Factors affecting internal levels human resources business essay

Business

INTRODUCTIONCONCEPT OF MANPOWER SUPPLY FORECASTINGSupply Forecasting (Why?)Sources of SupplyExternal SourcesInternal SourcesAnalysis of WastageEmploy Turnover AnalysisStability IndexModified Stability IndexThe Cohort MethodThe Census MethodFactors Affecting Internal Levels of Human ResourcesHuman Resource InventorySkills InventoryLength of ServiceMANPOWER PLANNING MODELSMarkov Chain ModelRenewal ModelsCambridge ModelOptimisation ModelsSimulationReplacement TheoryDATA BASE FOR SUPPLY FORECASTINGSUMMARYDISCUSSION AND QUESTIONSINTRODUCTIONDemand Forecasting is the first step in human resource planning process. It determines the number and type of human resources required for a particular department, unit or organisation for a particular period of time in future. The next logical step in Human Resource Planning is to determine whether the organisation will be able to procure the requisite number of personnel. Once an organization has forecasted its future manpower requirements, then it moves on to the next step of search process. In this step the organisation seek to find out from where it can fulfil its requirements which necessitate in determining whether sufficient numbers and types of employees are available or not. Out of which how many are apparently eligible to fill up the positions. This information is supplied by Forecasting Supply of Human Resources. Supply Forecasting measures the number and type of people likely to be available from within and outside of an organisation, after making necessary allowances for absenteeism, internal movement and promotion, wastage and change in hours and conditions of work. Supply Forecasting determines the size as well

as the quality of present and potential Human Resources available from within and outside the organisation in order to cater the future manpower Demand adequately. Therefore, Manpower supply is the totality of manpower employed and unemployed but seeking jobs. Supply forecasting scans the internal as well as external environment for the best-fit of candidates for the available job positions. CONCEPT OF MANPOWER SUPPLY FORECASTINGSupply Forecasting is the estimate of the number and kind of potential personnel that could be available for the organisation. Manpower supply forecasting is represented as follows:

Existing Human Resources:

Analysing the existing Human resources of an organisation lays the first step towards Supply Forecasting. Existing inventory of Human Resources refers to the present inventory of Human Resources department-wise, age-wise, sex-wise, marital-status wise, skill-wise, experience-wise, qualification-wise, training-wise and potential-wise. Therefore, present inventory of Human Resources is availability of talent in terms of skills, performance and potential.

Potential Additions of Human Resources

There is always existence of potential additions to the existing sources of Human Resources. These additions are due to fresh recruitment, selections, transfers and promotions of Human Resources from among various departments of the organisation.

Potential Losses of Human Resources

In a running organisation there is always potential losses of Human Resources. These potential losses of Human Resources may be due to deaths, retirements, resignations, retrenchment, discharge and promotions, transfers and some other reason. There may also be losses of Human Resources due to absenteeism and labour turnover.

WHY SUPPLY FORECASTING:

It quantifies number and type of people and positions likely to be available in future to achieve corporate objectives. It clarifies the future staff mixes of an organisation. It assesses staff level in different parts of organisation. It prevents shortages of people where they are needed most. It determines surplus employees if any in any part of the organisation. It monitors future employment conditions to comply legal requirements for job reservations.

SOURCES OF SUPPLY

Forecasting the internal supply of Human Resources is an important activity in manpower planning. Human resource planners need to look at the sources of supply and evaluate them through in-depth studies to ensure that suitable strategies are evolved to meet business demands. There are two sources of supply as described below:

External Supply

Internal Supply.

External Supply:

External supply forecasts relates to external labour market condition and estimates of supply of different categories of labour to be available to the firm. External supply forecasting is influenced by extraneous factors of the company at which micro manpower supply forecasts are made. External supply forecast consider all those individuals in the labour forces who are potential recruits of the firms. It also includes the persons who are working for other firms. The skill level being sought determines the relevant labour market. The entire country even the world may be the relevant labour market for highly skilled jobs whereas for unskilled jobs, though not always. the relevant labour market is usually the local community. Determining the relevant labour market also dependent on the types of recruitment approach the organisations adopt. External supply arises primarily through recruitment to augment internal supply. Since all vacancies can not be filled up from within the organisation. The organisation must tap into the external labour market at local, regional, national or international level to fill up certain organisational vacancies. While doing so, the HR manager needs to be alert to demographic changes. India's workforce is preponderantly young. Female participation in workforce is increasing. Increasing mobility, international exposure has increased their desire of higher degree of participation and avenue for self fulfilment. Whereas In the United States the average age of the workforce is older. In the context of external sources of supply, these are the factors which need to be looked into carefully by the manpower planner.

Seconding or deputing personnel from other organizations is another minor source of external supply. Deputing largely takes place in Government Departments. When the recruitment policy of an organisation is known, it is easy to predict the external supply. In addition to internal supply, the organisations need to look for prospective employees from external sources. External sources of supply vary from organisation to organisation, industry to industry, geographical locations to location. It is important in the context of infusion of new blood and new experience, replenishment of lost personnel and to meet expansion and diversification needs. External supply depends on the following factors. Net migration into and out of the areaEducation levels of workforceDemographic changes in populationTechnological developments and shiftsPopulation MobilityDemand for specific skillsNational, regional, unemployment ratesActions of competing employersGovernment policies, regulations, pressuresEconomic Forecasts for the next few yearsThe attractiveness of an areaThe attractiveness of an industry in a particular place

Internal Supply:

Internal supply consists of those individuals and jobs currently available within the firm. Information on personnel is maintained in Human Resource Information System (HRIS). Internal supply within an organisation is basically governed by wastage and internal movement. Forecasting internal supply is basically dependent on analysis of wastage and internal movements of people in an organisation. Wastage is the outward movement of people from the organisation. Genrally it is caused by voluntary resignation, death or retirement. Internal movement in an organisation arises out of transfers and

promotion. Manpower flows generated by wastage and internal movements are highly inter-related. Therefore, estimation of wastage and patterns of internal movements is necessary for internal supply forecasting. Analysis of wastage: Analysis of wastage for the purpose of Manpower Supply Forecasting can be conducted by different methods. Some of these are enlisted below. Employee turnover analysisStability IndexModified Stability IndexThe Cohort MethodThe Census Method

Employee turnover analysis:

Annual employee turnover is a very well known method of measuring the wastage of employees. It is also known as attrition rate or the index of turnover or percentage of wastage. It is simply calculated as the percentage of employees who quit employment. Generally this analysis is applied for those employees who voluntarily quit from the services of an enterprise. It is a crude method of estimation and is known as British Institute of Management (BIM) index. Wastage in this case is expressed as a percentage of staff in position. To calculate the turnover under (BIM) index, the following formula is generally used. Manpower leaving in a yearAnnual Manpower Wastage =––––––––––––––––––––––––––× 100Average manpower in positionThe BIM formula has many flaws. It does not consider the characteristics of manpower like length of service and skill etc. Again, it is difficult to assess the operational and financial implications of any given rate of wastage based on BIM formula. Also, for manpower planning, it does not provide any meaningful indication. Employee turnover analysis can be done for the entire organisation, department wise or location wise. It can also be done by performance rating wise. The reasons for turnover can also be cited.

Stability Index

Stability index is an alternative method of wastage analysis. It considers the length of service of the persons leaving the organisation to calculate ‘ stability index’. In contrast to BIM formula, it measures the rate of retention. Thereby complements of wastage rate. The formula to calculate retention rate is: Manpower with one year service at time t––––––––––––––––––––––––––––––––×100Manpower in position at time t – 1This method measure the percentage of manpower that stays with the organisation for one year. It does not directly measure the extent of wastage. This method gives equal weight to persons who left the organisation with less than one year of service and with more than one year’s service. Therefore, this method is not very useful for manpower Supply Forecasting.

Modified Stability Index

This method is otherwise known as Bowey’s stability index. It includes everybody employed in an organisation and gives due weightage to varying lengths of service. In simple terms, Bowey’s stability index is expressed as: Total length of service of manpower employed at the time of analysis––×100Total possible length of service had there been no manpower wastageThis method analyses the wastage by giving due consideration to length of service. However, like stability index, this method is also not very helpful in manpower supply forecasting.

The Cohort Method

The ‘ Cohort Method’ is basically based upon the concept of survivor analysis. This is the reverse of employee turnover analysis. In this method, the percentage of employees who continue in the employment of an enterprise is measured as opposed to the percentage who quit employment. In the Cohort Method, an analysis is done for a homogeneous group. A cohort is characterised by group of same or similar employees or those with same or similar characteristics. At the end of each year, the number of employees of a cohort who survive is calculated. Then it is expressed as a percentage of the total number of employees hired when the cohort was formed. This technique is generally applied to those groups of employees who survive for a shorter period of time in an enterprise. Cohort in an organisation is referred to a group of staff who are more or less homogenous and who have joined the organisation at the same time. Graphical presentation of leavers, leaving the organisation at each point of time from the date of joining to that particular date by which the entire cohort would disappear resembles the figure below: LeaversTime

Figure I :

In each cohort the peak of leaving occurs shortly after joining when either the manpower leaving realises that the job is not suitable to them or the employers find out that the leavers are not suitable to the organisation. However, the peak is determined by the nature of job, work environment and career prospects within the organisation. The objective of manpower planning is to see that the peak of leavers does not arise early in the life of a cohort. A slight transformation of Figure I by plotting cumulative percentage

of leavers in the cohort on the vertical axis and logarithm of time on the horizontal axis the curve in Figure I becomes a straight line as in Figure II. C: Documents and SettingssiliconLocal SettingsTemporary Internet FilesContent. Wordfigure 2. jpgPercentage of leaversLog time

Figure II :

Using this curve, forecasts of percentage of total leavers of a particular cohort at any future date can be made simply by extrapolation. Cohort analysis is thus very useful in analysing and forecasting wastage of specific groups of manpower who have similar characteristics and also joined at a particular point of time of the year such as management trainees, graduate engineers trainees and computer professionals, etc. There are some disadvantages also. First, forecasting exercise requires information on year-wise wastage from a cohort. When there are many cohorts the task is more complicated. Second, for a meaningful analysis of wastage, each leaver must be related to the concerned cohort and the cohort size must be known. In the absence of computerised personnel information system, this may not be very easy. Third, if the manpower is relatively stable in an organisation as is the case in government jobs or public sector jobs that assure job security, reliable forecast may not be obtained.

The Census Method

The Census Method overcomes some of the problems of the Cohort Method. These views are then combined to make an estimation of the survival, either by age or by length of service. Using the Census Method, the survivor function is calculated based on the length of service. This is a very simple

method of tabulating the data. In the first column the length of service in years and in the second column the number of employees against each of the service length groups at the beginning of the year is put. In the third column the number of employees who left employment is tabulated against each of the service groups and in the next column the wastage rate is calculated. In the last column the survivor rate is computed. To get the survivor function for the second year, the survival rate of the first year is multiplied with the second year. For the third year, the survivor function of the second year is multiplied with the survival rate of the third year and so on. Here, the survivor function depends on the assumption that people in their second year of employment will have experienced the same pattern of survival in their first year, as do the people who are now in their first year. In calculating the central rates survivor function, average stock in the calculation is taken as against the stock at the beginning of the year. When the survivor function falls, it indicates a low rate of survivals and high rate of wastage. While interpreting this function, it is important to note that it is a cumulative curve. Once the survivor function is established for a group of employees, it is possible to predict the probability of separation of various groups of employees of different service length.

FACTORS AFFECTING INTERNAL LEVELS OF HUMAN RESOURCES

A Human Resource Planner needs to consider the various factors that influence the levels of Human Resource Inventory of an enterprise as follows.

Promotions In

Promotion of employees from within is one way for increasing the level of the existing work group. While considering this aspect to assess the number of likely entrants into a particular job level, it is important to study the trends of past promotions. It is also necessary to evaluate the feeder stock to assess its potentiality for promotion, training needs, etc. Other aspects of employee feeder groups, such as their retention analysis, age and performance profiles, skills and knowledge profiles should also be studied. Since, it is always desirable to fill positions from within through internal promotions, depending on the needs, strategies needs to be planned to facilitate promotions from the feeder groups. Some organisations follow time-scale promotional policy irrespective of the needs of the organisation. In such cases planners should assess the number of employees that will be promoted due to the lapse of time during the planning cycle itself.

Redeployment

Redeployment is another method of filling in positions in a group. Redeployment strategies can be adopted by an enterprise to utilise excess employees of one job group to fill the requirements of other. Such redeployment strategies have to be chalked out, considering the actual re-deployability of employees, in the context of the investments that will have to be incurred in order to provide training to make these employees effective in their respective new jobs by considering issues related to implications on industrial relations, salary, benefits structure and other such factors.

External Hiring

Planners proposing external hiring have to consider issues of the supply position, lead time to hire, lead time to induct, time to provide core training, the ability of the enterprise to retain new employees, the wastage rate for at least the first twenty four months, the ability of the enterprise to attract right talents, etc. However, it is always preferable to fill the gap between demand and supply through internal promotions and redeployments as far as possible, before resorting to external hiring.

Mergers and Acquisitions

Mergers and acquisitions also affect the Human Resource Supply and may increase stock levels.

Promotions Out

Promotions out to other job levels are a reason for depletion in a particular work group. Planners must consider the trend of " promotions out" in the past, and possibilities of future losses. There could be more than one group of jobs serving as a receiving group. Planners, therefore, have to first assess the demands of the receiving group and the promotability from the feeder group and thus arrive at an analysis of what is likely to be the loss due to out-bound promotions.

Voluntary Separations

Voluntary separations are primarily a result of employees resigning from the services of a company for various reasons. Voluntary separations may also arise due to employees opting for early retirement or because of voluntary separation plans announced by the enterprise. While announcing such plans

the organisations must make an assessment of their likely fall-out. Depending on how the scheme is designed, the percentage of loss from a particular group can be assessed and the enterprise must therefore design schemes taking into consideration of the age and service profiles of the target groups, from where the enterprise expects maximum separations to take place. Thus, a planner is required to study the attrition trends and the impact of early retirement plans, if any, so as to assess the extent to which the stock of a particular job group is likely to be depleted during the plan period.

Retirement

In most countries, organisations specify the age of retirement or superannuation. Once a person attains the specified age, he/she automatically retires from employment and thus planners can easily calculate the number of retirees for a particular year. In those countries/enterprises where the age of retirement is not specified, an assessment can be made on what percentage of employees are likely to be lost due to retirements based on the trends of the past and the current age profile.

Other Reasons

In organisations where there are excesses all over, and redeployment strategies are either not possible or are inadequate, and where the organisation is incapable of offering voluntary separation plans, involuntary separations in the form of retrenchment can be used as the last resort to reduce the workforce to an optimum level. Such strategies would vary from

country to country and enterprise to enterprise depending upon the legal framework. Involuntary separations could also be due to disciplinary action or performance related factors where the management of an enterprise initiates the separation of the employees. Though very insignificant in number, prolonged illness, deaths and incapacities due to accidents are some other reasons for depletion in the human resource inventory.

HUMAN RESOURCE INVENTORY

Human Resource Inventory requires segmentation of the existing employees into various groups. Such segmentation basically depends on how the planners intend to actually utilise the data. It is, therefore, essential to decide what type of studies the planners wish to undertake with relevance to their practical usage in the planning process. The stratification of the existing population can be done in several manners as follows: Segmentation by age by studying average age, average distribution of age, minimum and maximum age etc. Segmentation of employees by functions, job groups, departments, skills, location etc. Categorisation by gender i. e. male and female etc. Categorisation by performance levels. Categorisation by organisational hierarchy, i. e. staff, junior management, middle management, senior management, etc. Segmentation by salary groups and so on. Segmentation of existing employees by age is a useful technique to understand the characteristics of the internal supply. It provides considerable information about future levels of supplies and their quality as well as serves as a good diagnostic tool in problem analysis. A study of the age distribution can be done for whole organisation or for each function separately, or for various skills depending on the application of the study as

follows: Wastage due to normal retirement will indicate the level of shrinkage likely to take place in each work group during the plan period. The younger the work group, the higher the probability of their adaptability to new methods and learning potential. Although such an assumption is not full proof and cannot be applied to all situations and segments. Comparing the average age of fresh recruits with the average age of the organisation, one can draw some inferences on the rate of growth of the employees thus reflecting on the promotion policies of the enterprise. Comparing various work groups will indicate the comparative growth rates, levels of fresh intake, stagnation, frustrations, etcData on age distribution if supplemented with employee turnover, performance levels, salary groups, etc will be more useful and significant for the organisation. For example, mapping age distribution amongst various other applications has tremendous use in decisions related to voluntary separation plans, in devising of education roadmaps, review of promotion policies, working out pension and other retirement benefits, etc.

SKILLS INVENTORY

Taking an inventory of skills and knowledge is also another method of evaluating the stock of Human Resources in an organisation. This gives information on the qualitative aspects of Human Resources and provides an insight into redeployment possibilities, promotions, transfers, the gap between future needs and the level of current skills, etc. Such an inventory becomes an essential input for the assessment of the training needs and recruitment strategies of an organisation. In order to obtain in-depth understanding of manpower characteristics, the skills and knowledge

inventory has to be superimposed with data on employee turnover and performance evaluations to get a complete understanding of the characteristics of manpower. Skills inventory along with turnover analysis may give indications of the likelihood of the shortage of certain skills in the future and also provides possible indications of the supply position in the market. Skills inventory and Performance ratings can together give excellent insight into the validity of managerial perceptions regarding performance trends. It enables the enterprise to draw appropriate training strategies and determine the quality of personnel to be hired in future, since desired qualifications can be determined on the basis of performance of the current recruits. Matching the skills and knowledge inventory of employees with their job Descriptions can locate over-qualified or under-qualified personnel of an organisation, thus helping planners to evolve redeployment strategies and review hiring practices and policies.

LENGTH OF SERVICE

Another method of Human Resource Inventory is by the length of service of the employees instead of age. It could also be done by job category, department, location, etc., for the entire workforce, depending on the use to which the data is to be put. If supplemented with other information, such data can highlight an organisation’s ability to retain employees by job categories, department, skills, etc. This also provides a good insight into the organisation’s ability to retain employees. During growth in a particular year an enterprise may hire a considerable number of employees leading to a reduction in the average length of service in that year. Similarly, curtailment of the workforce might lead to a large number of older employees opting for

voluntary retirement, thus reducing the average length of service. STAFFING TABLES/MANNING CHARTSStaffing table/ manning charts are a survey chart or inventory for scheduling of manpower requirements in an industrial undertaking. These are pictorial representations of all organizational jobs, along with the numbers of employees currently occupying those jobs and future employment requirements. SUCCESSION PLANNING AND REPLACEMENT CHARTSReplacement charts depict the profile of job holders, department-wise and reveal those who could be used as replacements whenever the need arises. Succession planning and replacement charts are also used by some companies to identify individuals to fill a given slot if an incumbent should leave. This technique are most useful for individual- level problems with short-term planning time horizon.

MANPOWER PLANNING MODELS

Use of Mathematical Models for manpower planning dates back to 1779, when John Rowe developed an actuarial model for planning careers in the Royal Marines(Jones, 1964). Manpower systems are described in terms of stocks and flows. Stocks are the number of staff in the system at a given point of time and divided into sex, age, length of service etc. Flows are recruitment, promotion, wastage, transfers, demotion etc.

Markov chain Model

Markov analysis are used for long-range forecasts in large organisations. It uses historical information from personnel movements of the internal labour supply to predict what will happen in future. An estimate is made of the likelihood that persons in a particular job will remain in that job or be

transferred, promoted, demoted, terminated, or retired using data collected over a number of years. Probabilities are used to represent the historical flow of personnel through the organisation, a transition matrix is formed from those probabilities, and a future personnel flows are estimated from this matrix. A very useful method of analyzing and forecasting internal movements is the Markov Chain Model. It calls for the estimation of transition probabilities relevant to each vertical and horizontal movement. A simple version of the model, without bringing in the complications of the probability theory involved, is illustrated below. In a Markov process the transition frequencies between states depends only on the current state probabilities and the constant transition rates between states. In this way the Markov model does not need to know about the history of how the state probabilities have evolved in time in order to calculate future state probabilities. Markov Chain Model and the probability matrix depend very much on the recruitment and promotion policies and also the practices regarding transfers within an organisation. Any complex organisation structure can be presented within the framework of Markov Chain Model. It requires a well defined computerised personnel information system. However, Markov models may be used to analyse smaller systems with strong dependencies requiring accurate evaluation. The most difficult task in the use of Markov Chain Model is the estimation of transition probabilities. Once the estimates of transition probabilities are made they can be applied to any intake of fresh batch of recruits to forecast internal supplies as well as wastage (or leavers) by grade and length of service. It is also not essential to keep transition probabilities constant in forecasting future supplies. They can

be varied through deliberate intervention, if there is prior information on the likely magnitudes of transition probabilities reflecting future recruitment, promotion and transfer policies. Renewal modelIn Markov model, the assumptions are changing grade size and fixed movement possibilities due to the push factor. In the renewal theory, the assumption is again that of fixed grade size but upward movements are linked to vacancies at higher levels. Such vacancies are caused either due to natural wastage or due to upward movements. This model, therefore, works on the probability of employees leaving an organisation at some point or another. Such exits are at a series of intervals, depending on either the age profile or the profile of length of service. The proportion of leavers is likely to follow normal distribution. As and when a vacancy is created, the assumption is that it will be filled up through internal promotions which could fall into either of two possibilities. One is promotion based on seniority, which will trigger chain reaction and cause recruitment at the lowest level of hierarchy, or promotion due to merit where the promotability of individuals will be considered on the basis of merit. The model predicts the various flows in the organisation, when size of the stocks is fixed in advance. The equation can be presented: Where f (t) = frequency by length of service or leavingL (T) = leaving rate at time TIt is assumed that the post is filled at time 0. Objective of this model is to forecast the manpower flows, which are necessary to obtain given numbers of employees in all categories. Here also the situation is observed at equidistant points in time. The actual manpower distribution, the desired manpower distribution in the future and wastage fractions have to be known. The promotion flows and recruitment are determined by filling vacancies. As

compared by Institute of Manpower Studies (1972), The Markov models are ‘ Push’ type models and assume that promotions are not dependent on vacancies occurring, but instead are the result of management ‘ pushing’ individuals along career paths which is fixed whereas the renewal or ‘ Pull’ type models assume that all promotions are the result of vacancies to fill gaps as they arise. However, in real situation both, a combination of push and pull is pervasive. At times both are seen independently. It is, therefore, necessary to consider historical trends and arrive at well-studied assumptions on future patterns. Most mathematical models can be applied to big organisations only, where the population is large enough for the projections to be correct. Most importantly, the models work only in stable socio-economic and political scenarios, with stable markets. In situations where there are changing variables that are likely to make a significant impact on the enterprise, these models may not work, as the future may not necessarily follow the trends of the past. At senior levels of the hierarchy, the possibility of working of mathematical model is likely to be low, due to the fact that several internal as well as external factors continuously work on this group in a profound fashion. Optimisation ModelAn optimisation model finds the best possible choice out of a set of alternatives given an objective defined in quantitative terms. This model combines the forecasting of manpower availability and the matching with manpower requirement. Here, usually a finite horizon like goal programming is chosen. The number of goals are established which the decision maker desires to achieve. Such goals may be minimum total salary costs, avoiding over employment, maintaining certain employment of minorities. However, Short-term

scheduling optimization is very widely used and the application of optimization techniques such as linear programming to long-term Human Resource Planning is much less common, Cambridge ModelThis model concentrates on steady-state age distribution, i. e., staff distribution by age, which remains unchanged year to year. Steady state is a stable equilibrium. Thus, if the system is affected, i. e., if it goes beyond equilibrium, it will tend to return to it. Everanuz (1975) developed the following models for steady state age distribution. g (j) = cH (j) for jL…….. jHHere, g(j)= Proportion of staff in the steady-state age distribution aged jr (j) = Proportion of recruits aged j, i. e., recruitment age distributionw (j)= Wastage rate for staff aged jP= long-term expansion rate(1+P)= number of staff increases by a factor. If this is negative and it implies a contractionSimulation: To simulate is to initiate. It is not an optimising technique. It is a descriptive technique. In simulation technique, a given system is taken and the variables and constants associated with it are studied and manipulated in an artificial environment. The objective is to examine the behaviour of the system. By this an analyst set up the possible courses of action and establishes criteria. Those criteria act as measures of effectiveness. The benefit of simulation model is that the results of choosing a particular course of action can be estimated prior to its real implementation. Instead of using intuition, the analyst using simulation can test and evaluate various possible alternatives and select the best one that gives the optimum results. Broadly there are four phases of simulation process. They are as follows: a. Definition of the problem and statement of objectivesb. Construction of an appropriate

modelc. Experimentation with the model constructedd. Evaluation of the results of simulation

Monte Carlo Simulation

It is a probabilistic simulation method. It uses numerical technique that involves modelling with the objectives of predicting a system's behaviour. The chance element is crucial feature of Monte Carlo Simulation. This approach is useful when a given process has a random or chance component. Replacement: Replacement takes place in the decision making process. Used equipment is replaced with new equipment for better usage. The replacement might be the call of the hour due to the deteriorating property of particular equipment. The failure or breakdown of equipments too necessitates replacement. When the existing items have out-lived, or no more it is economical to continue with them, the ' Replacement theory' is used. There are also cases, when the items have been destroyed partially or fully either by accident or otherwise necessitating replacement. Replacement theory is adopted in terms of optimal replacement period. The replacement theory can be analysed in the given scenario: 1. Equipments that shows deteriorating performance over a time, may be restored in whole or in part by expanding maintenance costs. As a result of which, the given equipments may be technically fit and fine but economically, it may not be worthwhile to continue with those. Hence need replacement. Machinery, equipment, buildings fall in this category. 2. With respect to units that perform adequately until sudden complete failure. The length of the service until failure varies randomly over some predictable range. Car bulbs, tubes and some electronic equipments fall in this category. 3. Staff replacement is

required in an organisation due to death, retirement, retrenchment and for other reasons. Historical data are collected to estimate the likely stay of individuals with the organisation through time. The stay of an individual employee may be random variable but the characteristics of the group of employees are likely to be fairly stable.

DATA BASE FOR SUPPLY FORECASTING

Supply forecasting at the micro level is essentially the internal supply forecasting. External supply is determined by factors extraneous to the company or enterprise concerned. Internal supply forecasting needs a detailed Manpower Information System (MIS) at the company level or enterprise level. MIS is prepared and developed on the basis of personal history records of each individual employee and is updated every year. A good MIS comprises of the following modules: Personal Data Module: Identification details, educational particulars, privileges if any, handicapped, scheduled castes/schedules tribes, etc. Recruitment Module: Date of recruitment, grading in aptitude tests, grading in leadership tests, overall grading, job preferences and choices etc. Job Experience Module: Placement history, grade, promotions, tasks performed at each grade, significant contribution, etc. Performance Appraisal Module: Performance appraisal at each job held, job experience evaluated with the help job description, communication rating of inter-personal relationships, rating of group behaviour, commitment to corporate goals, etc. Training and Development Module: Training received at each level, individual’s evaluation of training effectiveness, recently attended training programme etc. Miscellaneous Module: Record of compensation and benefits received, health status,

information relating to personal problem that needs the attention of the authorities, security needs, etc.

SUMMARY

Effective Human Resource planning is a significant challenge to many firms across a wide range of industries. It involves closing the gap between forecasted demand for services and the supply of labour and skills needed to satisfy that demand. Thus Supply Forecasting is an important activity of Human Resource Planning process. Human resource planners need to look at both the sources of supply and evaluate them through in-depth studies to ensure that suitable strategies are evolved to meet business demands. The External supply is determined by factors extraneous to the company or enterprise level. A company or enterprise has its control over internal supply of manpower. It is governed by the wastage rate and the internal flows caused by transfers and promotions. However, methods of analysis and manpower forecasting are highly dependent on a well defined MIS based on records of personnel history of each individual employee. Whether it is manpower demand forecsasting or manpower supply forecasting a sound comprehensive database is required to be readily available to generate the needed data. DISCUSSION AND QUESTIONS: