Post Graduate Certificate Course in Health System and Management - 2013

Module 3: Chapter 3

Techniques in Management

Indian Association of Preventive and Social Medicine

Gujarat Chapter

CHAPTER 3: MANAGEMENT TECHNIQUES

Learning Objectives:

After studying this unit you should be able to:

1. Describe various techniques of management
2. Use appropriate techniques of management in various settings

In order to understand the meaning of 'management techniques' we must be clear about the two concepts, namely, 'management' and 'techniques'. In simple words, management is the handling of tools and techniques to achieve a desired goal. In other words, management infers planning, organizing and controlling of human and other resources to achieve specified goals. A technique is a set of procedural steps which may be loosely or rigorously started, which embody multiple idea content and which are concerned with doing work to achieve an objective.

In other words, we can say that management techniques is a set of procedural steps which may be loosely started, embodying a multiple idea content and which are either concerned with decision-making in general or with decision relating to planning, organizing or controlling of human and/or other resources with a view to achieving the specified objectives. Management techniques make positive efforts to analyse the situation in a systematic and scientific manner and provide a rational basis for decisions.

Functional Classification of Management Techniques

Clay gives a classification which is based on the objective of the techniques, i.e. **what does the techniques hope to achieve?**

1. **Detection**.(to find out or discover something e.g., what is happening or what is wrong?) : We can include such technique here as input-output Analysis, Attitude Survey, Production study, Activity Sampling, Critical Examination, Break-even Analysis.
2. **Evaluation**. (To measure or estimate the value of an item): we can include such techniques here as job evaluation, work Measurement, and work Estimation, performance Appraisal, Cost-benefit Analysis.
3. **Improvement.** (To improve performance): we can include such techniques here as management by objectives, method study, value analysis, etc.
4. **Optimization**. (To optimize performance): we can include such techniques here as Linear programming, Ergonomics, operations Research etc.
5. **Specification**. (To specify a desired value or situation or action): Here we can include such technique as Layout planning for offices and plants layout, designing, etc.

6. **Control**. Here we can include such techniques as Cost Control, Credit Control, Labour Control, Inventory Control, Production Control, Budget Control, etc.
7. **Communication**.(to communicate information): here we can include such techniques as visual Aids, suggestion schemes, report writing, communication Theory, Information Theory, Management Information etc…
8. **Demonstration**. (to demonstrate something): here we can include such technique as programmed learning, job instruction, management development and training etc.)

The management techniques can also be classified in terms of various resources employed in an organization, viz.., human material, machinery and equipment, money and time. As such, some of the techniques which can be applied to bring about increased managerial capability, efficiency, effectiveness and productivity can be categorizes as under:

Source	Management Techniques
Human Resources	1. Organizational analysis 2. Job Evaluation 3. Training 4. Incentive Schemes 5. Suggestion Schemes 6. Method study 7. Work Measurement
Material	1. Inventory Control 2. Value Analysis 3. Material Handling 4. Standardisation 5. ABC/VED
Machinery and Equipment	1. Method Study 2. Value Analysis
Space and Building	1. Layout Planning 2. Method Study
Money	1. Cost benefit analysis 2. Budgetary control 3. Performance budgeting 4. Management accounting
Time	1. Method study 2. Work measurement 3. Network analysis (PERT/CPM)

Personnel Administration: Participative Management and organizational Development (OD)

The health of an organization is measured in terms of its capability to adjust with internal and external environmental challenges. We find that in big health organizations like hospitals, there is a lot of friction amongst the experts and other staff generating an atmosphere of frustration and low morale, resulting in the overall inefficiency. We can introduce the technique of OD in such large hospitals to maintain the healthy atmosphere of work. A comprehensive definition of OD has been given by Backhard. According to him:

"Organizational Development is an effort: (1) Planned, (2) Organization wide,(3) Managed from the top to,(4) increase organization effectiveness and health through,(5) Planned interventions in the organizations' 'process' using behavioural science knowledge.'

OD depends upon the purely internal initiative of the employees of an organization. The present emphasis in health administration is only on structural changes but structural changes without personal dedication and capabilities would be of no avail. It is high time that we introduce OD in all our big health institution to ward-off the bureaucratic attitudes which result in low output and stagnation. We have also the other technique to achieve this objective, e.g. Management by objectives, Participative Management. We must try to integrate all these techniques for optimizing the efficiency of personnel in an organization.

The most important task of Personnel Department must be to give abundant evidence of its belief that personnel in an organization are key to development. This requires proper motivation of the employees. Motivation is of utmost importance as it constitutes the base for the management functions of planning and organizing. It has been noticed that the performance of the personnel either as individuals or members of a group is less as compared to their capabilities in terms of skills, abilities and capacities. Finer, for example, states that demonstrated performance generally never exceed more than fifty per cent of the individual's ability to perform. Most individuals tend to balance their efforts around an assessment of relative costs (time and energy) and benefits. A climate of creativity must be developed and maintained by management.

It is the duty of the officers of such units to make the employees feel that their work and their association with a given organization represent a vehicle which will accelerate the achievement of goals of the organization. This would require the active participation of the employees in the decision making process of the organization.

"**Participation** is ….. an individual's mental and emotional involvement in a group situation that encourages him to contribute to group goals and to share responsibility for them."

MANAGEMENT INFORMATION SYSTEM

As the universe is saturated with information, health administration must select pertinent information for their programmes otherwise it is difficult to make any rational policy or decision. This technique is tailored to provide such information to the decision-makers which is most relevant, accurate, complete, concise, timely, economic, reliable and efficient. A good information system provides data for monitoring and evaluating the programmes and gives the requisite feedback to the administration and planners at all levels.

The development of a suitable technique for a health information system would improve the capacity of health administrations to make appropriate policy-decisions. The information system may not serve the purpose if the health administrators are not committed to use the information constructively. The health administrators should use the available information sensibly and logically than construct complex information system which may not be used.

ABC ANALYSIS

It is a technique which would enable a busy executive to chase those activities ardently which would quicken the wheels of administrative machinery. By arranging his work into an order of priorities, he can decide on which items to concentrate first, which others to deal later and yet which others to delegate to his assistants. When done more systematically and in quantitative terms, this system of building up priorities of work is called the ABC analysis. ABC analysis can be of great use in dealing with materials management in hospitals. Forty to sixty per cent of the total expenditure of an organization is generally spent on materials. The other from of ABC analysis is VED, i.e. arranging the activities in the orders of Vital, Essential and Desirable.

MANAGEMENT BY OBJECTIVES

MBO has been used in various ways: as a planning tool, as a motivational tool and also for performance appraisal.

The principals of MBO can be applied either for the entire organization or for a department. The essential features of MBO are participation where involvement of all levels of managers is important.

The process of MBO starts with goal setting at the top, setting of subordinate's goal with their active participation, periodic review of the performance and finally appraisal. A positive outlook towards the people is essential for the MBO process. The objectives are formed in hierarchy such that objectives of one level contribute towards achievement of objectives for the next higher level. The lower level managers are also involved in

objective setting of the higher level. In MBO the system of objectives ultimately help to realize the common goal.

The MBO can be viewed as a system. For the programme to succeed, it is essential that managers at each level of the organization must have strong commitment to achieve personal as well as organizational goals.

The goals of the organization from a network and are in hierarchy. That is a lower level goal must contribute toward achievement of the upper level goal. To start with, goals are set at the top. These goals must be laid down in a verifiable from. Each manager and the subordinates must have a clear understanding of their jobs and responsibilities and objectives. These objectives are to be set in consolation with the subordinates themselves. Participation of subordinates in goal setting is the key to success to the MBO programme.

Once the goal for each manager and subordinates are set, they should be free to plan and implement the programme within the organizational constraints. This aspect of non-interference by the immediate superiors is usually liked by all and helps in achieving a high degree of motivation.

A periodic review of progress of the programme is required to be done jointly by the superior managers and the subordinates. If everything proceeds as per plan, nothing more is required to be done. However, if it is seen that there are some problems, then ways and means are discussed to solve those problems. If necessary, the objectives can also reviewed and revised.

Work-Study: Work study is of two types

1. Method study
2. Work measurement

Before describing work study you need to understand certain terms, which are defined below:

- **Job**: The totality of and/ or responsibility assigned to or a category of hospital worker (e.g. Nurse working in the ICU vs. in the Injection Room of OPD)
- **Function:** A broad area of hospital care included in jobs involved in it e.g. maternal and child health care. A function includes a number of activities.
- **Activity**: A distinct unit or category of work, a part of the function pertaining to a specific job. For example, Pregnancy diagnosis is an activity consists of a number of tasks.

- **Tasks:** A specific procedure or unit of work included in an activity. In the above example of diagnosis of pregnancy the individual tasks are History taking, Physics examination, Investigation etc.
- **Task Element or sub-task**: one of the many action (or component of task) which has to be performed to satisfactorily complete a task (e.g. inspection palpation percussion & auscultation of the pregnant lady are element or sub-tasks of physical examination stated above.

Method study and Work measurement

Health Organisation is a service organisation and thus, in order to be effective, must conduct its business quickly and efficiently. This would depend upon the right procedures and methods. However, health system is suffering from red tapism and outdated method hampering the success of the health care delivery systems. Primary Health care set-up could not make much headway, as the wrong method and procedures created bottlenecks. A study conducted National Institute of Health and Family Welfare found that patients have to wait for 3-4 hours in OPD before getting their turn. Even to get a room in Private ward means too much of formalities, both at the time of admission and discharge. Methods and procedures in a hospital are so complicated that the attendants of patients get exhausted even before the admission of the patient. Wrong methods, practices and procedures hamper the functioning of heath care system. How can we come out of this chaos? How can we remove these irritants? The only answer is to introduce method study as a continuous exercise to maintain health care system alive, functional and dynamic. Let us now discuss the meaning, scope and utility of method study.

Method study is one of the techniques of work study to improve on 'How' of doing work. It is a technique to improve method of work, with a view to increase efficiency and effectiveness of resources-men, money and material.

Method study must be used when a new organization is created or when an alteration is made in the existing organization or when some problem arises in the existing health organizations.

While **organizational analysis** deals mainly with the division of work and responsibility for the efficient fulfilment of objectives, the **method study** deals with the way the work is performed.

British Standards Institution defines Method study as the systematic recoding and critical examination of existing and proposed ways of doing work, as a means of developing and applying easier and more effective methods and reducing costs.

According to Indian Standards Institution, The Method study is the systematic analysis and improvement of work method and system through the application of innovatory techniques to achieve better utilization of resources.

Objectives of method study

Method study is basically interested in finding better ways of doing things, resulting in better performance.

WORK MEASUREMENT

Today, there is a widespread feeling in the public about the inefficiency in health administration. In most of the organizations, health administration is run by hit and trial methods, i.e., without any yardstick to measure the individual and collective performance. The measurement of human work has always been a problem for management. Without measurement, the organization operates in darkness with hardly any basis for comparison or control.

Most of the health activities have no standards in terms of output and time? How can we allocate human resources without knowing these standards? That is why in most of the health organization, there is lot of mismatching and some health organization are over-staffed while other are under-staffed. All these problems can be solved if we introduce the concept of work measurement to ensure effective planning, implementation, control and supervision.

Work measurement can improve the functioning of preventive, promotive and curative, health services. In curative heath services, planning can be done accurately for OPD, operation theatre, ICU, Nursing services, etc. to provide decent heath care. This technique is easy to apply, provided it is done from time to time to introduce desired change.

Meaning

Work measurement is concerned with the determination of the amount of time required to perform a unit of work. The time required for this task is commonly referred to as the standard or allowed time. Thus, work measurement is to provide a yardstick for human effort which can help in efficient manning, improved planning and control, sound and effective schemes.

As stated in an I.L.O Publication:

“Work measurement is the application of techniques designed to establish the time for a qualified worker to carry out a specified job at a defined level of performance”.

Work measurement is thus a device for estimating more precisely the amount of time it should take or will take to perform the assigned work. Work measurement has both a negative and positive role. Negatively, it locates the existence of ineffective time; positively it sets standard times for the performance of work. Since Method Study is a technique for reducing work content, therefore, it is necessary that Method Study should precede work measurement. In short, work measurement is interested in investigating, reducing and subsequently eliminating ineffective time.

1. How many patients can be examined by a doctor in a given time?
2. How many operations can be done in different specialties in a given time?
3. How many X-rays can be taken out per hour?
4. How many ECGs can be taken per hour?
5. What is the utilization time of different categories of health workers?

Work studies undertaken for a number of reasons such as:

1. ***Planning and management*** of hospital manpower e.g. allocation of tasks to various categories of hospital workers.

2. ***Evolution of the effectiveness and efficiency****:* of programmers or services including performance of the personnel e.g. to ascertain, for example the performance of a department correspond to the time devoted.

3. ***Planning and revision of training programmers*****:** for nurses e.g. does the content of curricula relating to training of nurses correspond to the job function expected of nursing personnel.

4. ***Assessment of training programmed:*** and of performance of trainees in the field of their training e.g. do programme effectively attain the defined objectives. Can trains perform satisfactorily the task required of them?

Work-studies include a number of activities some of which are listed below:

a. ***Identification*** of action to be performed by the medical and paramedical personnel in providing in-patient and outpatient services.

b. ***Specification*** of these action by identifying activities and tasks, and if necessary task elements.

c. ***Analysis*** of present performance of these activities or tasks; and

d. *On the basis of such analysis* ***Development of work profiles****, i.e. job description for various categories of hospital workers, as and when necessary, skill profiles etc.*

It is not necessary that any one study will be concerned with all these steps. In fact the use of work-study will vary from one situation to another.

Cost Benefit and Cost Effectiveness Analysis

Cost benefit analysis (CBA) is determined by relating benefit of a program to its cost. It is expressed in monetary terms. It helps the decision-maker in deciding which of the alternative programme should be given priority. It can also suggest if a particular programme is undertaken to what extent the programme will be benefit. It is a method of aggregating all cost and all benefit associated with a given project programme or decision in monetary terms, converting them to present value and combining them in a single index such as the present value of net benefit. In the broader sense cost benefit analysis is an activity, which investigates the cost and benefit that are associated with a project programme to arrive at a decision. It may also deal with the distribution of costs, benefit and sensitivity of results to different contingencies. If just, cost calculation are made to observe the expenditure it is knows as costing exercise, if this costing exercise is compared to the financial sanction then it is knows as budget expenditure exercise or budgeting. If costing exercise is looked as what was spent for a hospital, the deprecation there off as compared to the present expenditure and the burden on the present finance etc. then it is knows as cost analysis. The CBA is the method by which one can convince the administrators (or even ministers!), regarding a new plan or programmes.

In performing cost benefit analysis the opportunity cost has to be taken into account. For example, if resources are committed to setting up of a super-specialty hospital then what is the loss of their value for other uses? This would help in justifying allocation of resources (e.g. setting up super-specialist hospital services) if the analysis could show that internal rate of return on investment in the programme is at least as much as the investment made in other sectors. If the rate of return is even lower than the bank rate interest then detailed investigation need to be made about the programme implementation. CBA can used to be evaluating alternate investment decision such as strengthening of laboratory services or setting up of dialysis unit district hospitals.

Cost- benefit analysis is an aid to systematic thought and helps the planners to decide as to what should be done-on the relative merits of different programmes. How far, for example, should resources be devoted to health education or maternal and child health services or immunization against particular disease? Any given budget for health may be distributed between programmes by including, first, those with the highest ratio of benefits to cost, then those with the next larger and so on, until the budget is fully allocated.

The CBA has to weight the cost spent and the advantages achieved in monetary terms only. In some situation the purpose of government expenditure is specific and well understood yet benefit which accrue due to certain action, cannot be expressed in monetary terms. In such cases often cost effectiveness analysis (CEA) is used in which alternative systems are investigated to determine:

Which of them is least costly when the alternative are equally effective in achieving the objective, and

Which of the one alternative is most effective in achieving the given objective when they are equally costly?

CEA also predicts what effect was achieved by expenditure e.g. Decrease of incidence of hepatitis by vaccination: or reduction in maternal mortality by giving IFA tab to all mothers etc.

Occasionally, an extension of cost effectiveness analysis is useful for investigation budgetary allocation for a public purpose. In that case one attempts to measure benefit and costs in different units detailing the maximum benefit that can be achieved for each amount of expenditure leaving the final choice of amount to higher levels decision makers. Thus achieving a given objective. They do not therefore, deal with the resolution of uncertainty as such but with choice among possible actions. The cost effectiveness analysis could be used to study the alternative models /strategies given as under:

- Installation of X-ray equipment in every PHC or for a group of selected PHC or CHC.
- Hospital vs. domiciliary treatment of a T.B patient.
- Prevention of maternal mortality by tetanus toxoid or aseptic condition in the labor room.
- Diagnosis of malaria by PS for MP or RDK.

Problems in Analysis Costs and Benefits

The concept of cost (or input) benefit (or output)provides an extremely useful framework for organizing pertinent facts and relationship in dealing with police problems but there are various problems associated with costs or benefit or both. The different consideration regarding Cost may be further understood from the statements below.

What tangible costs are associated with action regarding personnel, material and capital expenditure? What other kinds of cost are involved e.g. spill over costs, good will cost, cost of community disruption, cost of sufferings etc.? In what time period these costs reduce? Who will pantheon? Many costs are not computable in financial terms or are not even quantifiable. But they are real costs and may be susceptible to logical analysis. The cost of certain services also cannot be converted in monetary terms.

The second problem is specifying the relationship between inputs of a person and outputs. These relationships are production functions which define available alternative courses of action.

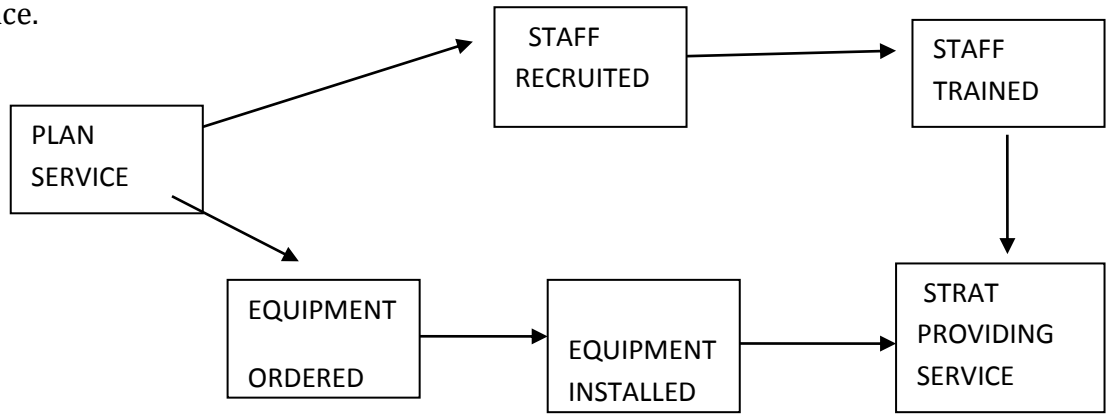
Third problem is defining outputs or benefits. For example if life of a person is saved by anti rabies vaccine what cost did the vaccine recovered? Is it cost of the vaccine vis-à-vis cost of the life? If so, what is the cost of a human life?

What output should be produced? Calculated?

Cost benefit analysis on the other hand is a framework for keeping our thinking strength in evaluating projects. It is a framework that demands explicit attention in deterring the impacts of a proposal and assigning values to these impacts. It is more than a tool, which provides information helpful in taking decisions. For example increase of couple protection rate by use of a particular Family planning method.

Network Analysis: PERT, CPM and Gantt chart

This is very useful for implementation of project/programme in a time –bound manner. The basic principle of network analysis is a simple one-namely to record in the form of a diagram such as that shown in fig 1, the logical sequence in which events must take place.



By simple arithmetic it is possible with a diagram to calculate the time by which each activity must be completed and to identify those activities that are critical (i.e. those if delayed will delay the whole work/project. This simple technique a basic method by which all concerned in a project can know what is expected of them and by what time. Thus it provides a ready means for working out change in a programme to minimize the effect of any delays or crises that may occur.

Two types of network techniques are commonly employed depending upon the situation namely, PERT (Programme Employed Review Technique) and CPM (Critical path method). They were developed by the US navy in 1958 for the Polaris Missile project. CPM was independently developed in 1957 by walker of the integrated Engineering Control group of American chemical firm and Kelley of Remington Corporation of the USA in search of new ways for scheduling of project. Thus use of both techniques of planning and scheduling of work involves three main stages:

- Breaking down the project into a set of individual jobs arranging them into a logical sequence and time to draw a network flow of action similar to the Fig.1
- Estimating the duration and resource requirements of each job, scheduling and finding which jobs control the completion of the project, and
- Re-allocation budget to other resources to improve the schedule.

For using PERT and PCM certain skill/expertise are needed Gantt chart, other time scheduling method be used by most of the activity managers in much simpler way. These techniques are useful right from planning and scheduling the work to monitoring the progress of project implementation to ensure its timeliness They are widely used in the engineering field. They are also many health managers and have been employed in hospital set ups too.

Example-I: Setting a physiotherapy & rehabilitation department in a district hospital.

In order to set-up such department with minimum problems prepares an action plan. This involves:

(a) Listing of all major activities and their expected duration as shown below.

S .No	Activity Description	Duration (in weeks)
1	Submission of proposal	4
2	Obtain administrative approval	10
3	Identify accommodation in the hospital	1
4	Get necessary modifications done in the building	4
5	Invite tenders for equipment	4
6	Process quotations and place order for equipment	2
7	Receive equipment	6
8	Install equipment	2
9	Action for recruitment of staff including advertisement	8
10	Process of application and holding of interviews	6
11	Issue appointment letter	1
12	Joining of staff	6

13	Training of staff in use of equipment	1
Total	Actual duration might be much less than the mathematical total because overlapping of activities by networking as shown in the figure above.	Mathematical total 55

(b) Scheduling the Activities: This involves defining the inter-relationship in time with other activities namely predecessor successor or concurrent The activity whose start is dependent on completion of the preceding activity is called successor and the preceding one is called preceding activity The activities which are independent and can be started and activity can be initiated simultaneously without waiting for completion of any other activity, are called concurrent activities. For drawing of network the scheduling is done by allotting the number to these activities is shown below where successor activities are given the next number of the predecessor activity. Concurrent activities are given the same number. After this the network can be drawn similar to the one shown in Fig.1 using the PERT/CPM This will require calculation of slack tome, critical activities and critical path.

Gantt chart

Sr.no	**Activity Number**	**Activity description**	**Duration (in weeks)**	**Time schedule for completion**
1	1	Submission of proposal	4	
2	2	Obtain administrative approval	10	
3	3	Identify accommodation in the hospital	1	
4	4	Get necessary modification done in the building	4	
5	4	Invite tender for equipment	4	
6	5	Process quotations and place order for equipment	2	
7	6	Receive equipment	6	
8	7	Install equipment	2	
9	4	Action for recruitment of staff including advertisement	8	
10	5	Process of application and holding of interviewers.	6	

11	6	Issue appointment letters	1	
12	7	Joining of staff	6	
13	8	Training of staff in use of equipment	1	

The forgoing representation also shows the total time required for completion of the overall activity. If the time duration to be reduced then the inter-relationship of activities is to be examined in more detail to make more activities concurrent and reduce the time duration for completion of various activities by putting more resource, wherever possible The utility of the Gantt chart can be further increased by writing the name of the person responsible, against each activity, for its conduction Then the project manager can easily monitor the progress of project implementation using Gantt chart with certain amount of answerability from person entrusted with the work.

Comparison of PERT/CPM: PERT was development and used mostly in research and development types of projects/programmes which are relatively new. Thus much information is not available. This leads to uncertainty in calculating timing for accomplishment of various activities. On the other hand, CPM is applied to most repetitive type of projects where activities are standardized & their properties are known. Changes occur mainly in size, shapes and arrangement rather than in design concepts. It does not allow uncertainties in time estimates and uses only one time estimate (deterministic). Moreover in CPM times are related to costs. The cost of getting a job done many increase but if other advantages outweigh this added cost, the job should be expedited or crashed. On the other hand, if there is no reason the job should be done at its normal pace with a lesser assignment of resources. Only the critical job needs to be expedited. CPM attempts to solve problems such as which jobs need to be expedited and by how much.

The application of PERT/CPM can be profitably utilised in the programmes and projects of Health, e.g. construction of hospitals, eradication of communicable diseases, family planning programmes, administration of environmental programmes, etc. Care taken that the cost of PERT/CPM should not take away large resources of the project.

Application of Different Techniques According to Their Level of Formality and to the Level of Activeness of Management

It is clear that one technique or the other is applied in one form or the other at all the three levels of management. Because the lowest level has to perform operational function, management techniques like work study, Network Analysis, Capacity Utilisation studies are adopted. At the middle level, where the policy is executed, some more important techniques like Manpower Planning, Cost Benefit analysis, Statistics and forecasting, etc., are applied to effect improvements. The top management uses more strategic techniques like Technological Forecasting, Performance Budgeting, Operational Research Studies, etc.