

# Implementation of scientific management in an organization



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To begin with, effective production management is impossible without scientific management. Scientific management is a part of the cycle's production management at the operational level. It should be based on scientific achievements and best practices to ensure increasing productivity and preserving human health.

It is important to mention that an American engineer Frederick Winslow Taylor was the first scientific engineer, who used and formalized scientific management and highlighted its four principles. Milton (1957) stated that "Taylor was an innovator and an entrepreneur in his field, and he had more than his share of emulators, rivals, and disciples" (p. 23).

According to Finn Borum (1980), Frederick Taylor "worked on promoting efficiency in manufacturing enterprises around the turn of the century" (p. 288).

Scientific management is a process of improving the labor organization based on scientific achievements and excellence.

Scientific management is the labor organization based on modern scientific achievements and best practices, which were systematically introduced into the workplace. Scientific management allows combining technology and people in the labor process. In addition to the above-mentioned information, scientific management can be characterized as "An approach within classical management theory that emphasizes the scientific study of work methods in order to improve worker efficiency" (Bartol and Martin, 1998, p. 41).

Scientific management's implementation saves time and is an important growth factor productivity of living labor. The importance and value of scientific management is that it allows you to save hard work as a result of better use of the production's material elements. Moreover, the importance of scientific management to organizations is also that it solves the problems of wasted human effort and promotes efficiency and effectiveness in the workplace. And, finally, the improvement of labor organization gives an opportunity to save future labor by taking into account the requirements of scientific management on the stage of companies, equipment and processes design. George (1968) said that " Taylor's work had importance in ways directly germane to operations research. His contributions, great as they were intrinsically, were even more valuable in revealing the merit of creating elements of organization whose object was not the performance of operations, but their analysis: It is difficult to overemphasize the importance of this first basic step: the formation of organizations for research on operations...his work led to better decisions than those which were possible, and in most cases, necessary before" (pp. 151-152).

Scientific management plays an important role in solving the problems of improving production efficiency and improves product quality. The main directions of scientific management are:

Improvement of forms of division and cooperation of labor in enterprises;

Improvement of the workplace's organization and maintenance;

Rationalization of techniques and methods of work;

Improvement of work quota setting;

Preparation and training the workforce;

Improvement of the working conditions;

Rationalization of work and rest;

Strengthening of labor discipline;

Increase of employees' creative activity.

The main key characteristics of scientific management: scientific management calls for the scientific method's application to work in order to define the best method for solving each task. Scientific management admits that the employees should be scientifically chosen based on their professional qualifications and trained to carry out their work in the optimum manner. Scientific management aimed at addressing the following interrelated tasks: economic, psycho-physiological and social. The economic task deals with the equipment's complete use, raw materials, and increase of labor productivity. The creation of favorable working environment, which is very important for the workers' health, their working capacity is the solution of the psychophysiological task. The solution of the social task aimed at increasing satisfaction of the labor's conditions and results. It should be noted that scientific management has a clearly defined set of the tasks.

There is an interaction between scientific management and improvement of other elements of the organization of production. This is especially manifested in the organization of workplaces. The labor organization is

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associated with production of elements, such as equipment and technology. The labor organization affects the type and nature of production.

The major components of scientific management are the division of labor and cooperation.

The division of labor in the enterprise means an isolation of separate partial work processes to reduce the production cycle due to the simultaneous execution of various jobs and improvement of work productivity. It is important to mention that the organizers of production at the enterprises of the countries with developed market economies pay great attention to the reduction of manufacturing cycle time. This is due to the fact that the reduction of manufacturing cycle time is a central task of the organization and management of production, an indicator of the effectiveness of managerial work. The high level of specialization indicates production standards.

The division of labor is impossible without its cooperation. The cooperation's objective is to ensure coherence between the actions of individual employees or groups of employees performing a variety of work functions.

The division of labor and cooperation are two interrelated and complementary aspects of production management. The division of labor can be technological, functional, qualifying and professional. The technological division of labor is divided into phases, types of work, products, sites that detail technological operations. It determines the placement of workers in accordance with production technology and greatly affects the level of work's importance.

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An important task of a work organizer consists of finding the optimal level of the technological division of labor. The functional division of labor depends on nature of staff functions in production and their participation in the production process. According to this criterion, workers are divided into workers and employees. Employees are divided into leaders, professionals and technical executors. In turn, the workers can be functional groups of main workers: service and support, groups of maintenance and transport workers: quality inspectors, working for energy services, etc. The qualifying division of labor divides into complexity and accuracy of work in accordance with professional knowledge and experience. The division of labor is carried out under the skill level of the employees. The professional division of labor divides into trades, professions, grades and categories. With the help of the above-stated principles and components of scientific management, it is possible to increase specialization in production in order to accentuate worker rights in the shop floor. Sullivan admitted that “ This mass production model of shop-floor control depends on two key assumptions: a job is a precisely defined series of tasks; and seniority is the criterion for the allocation of jobs” (1987, p. 96).

In order to compare and contrast scientific management to more modern management approach, such as total quality management (TQM), it is possible to say that the difference between these two approaches is that the main idea of TQM is that the company should work not only on product quality, but also on work quality as a whole, including the staff work. The continual improvement of these three components is: quality, quality of

process organization, and qualifications of staff – can achieve more rapid and effective business development.

Quality is defined by categories, such as a degree of implementation of customer requirements and growth in financial performance. But the main idea of scientific management is that labor organization is an integral part of the organization of production. The basis of scientific management is the division of labor, which involves the separation of major works from the subsidiary – preparatory and ancillary works. These actions help to improve the usage of working time of skilled employees. It is possible to conclude that both management approaches are very important for all types of organizations and are the basis of modern management.

Nowadays, scientific management plays a big role in the modern organization's process and it has a direct relevance to the modern business environment. A good example is McDonald's Corporation, one of the largest fast-food restaurants, which still applies the principles and basic standards of scientific management in its organizational process.

McDonald's Corporation always tries to promote its workers through different practical and effective ways.

For instance, McDonald's uses different types of promotion programs and competitive salaries. It takes many different forms – from the thankful words to financial incentives or even to a wide recognition of “ Employee of the Month”.

In addition, Macdonald's applies the methods associated with a scientific study. Moreover, the company scientifically selects, trains, and develops each worker and employee.

Seldon, Ingraham, and Jacobson (1999) write " The selection process is one of the most critical human resource functions because it supplies persons with specific knowledge skills and abilities needed to perform public services." (p. 602). This is a strong tradition and an essential part of work for McDonald's to train its employees scientifically and practically. McDonald's puts into practice the third principle of scientific management and cooperates with its workers, teaching and helping them in every way. McDonald's divides work into equal parts between managers and employees. Every worker keeps his/her place and is occupied only with his/her job.

In summary, it is possible to draw a conclusion that scientific management is a set of measures aimed at achieving the greatest results in the organization of production. Scientific management's implementation creates the conditions for health workers to maintain their efficiency, increase the period of their employment, growth, cultural and technical level of workers.

Taylor, who is considered to be " a father of scientific management", made a great contribution to the development of a new worldview. His disciple Carl Barth stated that " My dream is that the time will come when every drill press will be speeded just so, and every planer, every lathe the world over will be harmonized just like musical pitches are the same all over the world... so that we can standardize and say that for drilling a 1-inch hole the world over will be done with the same speed...That dream will come true, some



time" (1914, p. 889). Modern scientific management consists of organizational, technical, psycho-physiological and techno-economic aspects of work organization and management.