee get information to do their job?	35
Mental processes- what reasoning, planning, organizing, and decision making is done?	14
Work output – what physical activities, tools and machines are used?	49
Relationships – what contact with other people, both in the company and outside is maintained or developed?	36
Job context- what is the physical and social context in which the job is maintained?	19
Other job characteristics – what other activities, conditions or Characteristics not covered by the categories are relevant?	42

4. Supervision: Under it is given number of persons to be supervised along with their job titles, and the extent of supervision involved –general, intermediate or close supervision.

Exampleof aJob Description

JobTitle: RecordClerk**JobNo.**011

Supervisor: Record Supervisor**Job**

Grand –III

Supervises: None

Date:2/21/12

Job Summary: Originate, process, and maintain comprehensive records; implement requiredcontrols;collectandsummarizedataasrequested.

JobDutiesandResponsibilities:

- Reviewavarietyofdocuments,listings,summarizes,etc,forcompleteness and accuracy.
- Checkrecordsagainstothercurrent sources such asreportsorsummaries; investigate differences and take required action to ensure that records are accurateandup todate; compile and summarize data report formatas required.
- Implement controlsor obtaining,preserving,andsupplyingavarietyof information. Prepare simple requisitions, forms, and other routine memoranda.
- Providefunctionalguidancetolower-levelpersonnelasrequired.

WorkingConditions: Normalworkingconditions.Butvisitssitesonaveragetwice a week.

Eighthoursperday

Relationships:

- With equivalent officers in other departments.
- Maintains formal and social contacts with local officials.

JobCharacteristics: Skilled operationof computer, calculating machine,or key punchmachineisnotnecessarilya requirementofthisjob.

Theaboveinformationiscorrectandapprovedby:

(Signed)

(Signed)

Job Analyst Incharge Manager

4. Supervision: Under it is given number of persons to be supervised along with their job titles, and the extent of supervision involved –general, intermediate or close supervision

5. RelationtoOtherJobs: Itdescribestheverticalandhorizontalrelationshipsfworkflow. Italsoindicatestowhomthejobholderwillreportandwhowillreporttohim.Itgivesanidea of channels of promotion.

6. Machine, tools and equipment define each major type or trade name of the machines and tools and the raw materials used.

7. Working Conditions: The working environment in terms of heat, light, noise, dust and fumesetc,thejobhazardsandpossibilityoftheiroccurrenceandworkingconditionsshould also be described. It will be helpful in job evaluation.

8. Social Environment: It specifies the social conditions under which the work will be performed.Inthispartthesizeof workgroup,interpersonalinteractionsrequiredtoperform the job and development facilities are mentioned

3.8Job Specification

The job specification states the minimum acceptable qualifications that the incumbent must possess to perform the job successfully. Based on the information acquired through job analysis, the job specification identifiesthe knowledge, skills, and abilities neededtodo the job effectively. Individuals possessing the personal characteristics identified in the job specificationshouldperformthejobmoreeffectivelythanindividualslackingthesepersonal characteristics. The job specification, therefore, is a important tool in the selection process, foritkeepstheselector'sattentiononthelistofqualificationsnecessaryforanincumbentto perform the job and assists in determining whether candidates are qualified.

AccordingtoDaleYoder,"Thejobspecification,assuchasummaryproperlydescribedis thus a specialized job description, emphasizing personnel requirement and designed especially to facilitate selection and placement."

Flippohasdefinedjobspecificationas, "Job specification is a statement of theminimum acceptablehumanqualitiesnecessarytoperformajobproperly........................ Itisastandardof personnelanddesignatesthequalitiesrequiredforacceptableperformance."

In is clear from the above definitions that job specification is a statement of summary of personnel requirements for a job. It may also be called "standard of personal for the selection"

AJob Specificationshould include:

(i) Physical characteristics, which include health, strength, endurance, age, height, weight, vision, voice, eye, hand and foot co-ordination, motor co-ordination, and color discrimination.

(ii) Psychological and social characteristics such as emotional stability, flexibility, decision making ability, analytical view, mental ability, pleasing manners, initiative, conversational ability etc.

(iii) Mental Characteristics such as general intelligence, memory, judgment, ability to concentrate, foresight etc.

(iv) Personal Characteristics such as sex, education, family background, job experience, hobbies, extracurricular activities etc.

Allthesecharacteristicsmustbeclassifiedintothree categories:

- Essentialattributeswhichapersonmustpossess.
- Desirableattributeswhichapersonoughtto posses.
- Contraindicatorswhichwillbecomeahandicaptosuccessfuljobperformance.

Job Design

Job design is of comparatively recent origin. The human resource managers have realized that the design of a job has considerable influence on the productivity and job satisfaction; poorly designed jobs often result in boredom to the employees, increased turnover, job dissatisfaction,lowproductivityandanincreaseinoverallcostsoftheorganization.Allthese negative consequences can be avoided with the help of proper job design.

According to Jon Werner and DeSimone, "Job design is the development and alteration of the components of a job (such as the tasks one performs, and the scope of one's responsibilities) to improve productivity and the quality of the employees' work life."

Job design has been defined by **Davis (1966)** as: "The specification of the contents, methods, and relationships of jobs in order to satisfy technological and organizational requirements as well as the social and personal requirements of the job-holder."

Milkovich and Boudreau defined job design as, "Job design integrates work content (tasks,functions,andrelationships),therewards(extrinsicandintrinsic)andthe qualificationsrequired(skills,knowledge,abilities)foreachjobinawaythatmeetstheneeds of employees and the organization."

Michael Armstrong has defined job design as "the process of deciding on the content of ajobintermsofitsdutiesandresponsibilities,onthemethodstobeusedincarryingoutthe job, in terms of techniques, systems and procedures, and on the relationships that should exist between the job holder and his superiors, subordinates and colleagues."

Jobdesignisanattempttocreateamatchbetweenjobrequirementsandhumanattributes. It involves organizing the components of the job and the interaction patterns among the members of a work group. It helps in developing appropriate design of job to improve efficiency and satisfaction

Principlesof Job Design:

Principlesarethebasesoftheapproach usedinjobdesign.RobertsonandSmith(1985) have suggested the following five principles of job design:

- To influence skill variety, provide opportunities forpeople to do several tasks and combine tasks.
- Toinfluencetaskidentity,combinetasksandfrom naturalworkunits.
- To influence task significance, form natural work units and inform people of theimportance of their work.
- Toinfluenceautonomy,givepeopleresponsibilityfordeterminingtheirownworking systems.
- Toinfluencefeedback;establishgoodrelationshipandopenfeedback channels.

3.10Methods ofJob Design

Thevarioustechniquesof jobdesignandredesignarediscussedbelow:

1. Job Simplification: In job simplification, the complete job is broken down into small subparts;thisisdonesothatemployeecandothesejobswithoutmuchspecializedtraining. Moreover, small operations of the job can also be performed simultaneously so that the complete operation can be done more quickly. For job simplification, generally time and motion studies are used.

2. Job Rotation: Another technique designed to enhance employee motivation is job rotation, or periodically assigning employees toalterating jobs or tasks. For example, an employeemayspendtwoweeksattachingbumperstovehiclesandthefollowingtwoweeks making final checks of the chassis. During the next month, the same employee may be assigned to two different jobs. Therefore, the employee would be rotated among four jobs. The advantage of job rotation is that employees do not have the same routine job day after day. Job rotation only addresses the problem of assigning employees to jobs of limited scope;thedepthofthejobdoesnotchange.Thejobcycleoftheactualdailyworkperformed has not been lengthened or changed. Instead, employees are simply assigned to different jobs with different cycles. Because job rotation does not change the basic nature of jobs, it is criticized as nothing more than having an employee perform several boring and monotonous jobs rather than one. Some employees dislike job rotation more than being assigned to one boring job because when they are assigned to one job they know exactly where to report and what work to expect each day.Workers quickly realize that job rotation does not increase their interest in their work. Although it seldom addresses the lack of employee motivation, it give manages a means of coping with frequent absenteeism and high turnover. Thus when absenteeism or turnover occurs in the work force, managers can quickly fill the vacated position because each employee can perform several jobs. Job rotation is often effectively used as a training technique for new, inexperienced employees. At higher organizational levels, rotation also helps to develop managerial generalists because it exposes them to several different operations.

AdvantageofJobRotationTechnique:

- Theemployeeexperiencesvarietyof work,workplaceandpeer group.
- Jobrotationhelpstobroadentheknowledgeandskillsofanemployee.
- Themainadvantageofjobrotationisthatitrelievestheemployeefromthe boredom and monotony of doing the same job.
- With the help of this method, people become more flexible. They are prepared to assume responsibility especially at other positions.
- Jobrotationbroadenstheworkexperienceofemployeesandturnsspecialistsinto generalists.
- It isbeneficialforthemanagementalso asthemanagement getsemployeeswho can perform a variety of tasks to meet the contingencies.
- Thismethod improvestheselfimageand personalworthof theemployee.

DisadvantageofJobRotationTechnique:

- Job rotation also creates disruptions. Members of the work group have to adjust to the new employee.
- Productivityisreducedbymovingaworkerintonewpositionjustwhenhisefficiency at the prior job was creating organizational economies.
- Trainingcostsare increased.
- Thesupervisormayalsohavetospendmoretimeansweringquestionandmonitoring the work of the recently rotated employee.
- It can demotivate intelligent and ambitious trainees who seek specific responsibilities in their chosen specialty.

3. JobEnlargement:Anothermeansofincreasingemployee’ssatisfactionwithroutinejobs is job enlargement, or increasing the number of tasks performed (i.e. increasing the scope of the job). Job enlargement, like job rotation, tries to eliminate short job cycles that create boredom. Unlike job rotation, job enlargement actually increases the job cycle. When a job is enlarged, either the tasks being performed are enlarged or several short tasks are given to one worker. Thus, the scope of the job is increased because there are many tasks to be performed by the same worker. Job enlargement programs change many methods of operation-incontrasttojobrotation,inwhichthesameworkproceduresareusedbyworkers who rotate through work stations. Although job enlargement actually changes the pace of theworkandtheoperationbyreallocatingtasksandresponsibilities,itdoesnotincreasethe depthof a job.Thefocusofdesigningworkforjobenlargementisthe exactoppositeof that for job specialization. Instead of designing jobs to be divided up into the fewest of tasks per employee, a job is designed to have many tasks for the employee to perform. An enlarged job requires a longer training period because there are more tasks to be learned. Worker satisfactionshouldincreasebecauseisreducedasthejobscopeisexpanded.However,job enlargement programs are successful with jobs what have increased scope; such workers are less prone to resort to absenteeism, grievances, slowdowns and other means of displaying job dissatisfaction.

Enlargement is done only on the horizontal level. Thus, the job remains the same, but becomesofalargerscalethanbefore.InthewordsofGerogeStraussandL.R.Sayles“Job enlargement implies that instead of assigning one man to each job, a group of men can be assigned to a group of jobs and then allowed to decide for themselves how to organize the work. Such changes permit more social contacts and control over the work process.”

Jobenlargementhasthefollowingadvantages:

- Increaseindiversityofjobs
- Job satisfaction
- Provideswholenessandidentitywiththetaskandincreasestheknowledge necessary to perform it.
- Providesvarietyofskills.
- Reducestensionandboredom.
- Trainsand developsmoreversatile employees.

Despite these advantages this is not a completely satisfactory method of job design as it does not increase the depth of a job. Enlarged jobs require longer training period as there are more tasks to be learned.

4. JobEnrichment: Theconceptofjobenrichmenthasbeenderivedfromherzberg’stwo- factor theory of motivation in which he has suggested that job content is one of the basic factorsofmotivation.Ifthejobisdesignedinsuchamannerthatitbecomesmoreinteresting and challenging to the job performer and provides him opportunities for achievement, recognition, responsibility, advancement and growth, the job itself becomes a source of motivation to the individual.

According to Richard W. Beatty and Graig Eric. Schneider, “Job enrichment is a motivational technique which emphasizes the need for challenging and interesting work. It suggests that jobs be redesigned so that intrinsic satisfaction is derived from doing the job. In its best applications it leads to a vertically enhanced job by adding function from other organizational levels, making it contain morevarietyand challengeandoffer autonomyand pride to the employee.”

According to *P. Robbins,* “Job enrichment refers to the vertical expansion of the jobs. It increasesthedegreetowhichtheworkercontrolstheplanning,executionandevaluationof his work.”

In the words of Robert Albanese, “Job enrichment sometimes called. “vertical job leading’ is a job redesign strategy that focuses on job depth.”

AccordingtoMondy.Holmes,andFlippo,"Jobenrichmentreferstobasicchangesinthe content and levelof responsibilityof a job soto provideforthe satisfaction of the motivation needs of personnel.

RebertFord,who was associated with designing of jobs to make them more enriched, has provided some bases (though not exhaustive) for job enrichment as shown in Table 3.3.

Tasks	Motivator involved
Assign specific or specialized task to individuals enabling them to become expert	Responsibility, growth, advancement
Making periodic reports directly available to the individual himself rather than to the supervisor.	Internal recognition
Giving a person a whole, natural unit of work (module, exchange district, division, area, etc.)	Responsibility, achievement, recognition
Increasing the accountability of individuals for own work	Responsibility, recognition

TechniquesofJobEnrichment: Inordertoenrichthejobs.Themanagementshouldadopt the following measures:

- Freedomin decisions
- Assignanaturalworkunit toan employee.
- Encouragingparticipation
- Allow the employee to set his own standards of performance. Minimize the controls to provide freedom to the employees Make an employee directly responsible for his performance.
- Encourage participation of employees in deciding organizational goals and policies.
- Expandjobvertically
- Introducing new, difficult and creative tasks to the employees. Sense of achievement.

AdvantagesofJobEnrichment: Theadvantagesofjobenrichment are asfollows:

- Itenrichesthe role.
- Job enrichment is the most widely used of job design as it provides a meaningful learning to employees.
- Itmakesthe workinterestingandemployeeget motivated.
- Ithelpsin reducingtherateoflaborturnoverandabsenteeism.
- Itincreasesskillsof the employees.
- Itincreasesmoraleandperformance. ReduceBoredomanddissatisfaction.
- Increaseinoutputbothqualitativeandquantitative.

Disadvantages of Job Enrichment: Dunham and Newstrom state, "Even the strongest supporters of job enrichment readily admit that there are limitations in its application." NewstromandKeithDavisalsowrite,"Employeesarethefinaljudgesofwhatenrichestheir jobs. All that management can do is to gather information about what tends to enrich jobs, try these changes in the job system, and then determine whether employees feel that enrichment has occurred." A few limitations of or problems with job enrichment are as follows:

JOBENLARGEMENTvs.JOB ENRICHMENT

Job enlargement and job enrichment are both important forms of job design in order to enhance productivity and satisfaction of the employees. They differ from each other in the following respects:

1. **NatureofJob:**Themajordifferencebetweenjobenrichmentandenlargementliesinthe nature of additions to the job. Enlargement involves a horizontal loading or expansion, or addition of tasks of the same nature. Enrichment involves vertical loading of tasks and responsibilityofthejobholder;itimprovesthequalityofthejobintermsofitsintrinsicworth.
2. **Purpose:** The purpose of job enlargement is to reduce the monotony in performing repetitive jobs by lengthening the cycle of operation. On the other hand, the purpose of job enrichment is making the job lively, challenging and satisfying. It satisfies the higher level needssuchasegosatisfaction,selfexpression,senseofachievementandadvancementof Job holders.
3. **Skill Requirement:** Job enlargement may not necessarily require the use of additional skills which the job holder was using in performing the job before the enlargement. This is due to similarity of additional tasks. Enrichment calls foe development and utilization of higher skills, initiative, and innovation on the part of the job holder in performing the job.
4. **Direction and Control:** Job enlargement requires direction and control from external sources, say supervisor. In fact, the job holder may require more direction and control becauseofenlargementofhisresponsibility.Enrichmentdoesnotrequireexternaldirection and control as these come from the job holder himself. He requires only feedback from his supervisor.