

# SCIENTIFIC MANAGEMENT PRINCIPLES

## Module 1

# Introduction

---

the impetus for the scientific management approach came from the first industrial revolution.

Because it brought about such an extraordinary mechanisation of industry, this revolution necessitated the development of new management principles and practices.

The main contributors to scientific management were Frederick Taylor, Henry L. Gantt, Frank Gilbreth, Lillian Gilbreth and Harrington Emerson.

Frederick W. Taylor was the first person who insisted on the introduction of scientific methods in management and it was he who, alongwith his associates, made the first systematic study of management.

He launched a new movement in 1910 which is known as 'Scientific Management.' That is why, Taylor is regarded as the father of scientific management.

# Definition

— — —

According to Taylor, "Scientific Management is the substitution of exact scientific investigations and knowledge for the old individual judgement or opinion in all matters relating to the work done in the shop". It implies the application of science to the management of a business concern. It aims at replacement of traditional techniques by scientific techniques.

# Principles of Scientific Management

— — —

**Principles of Scientific Management** The scientific management is based on five principles which are discussed below:

1. **Replacement of old rule of thumb method:** Scientific investigation should be used for taking managerial decisions instead of basing decisions on opinion, intuition or rule of thumb.
2. **Scientific selection and training of workers:** Every organisation should follow a scientific system of selection. The selected workers are to be trained to avoid wrong methods of work. Management is responsible for their scientific education and training.
3. **Co-operation between labour and management:** There should be cooperation between the management and the workers. This requires change of mental attitudes of the workers and the management towards each other. Taylor called it mental revolution.

# Contd..

— — —

4. **Maximum output**: The management and the workers should try to achieve maximum output in place of restricted output. This will be beneficial to both the parties. Maximum output will also be in the interest of the society.
5. **Equal division of responsibility**: There must be equal division of responsibility between the managers and the workers. The management should be responsible for planning and organising the work whereas the workers should be responsible for the execution of work as per instructions of the management.

# Mental Revolution

— — —

**Mental Revolution** The basic idea behind the principles of scientific management is to change the mental attitudes of the workers and the management towards each other. Taylor called it 'Mental Revolution'.

The mental revolution has three aspects: (i) all out efforts for increase in production; (ii) creation of the spirit of mutual trust and confidence; and (iii) inculcating and developing the scientific attitude towards problems.

Taylor suggested that management should try to find the best methods of doing various jobs and introduce standardised materials, tools and equipment so that wastages are reduced.

The workers should be disciplined, loyal and sincere in fulfilling the tasks assigned to them.

They should not indulge in wastage of resources. Both the management and the workers should trust each other and cooperate in achieving maximum production.

# Contd..

— — —

Taylor stood for creating a mental revolution on the part of management and workers. It is to be noted that Taylor's thinking was confined to management at the shop level. However, he demonstrated the possibility and significance of the scientific analysis of the various aspects of management. To sum up, he laid emphasis on the following:

1. Science, not rule of thumb.
2. Harmony in group action, rather than discord.
3. Maximum output in place of restricted output.
4. Scientific selection, training and placement of the workers.
5. Development of all workers to the fullest extent possible for their own and organisation's highest prosperity

# Benefits of Scientific Management

---

Taylor's scientific management was associated with many benefits to the industry. According to Gilbreths, the main benefits of scientific management are "conservation and savings, making an adequate use of every one's energy of any type that is expended." Scientific management leads to the following benefits:

1. Replacement of traditional rule of thumb method by scientific techniques for each element of a man's work.
2. Proper selection and training of the workers.
3. Establishment of harmonious relationship between the workers and the management.
4. Achievement of equal division of responsibilities between the workers and the management.
5. Standardisation of tools, equipment, materials and work methods.



# Contd..

— — —

6. Detailed instructions and constant guidance of the workers.
7. Incentive wages to the workers for higher production.
8. Elimination of wastes and rationalisation of system of control.
9. Better utilisation of various resources.
10. Satisfaction of the needs of the customers by providing higher quality products at lower prices.

# Criticism of Scientific Management

---

Taylor's scientific management was criticised not only by the workers and managers but also by the psychologists and the general public. The main grounds of criticism are given below:

1. The use of the word 'Scientific' before 'Management' was objected because what is actually meant by scientific management is nothing but a scientific approach to management.
2. It was argued that the principles of scientific management as advocated by Taylor were confined mostly to production management. He ignored certain other essential aspects of management like finance, marketing, accounting and personnel.
3. Taylor advocated the concept of functional foremanship to bring about specialisation in the organisation. But this is not feasible in practice as it violates the principle of unity of command.
4. Scientific management undermined the human factor in industry. It resulted in monotony of job, loss of initiative, overspeeding workers, wage reductions, job insecurity, etc.
5. Trade unionists regarded the principles of scientific management as the means to exploit labour because the wages of the workers were not increased in direct proportion to productivity increases.

# Conclusion

— — —

Many of the above objections were later remedied by the other contributors to scientific management like Henri L. Gantt, Frank Gilbreth, Lillian Gilbreth and Harrington Emerson. Many of the recommendations of Taylor are still being applied by the modern business undertakings. In short, it can be said that Taylor was the pioneer in introducing scientific reasoning to the discipline of management.