Improving Total Productivity

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Introduction :

The story of 3–blind men and the elephant is well known. Each blind man was feeling the body and analysing the body leading to heated argument. For one, elephant was like a rope (as he had its tail), for the second it was a large, soft and flabby mass (he had his hands on the body) and for the third it was like the trunk of a tree (he had his hand on the legs). Each man was sampling one aspect of totality; but they failed to grasp the totality. Each blind man felt that he can make the elephant move by pulling the tail or pinching or by stepping on the leg. They felt each one is solely responsible for the movement, though only a part of the elephant moved and not the whole elephant. This is the story of today's most managements. The complex management process is viewed and approached by many specialized "blind" individuals. All put forward their own narrow perspective on nature. Sales said "booked orders", operations said "getting the work-out on time", personnel said "handling people" and accounting said "bottom line" in any organisation. Each is correct from one specific view point, but each failed to grasp the complex totality. The foolishness of the incomplete solutions which are based on limited perspectives can be quite misleading. Decision making options require the over view of totality.

Productivity is one of the most over-riding concerns today. It is seen as a means for improving profits, competition and cost. Labourers and employees see it as a means to get better compensation benefits. Productivity is a challenge to be met. The era of the casual performers who alone must execute trial and error method until the work is over has been disappearing. Wastage of resources, heavy expenditure of time and low levels of performance cannot be tolerated any more. The utilization gap between "knowing" and "doing" has to be cut short. Practice with feed back, review, analysis and change leads systems to perfection. Thus there is a need to look at each process from productivity angle to make it the best process. We will try to analyse how to go about doing this.

What is productivity :

Persistent inflation compounded by an onerous recession with in the context of scarcity of materials has threatened the ability of industry in general and paper industry in particular to continue to function and fulfil its obligations. Productivity frustration are abound, causing serious economic problems. The frustration and trend sharpen the need that something must be done. The challenges can be met not from additional revenues or cutting services but by productivity improvements.

Productivity definitions have not been uniform due to different positions and emphasis of the definer and reference point. There are primarily four different views. National reference, Industry reference, Individual firm reference and Individual worker reference. The Productivity is not production, nor performance nor results. The capacity to utilize existing resources is productivity. Productivity is the measure of how well resources are brought together in organisations and utilized for accomplishing a set of results. Productivity is reaching the highest level of performance with least expenditure of resources.

Productivity deals with two points (a) results or performance i. e. effectiveness and (b) consumption of resources i. e. efficiency. Thus it is a combination of effectiveness and efficiency. Effectiveness is related

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to performance and efficiency to resource utilization. How well the resources are brought together and utilized is indicated by comparing the magnitude or volume of results or output (effectiveness) with the magnitude and volume of resources or input (efficiency). This ratio becomes an index of the definition and measurement of productivity.

$$\text{Productivity Index} = \frac{\text{Output obtained}}{\text{input expended}} = \frac{\text{Performance}}{\text{Resources consumed}}$$

$$= \frac{\text{Effectiveness}}{\text{Efficiency}}$$

We should be able to measure both performance and resource for productivity improvements. The productivity index as a ratio measures how well resources are expended in the context of accomplishing a mission or a set of objectives. Thus there is difference between a goal and a performance objective, and a productivity objective.

Productivity frustrations and losses are being experienced. These include unmanageble complexities, profit frustrations, budgetary problems, near bankruptcy from shrinking funds, inability to handle growing human services. Traditionally, productivity is made up of many things-plant, equipment, investment capital, research and development, materials, workers, costs, methods, procedures, goals and management. In three areas the trends are new and different and will effect productivity. These are :

(a) Workers—Their needs, wants, attitudes have changed. The new productivity package must include human expectation in labour force. Employees must be thought of as an investment in human resources.

(b) New and changing technology-As technology advances the Impact on established methods, procedures and processes are disruptive.

(c) Accountability-This is the third factor that makes productivity different today, Productivity is no longer the sole responsibility of management. All segments of work life consuming resources must be accountable.

Human expectations, changing technology and limited accountability are critical components in todays scene. The benefits from productivity improvements are immense. Managing productivity by objectives (MPBO) will result in greater and more favourable results. These include

— provision of store keeping data for evaluation,
— solve day to day operational problems in planning,
— Set up accountability frame work,
— give better decision making for budget,
— provide new resources for critical areas,
— provide zero based information for estimation,
— set up incentives,
— evaluate "trivia" in the job of managing,
— force a search for unutilized opportunities,
— give accurate assessment of value of capital outlay,
— provide information for policy changes,
— clarify relationships,
— focus on cost benefit analysis.

Organisational trends affecting productivity :

Productivity in any organisation just does not happen. Too many complex factors must be arranged, coordinated, managed for it to occur. There are 12 basic causes which decline productivity. These are listed in Table-1.

The increased concern with productivity frustrations has now poiated to the great need organisations now face-" committment to change", Conservation will not work. The new situations require new approaches and strategies to deal with these problems.

Managing Productivity as a total Process :

The fact that long range prediction indicate that resources will continue to dwindle will demand managers to develop new attitudes and skills for delivering higher levels of performance with decreasing resources. This

TABLE—1 : CAUSES AND EFFECTS OF THE PRODUCTION CRISIS

Disruptive Trends	Productivity action factors	Effects on Productivity	Potential organisational problems
1. Emerging new force	White collar workers	Creates evaluation & Managing difficulties	Waste of human resources
2. Increasing compensation with out equal productivity	Rewards	Pushes wages & prices up	Escalation of inflation
3. Developing super organisations	Complexities	Decision making and resources accountability	Slow down in reaction and muddling of resources use
4. Drive towards organisational expansion	Growth	Adding staff reduces productivity	Soaring costs
5. Rising number of effluent workers	Affluent attitudes	Changes traditional reason for working	Low motivation
6. Growing deficiency of materials	Scarcity	Disrupts plans and schedules	Late deliveries
7. Difficulties in cooperation	Conflicts	Produces unresolved disagreements	un-coordinated organisations
8. Inhibiting effects of antiquated and inadequate laws	Law & regulations	Increases disruptive legislative intrusions	Excessive and costly constraints
9. Work process becoming restrictive	Specialisation	Produces routine and boring work	Worker dis-satisfaction
10. High cost for use of technology	Rapid changes	Affects existing capital investment	Reduction of new opportunities
11. Increasing desire for time off	Leisure	Creates need for discretionary time	Disruption of work commitments
12. Accelerating knowledge	Information.	Makes practices out	Obsolescence of skills

has to be done effectively and efficiently. Thus the 3 basic orientations for productivity improvements are

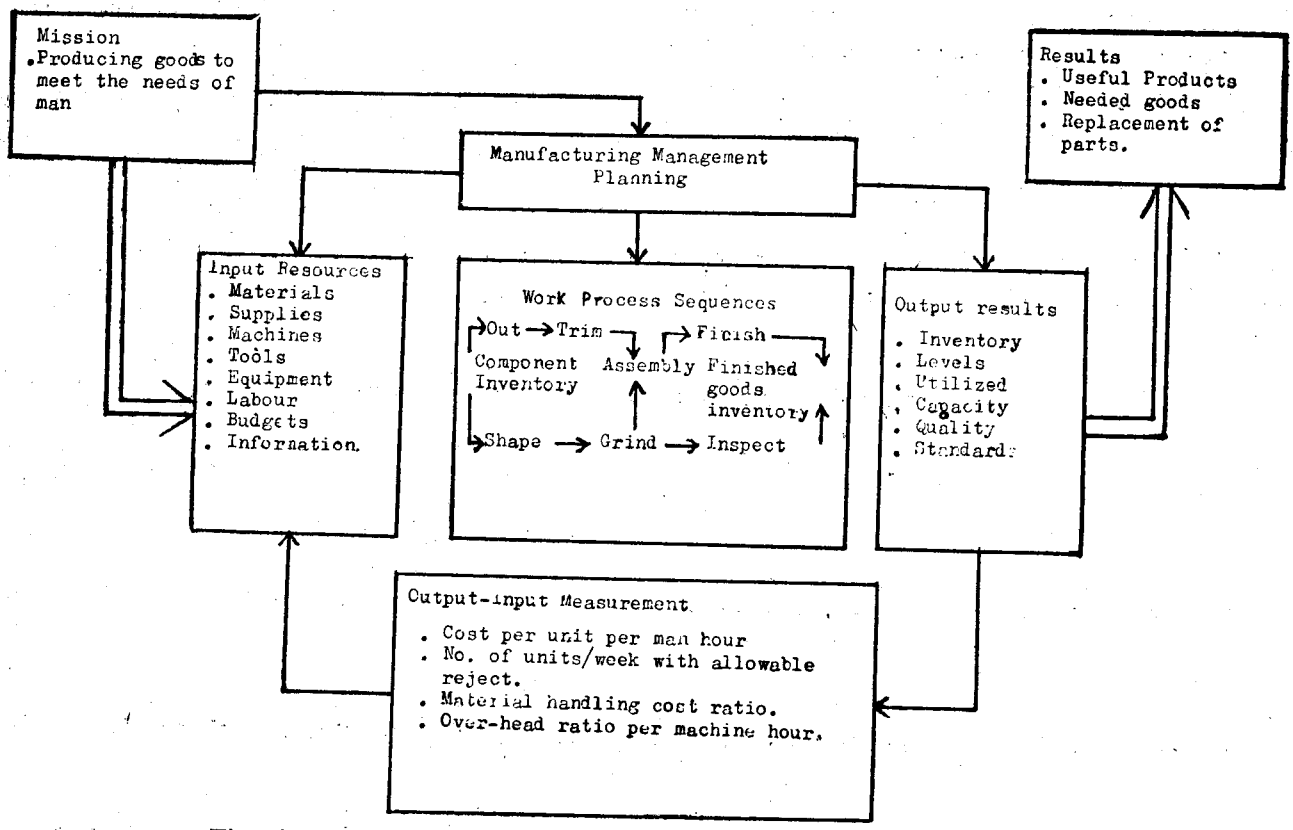
— Conceptual frame work of organisational productivity i.e. how to view the productivity process.

— Productivity in the context of synergistic process i.e. how synergism can be used to improve p oductivity.

— 10-principles in developing discipline of productivity.

The conceptual view of managing productivity is to view resources in an organisatisation as aggregated to achieve level of these goals and there- by fulfil a mission. Once a level of these goals is achieved, new levels are set. This goal achievement, resources use cycle forces the organisation to become what the setter wants. Productivity process is a planned series of steps from input through transformation to output with a feed back measurement on how well the out comes were achieved in terms of resources used.

In manufacturing the problem is how to interconnect sets of output-input subsystems so that the large system can perform productivity in a satisfactory manner. It is very likely that the subsystems will not be interconnected. High productivity can result if there is successful synthesizing of process. The subsystem inter-connector of people with machines/equipment is most challenging. Fig.—1 illustrates this.



Fig—1 THE PRODUCTIVITY PROCESS IN MANUFACTURING

Productivity is a synergistic process. Synergism is the combining of parts or factors in a process so that its operating whole is quite different from a simple sum or addition of these parts. A change in one part of a process may set up a series of positive reverberations through out the process so that it is better than original.

Unused capacity, stored potential or low level effectiveness are released. Thirty factors are identified as parts of synergistic productivity process. These are shown in Fig.—2 in productivity triangle. The factors are identified by levels as follows :

— Fourth level factors (Affect productivity most directly)–Effectiveness (performance) and efficiency (resource usage).

— Third level factors–skills, motivation, methods, costs.

— Second level factors—leadership experience, climate, incentives, schedules, organisational structure, technology and materials.

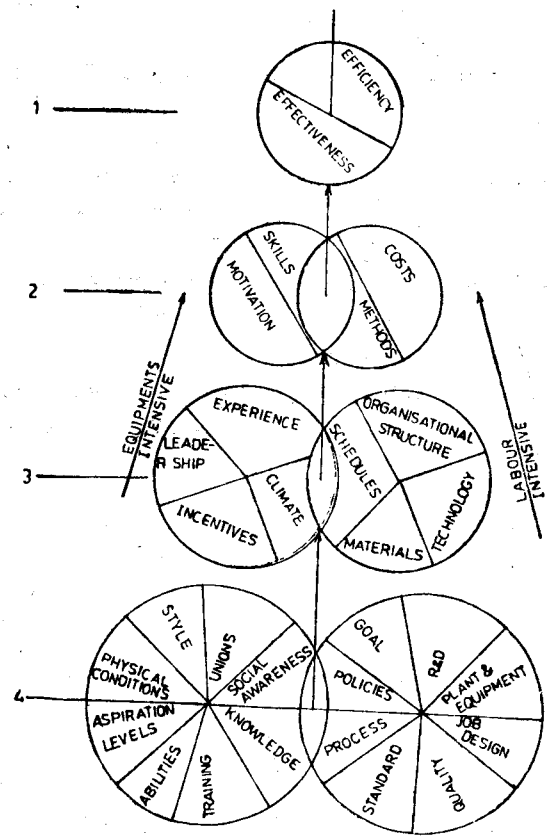


Fig. 2 THE SYNERGISTIC PRODUCTIVITY TRIANGLE

— First level factors—(Affect productivity least directly)—Abilities, styles, training, knowledge, physical conditions, unions, social awareness, aspirations levels, processes, job design, goals, policies, R&D, plant and equipment, standard and quality.

Complimentary value is a synergistic approach to add equipment and technology to labour intensive organisations and to add motivation and human factors to equipment intensive organisations.

Ten principles are introduced as guide to practitioners as aids in the productivity situation. These principle guide the application of the productivity index and set the stage in a managerial strategy for productivity measurements. The principles are shown in Table—2.

TABLE—2 : PRINCIPLES OF PRODUCTIVITY GROWTH

Sl. No.	Principle	Detail
1.	Ratio Time Measurement	Productivity is more likely to improve when expected results are measured and made greater in the same time frame that expected resources are measured and made–less.
2	Shared gain	Productivity increases rapidly when its expected benefits are shared with those who will produce this.
3.	Expectancy Alignment	The greater the alignment of employees expectancies (need) with organizational objectives (targets), the greater the motivation to accomplish both.
4.	Worker Accountability	Accountability for productivity is more likely to happen when employees understand, participate in and are held responsible for productivity objectives, measurement and evalution.
5.	Focus	The greater the focus towards productivity objectives on a time scale, the greater is the likelihood of achieving these objectives.
6.	Creating potential productivity	Productivity gains are more likely to be achieved from situations where the potential for productivity gain is created.
7.	Continuance	Productivity tends to continue when achieving an objective does not incapacitate or destroy any of the factors which produced it.
8.	Justice	Productivity is more likely to continue when employees are given equal pay for equal work, when employees are given equal work for equal pay.
9.	Elasticity	Productivity tends to increase when the same amount of work is achieved in a shorter time.
10.	Resource priority	Productivity increases when objectives for productivity set the priorities for resource allocation.

Productivity Measurement :

The need to manage productivity with measurement is found in nearly every work process of nearly every organisation. The key step in the improvement of productivity is to assess the existing level of productivity. The productivity measurements are difficult due to five reasons :

- Work processes are complex and unwieldy.
- Measurements are difficult to make after work in process
- Use of generalized terms inhibit evaluation process.
- Measurements are made on activities rather than on results.
- Measurements are made towards a morca level of utilization in economy.

Thus there is a need to quantify work expectations which can make evaluation easier. The measurement techniques are as under .

a) Measurement using productivity ratio–These include over—all indexes, objective ratios, cost ratios, work standard ratio and time standard ratios (Fig 3) and (Table—3).

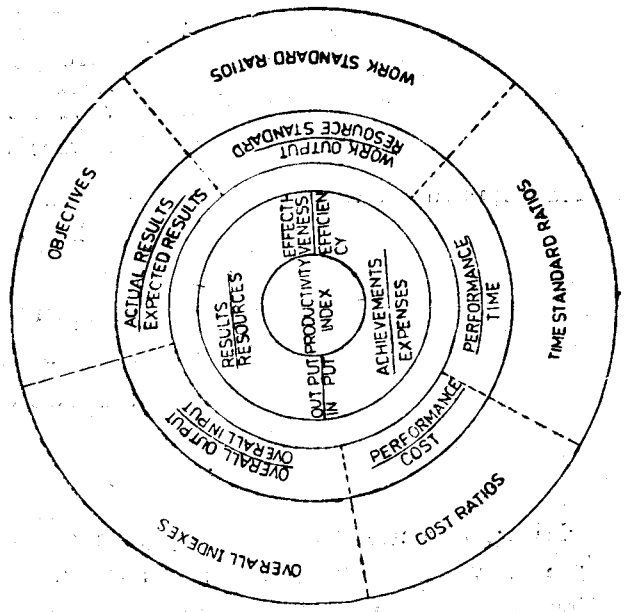


Fig. 3- RATIO MEASURES FOR EVALUATING PRODUCTIVITY

TABLE—3 : BUSINESS AND INDUSTRY RATIOS

Category of Measurement	Ratios	
A. Over-all Indexes	i) **Sales** / Employees	iv) **Sales lost** / Customer Complaints
	ii) **Space utilized** / Space available	v) **Profit** / Equity capital
	iii) **Market Share now** / Market share in the base year	vi) **Actual Price paid** / Market price
B. Objective Ratios	i) **Projects completed** / Projects Planned negotiations	iv) **Works Packages** / Expected work packages
	ii) **Progress in labour Negotiations** / Expected Schedule	v) **Sales level** / Expected inventory
	iii) **Marketing Products adopted** / Feasible ideas	vi) **Quits** / Desired level of Quits
C. Cost Ratios	i) **Sales** / Operating costs	iv) **Rejects** / Costs
	ii) **Borrowed Capital** / Barrowing costs	v) **Turnover** / Costs
	iii) **Inventory** / Advertising costs	vi) **Rework** / Costs

Category of Measurement	Ratios	
D. Work Standards	i) **M/C Operating** Set-up time	iv) **Workload Assignments** Engg. staff.
	ii) **Value of returned goods.** Purchases	v) **Actual labour per unit** Scheduled labour per unit.
	iii) **Grievances settled** Grievances Investigated.	vi) **Accepted Products** Products produced.
E. Time Standard Ratios.	i) **Production** Working days	iv) **Inventory Building** Av. Daily purchase.
	ii) **Actual M/C. Hours/Unit.** Scheduled m/c. hours/unit.	v) **Overtime Hours** Total hours
	iii) **Reject work** Standard Hours to produce.	vi) **Re-work** Time for rework

b) Measurement using total factor productivity-The productivity ratio is expanded to incorporate all inputs that are required to produce an output.

c) Measurement using managing by objecitves-The productivity ratio is expressed as a measure of effectiveness and efficiency and is used in MBO work process from start to finish.

d) Measurement using productivity check-list indicators-The productivity ratio is expressed in an indirect qualitative way as a check-list of items completed in relation to total items expected.

e) Measurement using productivity Audits-The productivity ratio is applied to the organisation as a total approach in meeting standards that have been set by those who are expected to meet them.

Managing Productivity By Objectives (MPBO) :

MPBO as process has given managers a variety of benefits like planning, performance appraisals, motivation of subordinates, management development etc. It provides evaluation of achievement. It sets measures of effectiveness (output) and efficiency (Input) in context of a planned work from start to finish. As a measurement process it forces recognition of the possibilities of how to increase efficiency while incurring a cost effectiveness or how to increase effectiveness while incurring a cost efficiency.

Setting objective may look a simple process, but is deceptive. The formalisation of statement of productivity objectives requires precision of thinking, forecasting and work measurement. It requires making commitments involving others. A statement of objectives cannot be structured generally. A statement must relate to the feelings, thoughts and experiences of those involved. A format statement must specify the action to be taken and its measurement for progress, control and evaluation in work—flow process. Work is a process and a process needs to be controlled. To make work productive requires building appropriate controls into the process of work. The process of production needs built in controls in respect to its direction, quality, quantity, standards and efficiency. The ten guidelines followed for careful formulation of productivity objectives and the means of its control in the work flow process are as under :

a) Productivity objectives must be measurable—(Ex PI for efficiency/effectiveness).

b) Productivity objectives must achieve single ended results—(Multiple directions confuse).

c) Dead lines for productivity objectives must be set (Time is one of our most precious resource).

d) Productivity objectives must be attainable.

e) Productivity objectives must be opportunistic—(The search for new ways must be intense).

f) Productivity objectives must motivate those who will achieve them.

g) Productivity objectives must be supportable by organisations—(Targets must coincide with availability of resources, facilities, skills and equipment and organisation is totally committed).

h) Productivity objectives must be controllable.

i) Productivity objectives must have assigned accountability.

j) Productivity objectives must be evaluated.

Productivity objectives are results an organisation needs for continuing success. Evaluatives productivity measure can indicate achievements.

Managing productivity by objectives (MPBO) is a six step process. These are :

i) Identify potential productivity areas.
ii) Quantify productivity levels desired.
iii) Specify a measurable productivity objectives.
iv) Develop a plan for attaining objectives.
v) Control with mile stones of process.
vi) Evaluate productivity reached,

The flow diagram (Fig.—4) shows the strategy

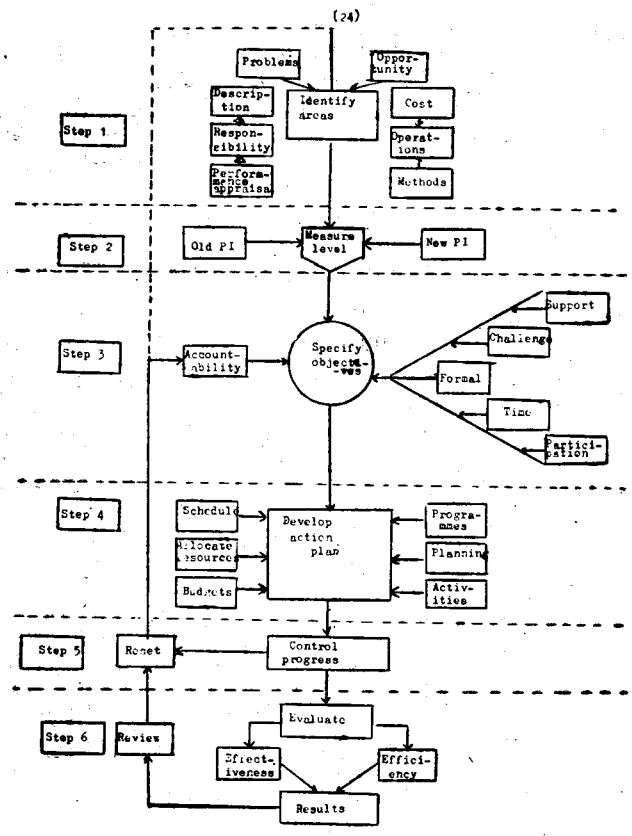


FIG. 1 - THE STRATEGY OF MANAGING PRODUCTIVITY BY OBJECTIVES(MPBO)

sequentially from start to finish. Repetitive cycles and be generated, making the process unending.

MPBO creates a management system for productivity if objectives—and the means of measuring them are interlocked adn inter—connected by levels and functions. Complex co-ordination will mean complex inter-locking, yet if the system is to be flexible, this interlocking among objectives must change to meet unexpected challenges from within and without the organization.

The Productivity Audit :

Productivity auditing is a process of monitoring and evaluating organisational practices to determine whether functions, programme and the organisation itself are utilizing their resources effectively and efficiently to accomplish objectives. Productivity auditing differs from other traditional form of auditing like financial, programme, operations, compliance, social and management, These are shown in Table-4. Productivity audit has four distinct phases :

a) Establishing the purpose to be achieved by audit.

b) Selecting standards as criteria for measurement.

c) Using measures and comparing inter standards.

d) Correcting for significant deviations and variances.

The audit standards must be established for evaluating productivity. These include peoductivity actions, resource accountability, performance standards, benefit allocations, productivity policies, equipment usage and technology accountabiiity reporting, productivity leaderships, organisational support, personnel quality. The American Institute of Management has published the results in "Manual of Excellent Management". The standards are grouped, points assigned, relative weights on the total productivity audit are specified. The points, weights and minimum rating for productivity vigour are shown in table—5.

It is possible to formulate a number of productivity improvement practices. For a process industry these can include use of digital computers in design and layout of piping, training of personnel for skills, proper check on inventory, streamlining decision making,

TABLE—4 : AUDIT COMPARISIONS :

Type of Audit	Scope of Evaluation	Evaluation Focus	Resources to be evaluated	Comparision method
Productivity audit	Organisations, functions department, programmes individuals.	Level & amount of productivity in organisation.	Money, personnel equipment, space time procedures.	Objectives and standards.
Financial audit	Organisations.	Verification of financial audit.	Money.	Standards & ratios.
Programme Audit	Programmes.	Effectiveness in achieving programme results.	Money, personnel.	Programme objectives.
Operation audit	Organisations, functions, departments.	Level & amount of performance effectiveness.	Money, personnel, equipment, procedures.	Standards & procedures.
Compliance audit	Organisations.	Adherence to legal requirements.	Personnel.	Policies & standards.
Social Audit	Organisations.	Social contributions to individuals and community.	Money, personnel.	Past Performance.
Management Audit	Orgnisations, functions,	Quality and effectiveness of management.	Management, Personnel, Policies	Other organisations.

TABLE – 5 : PRODUCTIVITY AUDIT STANDARDS

Sl. No.	Standards	Maximum rating	Minimum rating for productivity vigour
1.	Productivity Actions	150	120
2.	Resource Accountability	75	50
3.	Performance standards	100	75
4.	Benefit allocations	125	100
5.	Productivity Policies	100	75
6	Equipment usage and Technology	150	110
7.	Accountability reporting	50	35
8.	Productivity leadership	125	100
9.	Organisational support	50	35
10.	Personnel Quality	75	50
		Total : Points 1000	750

use of net works, in projects, optimizing batch equipment operation, incentives for difficult jobs, priorities on recycling, bonus based on ratio of pay roll costs to production value, elimination of restrictive work practices in jobs, elimination of distribution between white collar and blue collar jobs, reduction in over times, broadening jobs and responsibilities, development of clerical standards, use of management information system, incentives for innovations, increase in R &D activity, encourage communication, simplify procedures.

Managing White collar Workers .

Traditional management methods for handling white collar workers are inadequate and are counter productive. Total employment costs for these categories match or is even higher than the blue collar wage earners. The transition from agricultural economy to industrialized economy and then to industrized and service economy will bring in changes in category of workers. White Collar workers are professionals and technical workers, executives, accountants, engineers, managers and supervisors, quality control staff, draftsmen and technicians, salaried workers, data programmers, administrative, sales and clerical workers. Blue collar workers are craft and vocational workers who are skilled tradesmen working on shopfloors. Service workers are those meant to provide services like food workers, security personnel, police, health and other workers. Farm workers are those in agricultural farms. There is a trend for increase in white collar workers.

The white collar workers are service oriented, college educated, use information, skills and time as their basic tools and their professional work needs are concentrated on challenging and meaningful work. Their work is often not visible and is intangible where results come after long time unlike blue collar workers. The growth of white collar workers has many implications. These are :

— Women will compete on near equal terms with men.

— Parttime older workers will re-enter this work force.

— Strategies in handling white collar unions will be different from strategies used with blue collar unions.

— Work of the white collar worker will be focussed more closely to the individual.

— The line between work and leisure is difficult to define for this group.

Special strategies for managing this group to higher levels of productivity are needed. The strategies required will be as under—

i) Development of productivity mindedness—This group with a different concept are not truely organisation men with loyalties to profession and who as a group are more mobile. These people often believe that productivity is what the other fellow ought to deliver. Productivity conciousness is a genuine interest in attitudes and is borne out by actions. Giving facts and information to counter negative attitudes, supervisiors being examples of productivity leadership, provision of orientation and training for productivity, communication, the needs and allowing participation in productivity decision making could be the supervisory actions for developing the productivity mindedness.

ii) Use equipment aids when possible.

iii) Increase discretionary content of jobs—This calls for balancing the prescriptive and discretionary options in job.

iv) Replace performance appraisals by productivity appraisals-Productivity appraisals evaluate both achievements and the consumed resources.

v) Give time management training.

vi) Motivate.

vii) Manage productivity by objectives (MPBO).

It is possible to develop MPBO for typical while collar workers like computer programmers, engineering supervisor, sales person, design engineer, personnel manager, welfare officer, cost accountant, project manager, purchase officer.

Managing the over paid employees :

Inflation increases when monetary rewards and benefits are given without requiring the equivalent in

productivity. Every time a negotiation is completed or a strike is settled with no apparent increase in productivity, a jump in inflation occurs. Higher wages with no productivity jump are made up by higher prices adding to inflation. Demand-Pull and cost-push cycles have world wide impact. These without productivity results in reduced profit. There is a strong link between profitability and productivity. This is shown in fig 5. There is a sensitive relationship between demand, prices, costs and productivity. The general guide for non-inflationary wage behaviour is that the rate of increase in wage rates (including fringe benefits) in each industry be equal to thr trend rate of over productivity increase. Demand-pull and cost-push have an impact on each other and are not independent. Productivity should be a part of the cycle. Productivity increase will offset cost increases Demand should not be supressed. Compensation for efforts should not be denied. Productivity can pull in the slack of cost and price differentials. Productivity becomes an equation between changing demand and higher compensation. Organisations practice the distribution of rewards and benefits without careful

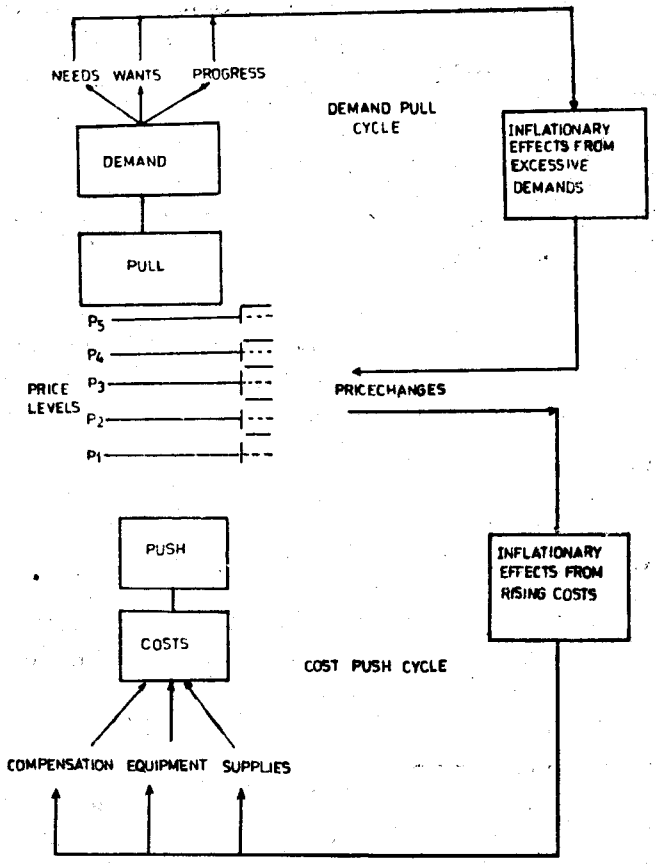


Fig. 5 - INFLATIONARY EFFECTS OF DEMANDS AND COSTS

justifieation of productivity. Since the differences must be made up in increased prices, it is safe to say that these organisations over pay their employees. This difference fires inflation. It could be controlled by allocating compensation only when productivity data allow it.

Over paid is defined as compensation above an employee's value, worth or contribution to an organisation. Some think that they do not over pay, just because they do not go broke. What they fail to recognise is the fact that over payments are subsidized by increased prices or increased taxes. Neither employer nor employee will admit over payment is true. This is a sensitive and emotional issue,

Pay is a loose term. Let us consider total compensation earned which consists of visible wages and hidden portions of the package in payment for an amployee's contribution. Fringe benefits which are hidden and adhoc in nature is usually a substantial sum. A fair days payment include wages and benefit and a fair days work must be a productivity contribution to cover both. If this is not, the benefits lead to equivalent loss in productivity It is possible to indicate if an employee is being ver paid. The lists of conditions indicating over payment is as under—

- There is no link betwegn compensation and work output.
- General wage increases are given across the board.
- Benefits are allocated in same amounts to all employees.
- Time is the basis for increasing compensation.
- Compensation is dispensed from power moves, threats or legal acts.
- Paternalism is practised.
- Compensation is automatically allocated from escalators-
- Appraisal systems are highly subjective.

Consequent upon these, productivity as a primary consideration for advancement takes back seat. In view of the in-equities of pay in relation to performance and rising inflation, in future productivity data on an individuals performance may be the only basis that will justify price increases, wage hikes or salary adjustments.

The new demand for accountability in business is raising the question about performance. This is coming from customers and tax payees who pay the price or from financial institution who find companies have not performed well for the financial support received. The questions include-what is accomplished ? Who accomplished it ? What resources were consumed ? Could it be accomplished with fewer resources ? This demand for accountability requires more than explaining and reporting. It requires an agreement on expected performance. There are several guidelines for accountability—

— Nebulous and elusive goals must be replaced with specific and measurable objectives.

— Loosely assigned responsibilities must give way to individual commitments.

— Opiniated judgement must give way to measurable achievement,

— Looking to others to be accountable must give way to holding one-self accountable.

— Nebulous incentives must be replaced with motivators for accountability.

Conventional line time budgeting is based on past level of expenditure and working out increases for decreases. This should be replaced by Zero-base budgeting with work packages or achievement packages. Every manager must demonstrate precisely the need of the function or programme before any fund is provided. This can take care of budgetary increases well.

Accountability requires appraisal process to evaluate productivity. These appraisal methods can justify pay increase, evaluate results, account for productivity, provide feed back etc. The appraisal methods are-trait appraisals, essay appraisals, process appraisal, standards of performance appraisal, forced choice appraisal,

However the MPBO, a multipurpose performance appraisal process is best suited. MPBO appraisals helps in focussing on productivity, controls resource allocation, provides accountability, increases productivity mindedness, heightens motivations. However competent skills are required for its use.

Traditionally employees are hired on time contracting i.e. agreed wages for agreed hours/ days of work. It is better to consider performance contracting which gives employees a great deal of independence and discretionary prerogatives when day to day work must be completed.

Motivation of Employees :

Motivating employees towards greater productivity is of urgent necessity. But workers changing view of authority, increasing expectations, legislative protection, union strength workers affluence and workers goals being conflicting to those of employer are difficulties in bringing about motivation. The incentive approach giving workers better monetary, power and prestige status is a dangling carrot. The behavioural approach is based on the view that workers work to meet their needs. They come to the organisation to see how many of these needs can be met. The managerial approach is based on the view that there is no one best way to motivate. Each situation needs different approach. In the expectance alignment approach, motivation by planning is done to get the closest alignment (needs coincidence) possible between employee expectancies and organisational approach. The better the alignment, better is the motivation. Motivators are processes for arranging job conditions to enhance needs coincidence and satisfaction for a worker and his organisation. Challenge, independence, recognition, participation, achievement, innovations, enlargement, enrichment, over view and learning are some of the motivators with wide appeal. The five step guideline represents a process of motivation with expectancy alignment.

i) Establish the productivity to be achieved.

ii) Identify organisation needs from objectives.

iii) Acquire insight into employees needs.

iv) Decide on motivators to be used.

v) Establish an alignment between organisation needs and employee expectance with motivator. Money does motivate and is the universal common denominator for meeting present and future needs of people and organisation every where. It is the quickest way of getting needs coincidence. But it is most expensive way. Work ethics has under-

gone a sea of change. It means shaping an identity and individuality, doing something important and meaningful, reaching for self-fulfilment, giving to those who are less fortunate, creating leisure time and play and developing an environment for high quality of living.

Managing Complexities :

Business organisations are moving everyday toward perhaps unwanted complexity driving the costs up and productivity down. Governmental controls and legislative red tape demands greater paper work, indirect staff and time consuming procedures. The union effectiveness is now a formidable challenge to organisations. The collective bargaining has over-whelmed organisations. Complexities are going up due to growing size of organisation. Super organisations, giant corporations and huge business empires have lead to complexity in decision making, planning and evaluation, resource utilization and work flow, time delivery and unpredictable predictions.

Managing complexity for greater productivity will require attitudes and strategies for dealing with these complexities. It is a must to look at these complexities positively. Other than intelligence, energy, perseverance, ability, calm, collaboration, agreeableness are required. "Work smarter while working harder" should be the management slogan. One must be able to sence emergent situations, cut through, identify causes and be able to muster enough resources and energy to face the problems. There are 7-productivity techniques which can be used to aid in managing complexity for greater productivity.

i) Worker focus productivity generator—Senior Managers spread themselves thin in many areas of complex organisation, diluting their efforts resulting in a drop in their productivity. Managers who face too many demands should short select and concentrate on the critical few. From random list, a demands priority list is prepared, critical few are separated from trivial many, critical few objectives defined, targets stretched resulting in greatest productivity. In other words work focus productivity generator is followed.

ii) Work flow productivity increaser—In complexity, due to lagging reaction time, costs go up. The work flow in a process slows down due to obstacles like excessive handling, unnecessary activities, rework, duplication of effort, red tape, plurality in decision making etc. resulting in lagging reaction time. Work slows down due to loss of control in time. Work flow productivity increaser organises work process in detailed work elements from start to finish in sequence posing logical questions. This examination helps in cutting down time and increasing productivity.

iii) Resource—accountability clarifier—when responsibility is diffused, accountability is nebulous, effectiveness and efficiency uncertain. Resource allocation becomes difficult to trace. Resource accountability clarifier analyses the total work situation, the relation between profit of work and people who perform the work. In giving an over view of how specific resources, specially personnel are allocated to achieve objectives. It helps in matching capable people with critical functions.

iv) Time scheduling Productivity Multiplier—Time is an important resource effecting out put volume, in process work, schedule delivery and personnel. Slow, sloppy, lackadaisical pace is demoralising. Skills should be pitted against time and performance. When performance is held at a given level, productivity increases as an inverse function of time. Time scheduling productivity multiplier requires setting a schedule of work to be done, analyse schedule and set objectives, use backward planning, advance expected dead lines and rearrange to assure completion with-in dead-lines.

v) Productivity Tracker—In complex organisation no two accomplishments or performance outputs are alike resulting in fluctuations in productivity. Productivity tracker is a graphical time comparision of the actual productivity measured and evaluated in a work process compared to desired productivity. Tracker recognises the fundamental tendency of most processes to drift in undesirable directions.

vi) Cost productivity allocator—Costs have an impact on productivity and normally these are tracked to be kept at lowest level. But costs should not be

detached from performance as it affects productivity in long run. Cost productivity allocator is a technique of allocating money to improve productivity. It identifies the critical ones and allots money for improving productivity. This prevents the traditional practice of cutting costs across the boards.

vii) Productivity effectiveness planner—This assists in decision making for the greatest benefits possible with least expenditure of costs. This technique requires the identification of options to reach the objective and the estimated costs for these options with their associated benefits.

Managing Time :

Managers put in more hours than any other occupational group. This does not mean that they know how to manage time better than any other group. Time is and will always to a limited resource. For productitity, one must manage time effectively. This scarce resource must be budgetted and scheduled otherwise valuable opportunities will be lost. The effective way to manage time include four time tools as indicated below :

i) Productivity Calender—This is a monthly strategy of getting results. Waste times are identified and one meet dead lines. This requires managing priorities as well as managing activities.

ii) Systems over view for time control-Clearly defined office systems will help in conserving time. Systems over view of the entire situation encourages identification and co-relation of many inputs coming in and outputs to be delivered within a time frame. Systems approach and evaluation will help a great deal pushing productivity up.

iii) Biological Clocks—Finding your best time—One's biological clock is different from a mechanical clock. It is geared to cycles with ones body which are called biorythms. These are charted to predict human feelings and behaviour. The physical, emotional and intellectual biorythms have a cycle of 23, 28 and 33 days respectively. At peak physical biorythm provides great deal of energy, emotional biorythm gives high feeling and enthusiasm and intellectual biorythm gives sharp, quick logical brain process. The best time for performing and accomplishing is when the 3 biorythmic cycles are high or near high. One can identify the critical or bad days when the cycles are switching. Study of these cycles will help in matching needs and times for best results.

iv) Behavioural aids in getting things done-Behavioural aids help managers to schedule things for better results.

Time schedules can be prepared to co-ordinate productivity. A schedule is a time negotiated agreement on how allocated resources will be committed to achieving an objective. Starting a schedule on time with defined objectives, combining forward and backward planning, real time reporting, check on critical items, over view of progress, progressive planning, analysing potential failure points are good guide lines in scheduling. Gantt Schedule, PERT schedule, critical ratio schedule, master schedule are different schedules which can be chosen.

Over time effects productivity. The real output per unit input should be a criteria in determining premium pay. Over time if necessasy should be of short period on certain days. Over time should not be a routine and should be against task targets. It should worth the cost.

Conclusions :

Growing complexity, technological improvements, shrinking resources, high energy costs and mushrooming population makes the case for managing productivity stronger and urgent. Break through in productivity is necessary if standards of living and quality of work life are to improve. Managing productivity is an attitude to bring about development. For a good start, several actions can be initiated like acquiring productivity. Know-how, get in others involved, set up a task force for evaluation, training, identifying objectives and policy changes, use of consultants and get top management involvement.

Present productivity evaluation methodology in paper mills include information compilations relating to total production (on single grammage), total employees (Permanent, casual) including man hours used, energy consumption section-wise (Electrical, thermal) material consumptions (raw materials, chemicals, maintenance inputs), pollution control efficiencies, (Quantities and

quality of pollutants, operating efficiency of Electro Static precipitator), R&D expenditure, quality improvement, productivity plans and conciousness, participation of work system and culture, based on the information productivity indices are evaluated.

There is a need to collect information relating to workers in terms pf aspirations, unions, abilities, skill and development. Similarly white collar workers performance should find place in productivity evaluation. Accountability, shared gains, expectancy alignment, work justice are parameter which need evaluation. Factors like sales lost, customers complaints, labour negotiations, rejects in production, borrowed capital, inventory, rework, are important in productivity evaluation. Social demand should form another major productivity evaluation,

There is a need to relook at the total system for improved total productivity.

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