

Taylor's Scientific Management

F.W. Taylor and Henry Fayol are generally regarded as the founders of scientific management and administrative management and both provided the bases for science and art of management.

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Frederick Winslow Taylor well-known as the founder of scientific management was the first to recognize and emphasize the need for adopting a scientific approach to the task of managing an enterprise. He tried to diagnose the causes of low efficiency in industry and came to the conclusion that much of waste and inefficiency is due to the lack of order and system in the methods of management. He found that the management was usually ignorant of the amount of work that could be done by a worker in a day as also the best method of doing the job. As a result, it remained largely at the mercy of the workers who deliberately shirked work. He therefore, suggested that those responsible for management should adopt a scientific approach in their work, and make use of "scientific method" for achieving higher efficiency.

The scientific method consists essentially of

- i. Observation
- ii. Measurement
- iii. Experimentation
- iv. Inference

He advocated a thorough planning of the job by the management and emphasized the necessity of perfect understanding and co-operation between the management and the workers both for the enlargement of profits and the use of scientific investigation and knowledge in industrial work. He summed up his approach in these words:

- Science, not rule of thumb
- Harmony, not discord
- Co-operation, not individualism
- Maximum output, in place of restricted output
- The development of each man to his greatest efficiency and prosperity

Elements of Scientific Management:

The techniques which Taylor regarded as its essential elements or features may be classified as under:

1. Scientific Task and Rate-setting, work improvement, etc.
2. Planning the Task
3. Vocational Selection and Training
4. Standardization (of working conditions, material equipment etc.)
5. Specialization
6. Mental Revolution

1. Scientific Task and Rate-Setting (work study):

Work study may be defined as the systematic, objective and critical examination of all the factors governing the operational efficiency of any specified activity in order to effect improvement.

Work study includes:

(a) Methods Study:

The management should try to ensure that the plant is laid out in the best manner and is equipped with the best tools and machinery. The possibilities of eliminating or combining certain operations may be studied.

(b) Motion Study:

It is a study of the movement, of an operator (or even of a machine) in performing an operation with the purpose of eliminating useless motions.

(c) Time Study (work measurement):

The basic purpose of time study is to determine the proper time for performing the operation. Such study may be conducted after the motion study. Both time study and motion study help in determining the best method of doing a job and the standard time allowed for it.

(d) Fatigue Study:

If a standard task is set without providing for measures to eliminate fatigue, it may either be beyond the workers or the workers may over strain themselves to attain it. It is necessary, therefore, to regulate the working hours and provide for rest pauses at scientifically determined intervals.

(e) Rate-setting:

Taylor recommended the differential piece wage system, under which workers performing the standard task within prescribed time are paid a much higher rate per unit than inefficient workers who are not able to come up to the standard set.

2. Planning the Task:

Having set the task which an average worker must strive to perform to get wages at the higher piece-rate, necessary steps have to be taken to plan the production thoroughly so that there is no bottlenecks and the work goes on systematically.

3. Selection and Training:

Scientific Management requires a radical change in the methods and procedures of selecting workers. It is therefore necessary to entrust the task of selection to a central personnel department. The procedure of selection will also have to be systematized. Proper attention has also to be devoted to the training of the workers in the correct methods of work.

4. Standardization:

Standardization may be introduced in respect of the following:

(a) Tools and equipment:

By standardization is meant the process of bringing about uniformity. The management must select and store standard tools and implements which will be nearly the best or the best of their kind.

(b) Speed:

There is usually an optimum speed for every machine. If it is exceeded, it is likely to result in damage to machinery.

(c) Conditions of Work:

To attain standard performance, the maintenance of standard conditions of ventilation, heating, cooling, humidity, floor space, safety etc., is very essential.

(d) Materials:

The efficiency of a worker depends on the quality of materials and the method of handling materials.

5. Specialization:

Scientific management will not be complete without the introduction of specialization. Under this plan, the two functions of 'planning' and 'doing' are separated in the organization of the plant. The 'functional foremen' are specialists who join their heads to give thought to the planning of the performance of operations in the workshop. Taylor suggested eight functional foremen under his scheme of functional foremanship.

(a) The Route Clerk:

To lay down the sequence of operations and instruct the workers concerned about it.

(b) The Instruction Card Clerk:

To prepare detailed instructions regarding different aspects of work.

(c) The Time and Cost Clerk:

To send all information relating to their pay to the workers and to secure proper returns of work from them.

(d) The Shop Disciplinarian:

To deal with cases of breach of discipline and absenteeism.

(e) The Gang Boss:

To assemble and set up tools and machines and to teach the workers to make all their personal motions in the quickest and best way.

(f) The Speed Boss:

To ensure that machines are run at their best speeds and proper tools are used by the workers.

(g) The Repair Boss:

To ensure that each worker keeps his machine in good order and maintains cleanliness around him and his machines.

(h) The Inspector:

To show to the worker how to do the work.

6. Mental Revolution:

At present, industry is divided into two groups – management and labour. The major problem between these two groups is the division of surplus. The management wants the maximum possible share of the surplus as profit; the workers want, as large share in the form of wages. Taylor has in mind the enormous gain that arises from higher productivity. Such gains can be shared both by the management and workers in the form of increased profits and increased wages.

Henry Fayol's 14 Principles of Management

The principles of management are given below:

1. Division of work:

Division of work or specialization alone can give maximum productivity and efficiency. Both technical and managerial activities can be performed in the best manner only through division of labour and specialization.

2. Authority and Responsibility:

The right to give order is called authority. The obligation to accomplish is called responsibility. Authority and Responsibility are the two sides of the management coin. They exist together. They are complementary and mutually interdependent.

3. Discipline:

The objectives, rules and regulations, the policies and procedures must be honoured by each member of an organization. There must be clear and fair agreement on the rules and objectives, on the policies and procedures. There must be penalties (punishment) for non-obedience or indiscipline. No organization can work smoothly without discipline - preferably voluntary discipline.

4. Unity of Command:

In order to avoid any possible confusion and conflict, each member of an organization must receive orders and instructions only from one superior (boss).

5. Unity of Direction:

All members of an organization must work together to accomplish common objectives.

6. Emphasis on Subordination of Personal Interest to General or Common Interest:

This is also called principle of co-operation. Each shall work for all and all for each. General or common interest must be supreme in any joint enterprise.

7. Remuneration:

Fair pay with non-financial rewards can act as the best incentive or motivator for good performance. Exploitation of employees in any manner must be eliminated. Sound scheme of remuneration includes adequate financial and nonfinancial incentives.

8. Centralization:

There must be a good balance between centralization and decentralization of authority and power. Extreme centralization and decentralization must be avoided.

9. Scalar Chain:

The unity of command brings about a chain or hierarchy of command linking all members of the organization from the top to the bottom. Scalar denotes steps.

10. Order:

Fayol suggested that there is a place for everything. Order or system alone can create a sound organization and efficient management.

11. Equity:

An organization consists of a group of people involved in joint effort. Hence, equity (i.e., justice) must be there. Without equity, we cannot have sustained and adequate joint collaboration.

12. Stability of Tenure:

A person needs time to adjust himself with the new work and demonstrate efficiency in due course. Hence, employees and managers must have job security. Security of income and employment is a pre-requisite of sound organization and management.

13. Esprit of Co-operation:

Esprit de corps is the foundation of a sound organization. Union is strength. But unity demands co-operation. Pride, loyalty and sense of belonging are responsible for good performance.

14. Initiative:

Creative thinking and capacity to take initiative can give us sound managerial planning and execution of predetermined plans.