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Application of Scientific Management for Performance Improvement of Small Scale Organizations

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***Abstract*: Small scale organizations in current scenario are facing various challenges like dynamic changes in market situation, change in the taste of customers, cost reduction pressures from large organizations and continuously changing technology. In order to face these challenges, small scale organizations need to accept these changes, change them according to the situation and need to make changes in their working strategy accordingly. Due to globalization, there is cut throat competition and high competitiveness in the market. To cope up with this situation, small scale organizations must constantly improve their performance. They also need to fulfill increased customer and employee satisfaction, organizational growth and their service reliability. This can be made possible by applying Scientific Management in their working to make an organization fully effective and efficient. There are proven examples of Toyota motor company, Ford Motors and Macdonald's where they have successfully applied Scientific Management and improved their performance since many years. These companies are leading in Business Excellence. Scientific management can make it possible for organizations to evaluate their performance with some benchmark target. This paper mainly focuses on Scientific Management principles and their use for improving the performance of small scale organizations.**

***Keywords*: Performance Improvement, Scientific Management Theory, Management Excellence.**

1. Introduction

Management Excellence is the process of collecting needs of internal and external stakeholders and trying best to fulfill these needs. Management excellence is the constant desire of greatness in the business. It is a state always slightly ahead of present status and providing opportunity for learning, adaptation and growth. To achieve this, organizations must have a predesigned process framework to account for all of its stakeholders, as well as a performance management system that encompasses the entire organization. Every organization has potential for excellence but only few organizations achieve it. There are various tools available for improving the performance of organizations. Application of Scientific management is one of the tools. The importance of Scientific Management is that the efficiency of an organization is maximized through the application of Scientific Management. The smallest amount of time which is wasted in day to day work will be utilized properly and the productivity in the work place will be increased. Higher levels of productivity lead organization becoming more successful. This in turn leads to increased salaries of workers. Employees are motivated to work even harder in order to achieve more bonuses. Human capital in the organization rises and standards of achievement continue to increase. In addition, scientific management provides staff members with a structured plan to follow, which avoids confusion. This will benefit to improve the overall performance and efficiency of the organizations. This paper explores the role of Scientific Management for improving the performance and there by achieving the excellence.

2. What is management?

Management can be defined as the administration of an organization and its related elements. Management's main function is setting the strategies and objectives of an organization. For this there must be coordination of the efforts of its employees so as to accomplish these objectives by utilizing available resources like financial, natural, technological and man power. The term "management" can also be referred to the people who manage an organization.

All small scale and large scale organizations are always concerned about improving their organization's performances. The main objective of this paper is to explain how small scale organizations can apply Scientific Management for increasing their productivity, efficiency and how it can be used for achieving organizational objectives. The paper throws light on the principles of Scientific Management and also explores the ways for the growth of the organizations.

3. Performances improvement

Organization Performance improvement is always of strategic importance and issue of concern to all small scale organizations. Therefore, small scale organizations are always striving to improve their operations. For this, they should set up performance benchmarks which should be clearly visible, quantifiable and time bound in the same way as large scale

organizations do. But achieving improved performance in organizations requires their services be evaluated for quality and effectiveness. Evaluating efficiency of services in manufacturing is not just the question of providing users with new services; it also focuses on the degree of utilization of such services by users and their satisfaction level in terms of quality and quantity.

Achieving high performance does not mean always working hard, but it means people working smarter and better. Therefore, production supervisors and managers always need to discover new ways of making their operators work harder and smarter. High performance is an important issue in every organization. Performance does not relate much to efficiency or speed of employee for doing the work but to the effectiveness or the degree to which the work performed allows the organization to achieve its goals.

Therefore, for achieving high performance in small scale organizations, production managers and supervisors need to set performance benchmark similar to one set in large organizations. Small scale organizations must know what exactly each employee is doing daily. The daily work of employee must be mapped and should contribute to the objectives of the organization. This is because achieving high productivity in organizations can be achieved only through making employees to work with positive thinking.

A. History of scientific management theory

Frederick Winslow Taylor was a mechanical engineer. He devised Scientific Management theory because of which he is called father of Scientific Management. His theory mainly focuses on work efficiencies, searching best way of doing the job. Taylor after so many years of his various experiments, developed a set of principles to improve productivity of the organizations and did a great job of mental revolution among workers and employers. He also developed various wage and incentive plans, procedures for measuring input and output work and authority levels in the organization. His work was focused on developing ideas for increasing productivity by making work easier to perform and methods for motivating the workers to take advantage of the new management devices. Taylor was of the opinion that Scientific Management needs a mental revolution from both management and employees.

Objective of Scientific Management

- Optimal utilization of resources including manpower, machines, power, material etc.
- Providing trained and efficient work force to organizations.
- Providing standardized work methods.
- Providing scientific base for selection of material and equipment.
- Designing system to provide additional wages to the workers for higher production.
- Replace old rule of thumbs with new scientific methods.
- Developing cordial relations between management and workers.
- Achieving higher productions, with reduced costs and maximum efficiency.

Scientific Management Principles:

- Develop a science for every movement of worker and replace traditional rule of thumb
- Determine scientifically correct time and method for doing each job
- Division of work between workers and managers

4. Scientifically select and train the workers

Following are various studies conducted by Taylor for developing scientific management principles.

- *Time and motion study:* This was conducted to know the time and trace the movement of worker from one place to another for performing his job. Every movement of worker was closely recorded and watched to identify unnecessary elements in it and thereby increase in the productivity.
- *Shovel weight study:* Shovel is a tool for moving coal from one place to other nearby area. It's like spade. This study was conducted mainly to determine the correct working load for human being that will make worker's work easier. After various trials, he designed proper shovel and because of that daily output of steel plant increased from 25 tons to 30 tons per worker in the factory.
- *Piece rate system:* The study was a sort of incentive system targeted for increasing job performance. Workers, who could achieve higher output, were awarded by additional wages and who could not meet the standard output, received less wages. Such workers were imparted with special training for achieving standard output.
- *Management standard study:* Each worker was given a specified task with instructions and time limit to perform the job. Job was segregated and divided among workers. Responsibilities were shared according to capabilities and experiences. Planning of duties was determined through the cost incurred and flow of work.

A. Philosophy of scientific management

Scientific Management is aimed at stretching and getting every employee to perform his best and to put all his efforts and attention towards achieving the goals of the organization. Any employee, who fails to achieve these goals and objectives set by an organization will get his wages according to his performance on daily basis. Scientific Management is also aimed at finding solutions to the problems of under-working by workers. Under working is nothing but purposefully slow working and avoiding full day's work. This was considered as the greatest mischief and misconduct by the workers against

their organization. Scientific Management is meant for removing one of the basic causes of wasting time in the organizations. When wasteful time is eliminated automatically productivity, efficiency and profitability will increase. This will naturally pay higher wages to workers and yield more profits to the organizations.

Benefits of Scientific Management:

1. It replaces traditional rule of thumb method by scientific techniques for doing the job.
2. It provides proper selection and training of employees.
3. Incentive wages to employees for higher output.
4. Standardization of tools, equipment's and work methods.
5. It studied various processes and measured the tasks involved in it and provided useful information on working methods and increased productivity.
6. It enabled employees to be paid by results which reduces unnecessary time
7. It convinced managements for adopting more positive role in leadership.
8. It contributed to major improvements in physical working conditions for employees as everything that is needed to make the job done would be provided
9. It provided foundation on which modern work study and other quantitative techniques are based.
10. It is the basis of many recent management philosophies including MBO (Management by Objectives), Total Quality Management, Just-in-time, Lean Manufacturing, Six Sigma, Operations Research, KPIs and Balanced scorecard & Business Process re-engineering.
11. Elimination of wastes and rationalization of systems.
12. Detailed instructions and constant guidance to the workers.
13. Establishment of harmonious relationship between the workers and management.
14. Satisfaction of the customers by providing higher quality products at lower prices.

It is observed that, today's most of the modern management techniques have their roots in the Scientific Management. The concept of "re-engineering" that is practiced widely today in organizations is one of the examples. Also the "best way" of doing a task in organization was pioneered by the scientific management. Followers of modern management practitioners are still interested in getting the best possible ways of doing a job with minimal efforts. This system today is referred to as "bench marking".

Scientific Management theory also pioneered the breaking of every task into small elements. This system is still used today under the name business process re-design. Scientific Management focused on the things which do not add any value to the productivity and tried to get rid of such things. Continuous improvement process is a gift from Scientific Management and very much practiced today in manufacturing organizations.

B. Application of scientific management for improving performance of small scale organizations

In adopting scientific management principles to increase productivity and efficiency in small scale organizations, the management must work according to scientific ways and specific procedures. This will make every activity in the small scale organization pre planned and will be supported by the preparatory acts of management. Every employee in the organization should be made aware about his objectives and targets to be achieved. The employees should be assisted by supervisors and should not be left alone on their own without management support. In such situation employees are likely to perform their work better and faster and will increase efficiency and improvement in performances.

Scientific management deals with goals and objective settings that are necessary for improving performances. Every small scale organization will have identifiable goals and objectives every year. These goals and objectives should be broken down into quarterly and monthly objectives that are quantifiable, measurable, and achievable within defined time frame within which it must be accomplished. Also each section of the small scale organization should have its own objectives. Employees are supposed to get daily objectives from their managers.

As soon as individual objectives are developed, action plan should be made mentioning when each objective will be started and what are the resources required to accomplish those objectives. Time line will be decided for accomplishing each activity and also the person responsible for accomplishing that objective. When this is done every individual in the organization, will know, understand his role. Every employee will come to know about effect of his performance either negatively or positively affecting the overall performance of the organization. Every employee should perform his hourly work in quantitative measures and provide gain to the organization if he puts his best effort on the job and vice versa.

By applying Scientific Management principles, significant yield and improvements can be achieved in the productivity. Taylor's shovel experiment at Bethlehem Steel plant has was successful work in reducing fatigue of workmen and increase in employee productivity. Managers and supervisors can adopt the same principle which can cut down the movement of workers while performing their job in the department. When employees are less fatigued, they conserve more energy and time which can help them in increasing the productivity.

Taylor's wage incentive systems, (the piece rate system) can be used in the small scale organizations to recruit workers. Wage system, based on hourly rate, can be adopted by small scale organizations to provide better and improved services to the organization. Therefore, if a worker is employed to work for eight hours and it is expected that 112 jobs to be produced. Thus, when the worker goes beyond 112 jobs, he should be given a bonus. If his output is below the target, he will receive

less pay. This system will increase productivity by eliminating redundancy, idle time, and under capacity utilization of the workers.

The Scientific Management theory deals with improving productivity through careful study of the workers, their task, and the work place. It systematically studies human behavior at the work, breakdowns each task into smallest units and defines the best way to do the job. The aim is to ensure that employer and employees work for greater efficiency and productivity which will result in higher wages for employees and higher turnover and profits for the organization. This also can be applied in small scale organizations. It can be done by periodically studying the employees and their every task. The management should then ensure that every workman receives the necessary training to enable him to perform the specific task he is assigned to perform. The employee will also need to have the necessary tools to enable him undertake the task well.

The Scientific Management approach is also based on the "work place design". This will provide the management of small scale organizations about necessary information to make the work place conducive for workers to perform their task effectively and productively. The work stations need to be redesigned according to Scientific Management principles. Most of the problems of small scale organizations are purely managerial and behavioral in nature. When these are addressed scientifically there will be result oriented outcomes. This will make small scale organizations efficient, useful and more responsive to the needs of their customers.

5. Conclusion

At the end we can conclude that small scale organizations can follow Scientific Management in order to achieve the improvement in their operation. By adopting Scientific Management, it is expected that there would be significant changes in working of small scale organizations in the years to come. Thus as long as there are problems of under capacity utilization of workers in the organization, there will be a need for systematic and organized application of Scientific Management principles in small scale organizations. With the application of Scientific Management, it is possible to eliminate waste and confusion which is usually there in small scale organizations in India. The problems of inefficiency which is a characteristic of small scale organizations in India can be addressed through the use and application of the Scientific Management principles.

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