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A STUDY ON TOTAL PRODUCTIVITY MAINTENANCE SYSTEMS IN V.J.LOGISTICS INDIA PRIVATE LIMITED AT SALEM

VARATHARAJAN R

ABSTRACT

The purpose of this research is to investigate the contributions of successful total productive maintenance (TPM) initiatives to competitive manufacturing. It also seeks to critically examine the implications of strategic TPM implementation initiatives in an Indian logistics organization. Total Productive Maintenance (TPM) is a maintenance program which involves a newly defined concept for maintaining plants and equipment. This research is focusing in implementing the Pillar activities for solving the breakdown problem in an industrial sector.. By applying TPM and doing root cause analysis the maintenance issue is reduced by 50%.

Keywords -Total Productive Maintenance (TPM), Root Cause Analysis (RCA), organizational performance.

INTRODUCTION OF THE STUDY

Definition of Productivity

Productivity is a measure of the efficiency of production. It is a ratio of actual output (production) to what is required to produce it (inputs). Productivity is measured as a total output per one unit of a total input. Control managers in a given organization are concerned with maximizing productivity through process-oriented observations and improvements.

Productivity – Meaning

Productivity refers to the physical relationship between the quantity produced (output) and the quantity of resources used in the course of production (input). “It is the ratio between the output of goods and services and the input of resources consumed in the process of production

Processes that Affect Productivity

A producer can be broken down five main processes, each with a logic, objectives, theory, and key figures of its own. The main processes of a company are:

- Real process
- Income distribution process
- Production process
- Monetary process
- Market value process

What is Total productivity maintenance system?

Total productivity maintenance system (TPM) is a strategy that operates according to the idea that everyone in a facility should participate in maintenance, rather than just the maintenance team. This approach uses the skills of all employees and seeks to incorporate maintenance into the everyday performance of a facility.

Meaning of Total productivity maintenance system

The Total productivity maintenance system is described as a method that integrates both equipment maintenance and manufacturing process for overall improvement in the business process and increasing equipment availability.

Total productivity maintenance system is a proactive approach that deals in the comprehensive management of processes, people, environment and systems.

Benefits of TPM for your company

TPM implementation leads to better efficiency, as you identify quality defects in time and reduce maintenance costs.

As a result, several business areas are positively impacted, such as

- Business culture,
- Internal communication,
- Quality management,
- Operational control,

STATEMENT OF THE PROBLEM

The purpose of this research is to study the implementation of TPM at the aim to understand how its benefits are being achieved, how it could possibly be enhanced and how the gains made by the brewing company could be replicated in similar companies in the industry in order to reduce losses and improve productivity.

OBJECTIVES OF THE STUDY

The main objective of this research is to study and assess the method of implementing Total productivity maintenance system (TPM) at logistics industries. The specific objectives include to:

1. Study the implementation strategies of the Autonomous Maintenance (AM) and Planned Maintenance (PM) pillars of TPM at the logistics firms.
2. Improve equipment reliability and maintainability.
3. To cultivate the equipment-related expertise among Operators
4. Create an enthusiastic work environment

SCOPE OF THE STUDY

- The scope of the study analyses to productivity and maintenance of against the plan and keep the top management informed about it
- To assist, counsel and pressurize the operating management to plan and establish objectives
- To collect and summaries data in total organization terms and to ensure consistency with long- range objectives and other elements of the total business plan;
- To provide the research necessary for effective manpower and organizational planning

LIMITATIONS OF THE STUDY

- The period of study is confined to a shorter period of time at the disposal of the researcher.
- The study is limited to the willingness of the logistics Materials only to answer the question appropriately.

- The respondents are not bold enough to speak out their personal and business problem.

REVIEW OF LITERATURE

Basheer M Khumawala (2017) a total quality management (TPM) is the information backbone of a company that integrates and automates all business operations. It is a critical issue to select the suitable TPM system which meets all the business strategies and the goals of the company. This study presents an approach to select a suitable TPM system for Materials. Clutch Facings work companies have some difficulties to implement TPM systems such as variant structure of products, production variety and unqualified human resources. At first, the vision and the strategies of the organization are checked by using balanced scorecard. According to the company's vision, strategies and KPIs, we can prepare a request for proposal. Then TPM packages that do not meet the requirements of the company are eliminated.

M. White (2018) The paper is concerned with the diffusion and adoption of innovations within the United Kingdom Clutch Facings work chemicals and dyestuffs industry. The authors chose this industry for investigation chiefly because of the rapid increase in dyestuffs output over recent years despite evidence that the market for dyestuffs had declined over that period. Areas covered in the surveys were the identification of innovators and the influence that these innovators have in initiating the diffusion process; product characteristics affecting the diffusion process and the role of research and development; competitive and specialty products and pressure from consumers. Characteristics having an inhibiting effect upon the diffusion process were also examined. It was found that the communications approach did not satisfactorily explain the diffusion of new Clutch Facings work chemicals and dyestuffs in the United Kingdom Materials which was due particularly to the infrequent incidence of inter-firm opinion leadership.

RESEARCH METHODOLOGY

Research Methodology is a systematic way to solve a research problem; It includes various steps that are generally adopted by a researcher in studying the problem along with the logic behind them. The present study Total Productivity maintenances systems of logistics industries

RESEARCH DESIGN

"A Research Design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with the economy in procedure". The research design adopted for the studies is descriptive design.

The researcher has to describe the present situation in order to know the behavior of the consumers. Hence descriptive research study is used. Descriptive research can only report what has happened and what is happening.

METHOD OF COLLECTION

It has two types

1. Primary data
2. Secondary data

Primary data:

Primary data means data which is fresh collected data. Primary data mainly been collected through personal interviews, surveys etc.

Secondary data:

Secondary data means the data that are already available. Generally speaking secondary data is collected by some organizations or agencies which have already been processed when the researcher utilizes secondary data; the process of secondary data collection and analysis is called desk research.

SAMPLING POPULATION

The aggregate elementary units in the survey are referred to as the population. Here it covers the entire logistics industries

Sample Size

Total number of sample taken for the study is 130 respondents.

SAMPLING UNIT:

Sampling unit is in Salem.

Sample design

Convenience sampling techniques were used for the study.

STATISTICAL TOOLS USED

The commonly used statistical tools for analysis of collected data are:

1. Simple Percentage analysis
2. Chi-square Analysis
3. Correlation
4. Anova

1. SIMPLE PERCENTAGE ANALYSIS

This method is used to compare two or more series of data, to describe the relationship or the distribution of two or more series of data. Percentage analysis test is done to find out the percentage of the response of the response of the respondent. In this tool various percentage are identified in the analysis and they are presented by the way of Bar Diagrams in order to have better understanding of the analysis.

$$\text{Simple percentage} = \frac{\text{No. of respondents}}{\text{Total No. of respondents}} \times 100$$

2. CHI- SQUARE ANALYSIS

Chi-square was done to find out one way analysis between socio demographic variable and various dimensions of the programme.

$$\chi^2 = \frac{(O - E)^2}{E}$$

where

O – Observed value, E – Expected value

In general the expected frequency for any call can be calculated from the following equation.

$$E = RT \times CT / N$$

The calculated value of chi-square is compared with the table value of χ^2 given degrees of freedom of a certain specified level of significance. It at the stated level of the calculated value of χ^2 the difference between theory and observation is considered to be significant. Otherwise it is in significant.

CORRELATION

Correlation is computed into what is known as the correlation coefficient, which ranges between -1 and +1. Perfect positive correlation (a correlation co-efficient of +1) implies that as one security moves, either up or down, the other security will move in lockstep, in the same direction. Alternatively, perfect negative correlation means that if one security moves in either direction the security that is perfectly negatively correlated will move in the opposite direction. If the correlation is 0, the movements of the securities are said to have no correlation; they are completely random.

$$r = \frac{\sum XY}{\sqrt{(\sum X^2)(\sum Y^2)}}$$

4. ANOVA

Examination of change, or ANOVA, is a solid measurable method that is utilized to show contrast between at least two methods or parts through importance tests. It likewise shows us an approach to make numerous examinations of a few populace implies. The Anova test is performed by looking at two sorts of variety, the variety between the example implies, just as the variety inside every one of the examples. Beneath referenced recipe addresses one way Anova test measurements:

$$\mathbf{F} = \frac{MST}{MSE}$$

F = Anova Coefficient,

MST = Mean sum of squares due to treatment

MSE = Mean sum of squares due to error

SUGGESTIONS

- The TPM team has been perceived as unable to formulate actions that can effectively help to reduce costs.
- The results indicated that TPM strategy and planned maintenance found to be related to cost. Future research can be expanded further by analyzing other factors contributed to manufacturing performance.
- For instance, product characteristics, vertical integration, model mix, automation level and market requirements might possibly affect manufacturing performance

CONCLUSION

TPM tries to ensure equipment related losses are minimized and more effort is made to reduce equipment-related losses or defects. TPM could essentially help to minimize the deterioration of equipment, hence improving performance as highlighted by various researchers, for instance. This relationship may not be strong enough to have held up in the multivariate analysis. As noted by based on their case study, work habits and communication especially for production lines and different shifts could affect the morale of TPM team development. The possible assumptions to be drawn from this study are that the communication and leadership of TPM team are not clearly perceived by those at operator level and other departments.

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