

MANAGEMENT

PRINCIPLES AND APPLICATIONS

UNIT-1, 1.1

PART-XVI

PRINCIPLES OF SCIENTIFIC MANAGEMENT

Taylor has given certain basic principles of scientific management. The fundamental principles that Taylor saw underlying the scientific management have been given below:

1. Replacing Rule of Thumb with Science:

Taylor has emphasised that in scientific management, organised knowledge should be applied which will replace rule of thumb. While the use of scientific method denotes precision in determining any aspect of work, rule of thumb emphasises estimation. Since exactness of various aspects of work like day's fair work, standardisation in work, differential piece rate for payment, etc., is the basic core of scientific management. It is essential that all these are measured precisely and should not be based on mere estimates. This approach can be adopted in all aspects of managing.

2. Harmony in Group Action:

Taylor has emphasised that attempts should be made to obtain harmony in group action rather than discord. Group harmony suggests that there should be mutual give and take situation and proper understanding so that group as a whole contributes to the maximum.

3. Cooperation:

Scientific management involves achieving cooperation rather than chaotic individualism. Scientific management is based on mutual confidence, cooperation, and goodwill. Cooperation between management and workers can be developed through mutual understanding and a change in thinking. Taylor has suggested "substitution of war for peace, hearty and brotherly cooperation for contentment and strife, replacement of suspicious watchfulness with mutual confidence, of becoming friends instead of enemies. It is along this line, I say, that scientific management must be developed."

4. Maximum Output:

Scientific management involves continuous increase in production and productivity. Instead of restricted production either by management or by workers, Taylor hated inefficiency and deliberate curtailment of production. His concern was with the large size of the cake. In his opinion, "There is hardly any worse crime to my mind than that of deliberately restricting output." He decried quarrel over production but welcomed quarrel over distribution, provided the product to be distributed had outgrown the size.

Therefore, he advised the management and workers to "turn their attention towards increasing the size of the surplus until the size of the surplus becomes so large that it is necessary to quarrel over how it shall be divided."

5. Development of Workers:

In scientific management, all workers should be developed to the fullest extent possible for their own and for the company's highest prosperity. Development of workers requires their scientific selection and providing them training at the workplace. Training should be provided to workers to keep them fully fit according to the requirement of new methods of working which may be different from the non-scientific methods.

Followers of Scientific Management

Other persons who worked to develop scientific management were Carl George Berth, Henry Gantt, Frank and Lillian Gilbreth, and Edward Felence to mention a few important. Berth worked with Taylor and later developed many mathematical techniques and formulae that

made it possible to put Taylor's Ideas into practice. Gantt developed graphic methods of depicting plans and making possible better managerial control. He emphasised the importance of time as well as cost in planning and controlling work. This eventually led to the development of famous Gantt Chart which is in wide use today and was the forerunner of such modern technique as Programme Evaluation and Review Technique (PERT). Frank and Lillian Gilbreth, a team of husband and wife, also tried to find out one best way of doing under the given set of realities. They also tried to look at the problems of workers from social and psychological point of view. Felence invited Gilbreth to apply scientific management to manage his departmental store. The major areas of concern were employee training and evaluation and human element in business. Later, he created Twentieth Century Fund, a famous research organisation still in existence.

Critical Analysis of Scientific Management

Scientific management created awareness about increasing operational efficiency at the shop-floor level by adopting systematic methods as against the rule of thumb which was prevalent at that time. However, from the point of view of the development of theoretical framework, the principles of scientific management were more concerned with problems at the operating levels and did not emphasise management of an organisation from the manager's point of view. Therefore, it was more relevant from engineering point of view rather than management point of view. In fact, one author has later suggested that Taylor can be regarded as the father of industrial engineering rather than the father of scientific management. Similarly, persons advocating scientific management have emphasised physiological variables affecting human behaviour at workplace, both in terms of work efficiency and methods of motivating the workers. As such, the scientific management is more relevant to mechanisation and automation technical aspect of efficiency-than the broader aspects of management of an organisation.

Apart from the theoretical considerations, Taylor's scientific management was opposed by trade unions, industrialists, and general public. The opposition was so grave that Taylor had to defend his scientific management before a special US Congressional Committee in 1912. The introduction of scientific management led to the agitation by trade unions in different production units. The major reasons for the opposition of scientific management were as follows:

1. There were many of the followers of Taylor who took aggressive mechanical view of production and side-lined human aspect at the workplace. This created aggressive attitudes among workers.
2. The work used to be performed under close and strict supervision based on authoritarian approach. Workers were not allowed to raise their voice even for genuine grievances.
3. There was lack of scientific standardisation of work and whatever standards used to be set by the management, the workers had to follow strictly. Such standards often used to raise production norm without taking into consideration the factors affecting such a norm.
4. The most crucial element which was under contention was the differential piece rate system. The workers, even the efficient ones, and their unions, opposed this system on the plea that it was a new method of exploiting workers by the industrialists. It may be mentioned that trade unions were quite popular at that time.