

STUDY OF COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM (CMMS) AND COMPUTER AIDED MAINTENANCE PLANNING (CAMP) IN PRODUCTION SYSTEM

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Abstract

Application of Computerized Maintenance Management System (CMMS) and Computer Aided Maintenance Planning (CAMP) in production system is quickly and efficiently deciding, planning and organizing various jobs for effecting systematic plant maintenance. Because of the vast quantity of technical and economical data involved in maintenance management, computer support is very desirable. By applying Computerized Maintenance Management System (CMMS) and Computer Aided Maintenance Planning (CAMP) in production system we will observe that it may be increase in productivity save time. Increase efficiency, smooth flow process.

It is easy to handle all the processes which are happening during the production system controlled it. Lot of time is reduced during the production time.

Keyword: Computerized Maintenance Management System (CMMS), Computer Aided Maintenance Planning (CAMP), Preventive Maintenance

1.Introduction

The companies throughout the world are trying to improve their profit without increasing the sale price of their products. This can only be done by minimizing the manufacturing cost of the products by increasing the productivity and reducing losses during production.

Automation has played a great role in increasing productivity but it fails if the equipment is not maintained properly. The motivation of this particular topic was derived from the company, Haldex Brake Products, ambitions to adopt the best set of practices in lean production. The company has started its journey towards lean, by identifying the core values of the entire business. The tools defined to support the business to focus on core values also include implementation of Total Productive Maintenance in the manufacturing units.

Total Productive Maintenance (TPM) is a maintenance program which involves a newly defined concept for maintaining production plants and equipment. The goal of the TPM program is to markedly increase production while, at the same time, increasing employee morale and job satisfaction.

1.1 Background of TPM

TPM originated from Japan as equipment management strategy designed to support the total quality management strategy. In the middle of 19th century, Japanese realized that companies cannot produce a

consistent quality product with poorly-maintained equipment. It began in the 1950s and focused primarily on preventive maintenance. As new equipment was installed, the focus was on implementing the preventive maintenance recommendations by the equipment manufacturer. A high value was placed on equipment that operated at designed specifications with no breakdowns. During the 1960s, TPM focused on productive maintenance, recognizing the importance of reliability, maintenance and economic efficiency in plant design. In the 1970s TPM evolved as a strategy focused on achieving preventive maintenance efficiency through a comprehensive system based on respect for individuals and total employee participation. It was at this time the word Total was added to productive maintenance.

2.Literature Review

Mario Tucci, Irene Cappelli [2006][1] dealt with the review of the maintenance management system realized in a major hazard plant. The review verified the actual application of the management system and assessed the system implementation as regard the real needs of the plant itself. The analysis was carried out in a chemical plant and the study was realized in the following three steps:

1. Conducted a preliminary system review on the basis of an RCM (Reliability Centered Maintenance) model.
2. Conducted a sample data collection effort concerning a Computerized Maintenance Management System (CMMS), using by interviewing personnel and reviewing information contained in safety and management reports.
3. Analyzed data in order to identify data issues within the maintenance management system and to evaluate possible maintenance policies.

ZhihongHuo, Zhixue Zhang [2005][2] proposed that Computerized Maintenance Management Systems (CMMS) can be employed to provide this original data for the analyses of RCM for it is impossible to manually deal with the complexity coming from different automation fields, such as technical, economy, management etc. It also provides guidance for ensuring that the equipment data and history residing in a CMMS are complete and accurate. With the coming competition and deregulation from marketplace, electric utilities are beginning to pay much more attention on maintenance because it makes great sense in reducing operative costs and improving competitiveness of today's utilities. **Ashayeri. J [2009][4]** developed Computer Aided Maintenance Resource Planning is a major challenge because the maintenance operations environment is usually traditional and unfavorable to change. The Computer Aided Planning system for a maintenance business unit that serves a number of manufacturing facilities, each consisting of a Corrective Maintenance activities of all CNC machines within the different manufacturing sites which helps in conducting different maintenance activities of manufacturing units in a more synchronized way, finished well in time and leads to lower costs. **Chris Davies, Richard Greenough [1999][5]** revealed that despite success in certain areas, maintenance IT systems do have weakness which restrict the role of diagnostic information support within a manufacturing environment and described the effectiveness of maintenance information systems to support activities during machine breakdowns. **Keith Jones, Stephen Collis [1996][3]** examined the use of Computers in Maintenance Management identifies the various maintenance activities that have been computerized reviews the level of use of computers across the building management industry and assesses the level of user satisfaction with Computerized Maintenance Management System. The tools used are Computers, whose primary area of work was building repairs and maintenance that benefit from the application of the principles of Re-engineering.

3.Computerized Maintenance Management System (CMMS) In Manufacturing Industries

Computerized Maintenance Management System (CMMS) is not new system of maintenance but it is simply application of computers for quickly and efficiently deciding, planning and organizing various jobs for effecting systematic plant maintenance. Because of the vast quantity of technical and economical data involved in maintenance management, computer support is very desirable.

CMMS software package maintains a computerdatabase of information about an organization's maintenance operations. This information is intended to help maintenance workers do their jobs more effectively (for example, determining which storerooms contain the spare parts they need) and to help management make informed decisions (for example, calculating the cost of maintenance for each piece of equipment used by the organization, possibly leading to better allocation of resources). The information may also be useful when dealing with third parties for example, an organization is involved in a liability case, data in a CMMS database can serve as evidence that proper safety maintenance has been performed. Over all CMMS is the integration of Computer Aided Maintenance Planning (CAMP) and Computer Aided Maintenance Control (CAMC).

4. Computer Aided Maintenance Planning (CAMP) in manufacturing industries

The whole amount of maintenance planning is based on storing of huge data and then use them subsequently to draw out job plans. Drawing out a plan does not involve any complicated mathematical approach, but it is the hugeness of data which makes the manual work difficult in practical situation. One has to refer to maintenance standards, the detail of history file and the list of defect reports simultaneously to make a plan, As long as there is no need of innovative thinking, the best solution to this problem of maintenance planning is computerization of whole process. This is the basic idea of CAMP.

The second type of problem is maintenance planner faces in record keeping. Manually writing down is one time job and it is almost same as creating data for the computer. But preserving the data and updating it are more monotonous job. This problem can be effectively solved by computers.

Thirdly preparing plans every time manually can be replaced by high speed printers of the Computer system. If data is available, planning and schedules can be drawn without effort of human brain. Hence there should not be any doubt on feasibility and usefulness of computerization. The main benefits of the CAMP over manual system are:

1. Fool Proof timely and detailed Planning (i.e. planning without missing any Parameter) .
2. Preserving minute details of equipment history.
3. Accurate analysis of performance of equipment and easy managerial monitoring.

5. Computer Aided Maintenance Control (CAMC) in manufacturing industries

When huge amount of data is entered in computer and is controlled by the computer for getting any type of output, then it is called Computer aided maintenance Control. In this all maintenance activities (maintenance schedules, maintenance policies, maintenance standards, maintenance inventory and maintenance control) are controlled by computers.

Therefore, Computer Aided Maintenance Planning and Control (CAMP and C.) is making use of computer for quickly and efficiently deciding, planning and organizing various jobs for effective systematic plant maintenance.

6. Conclusion

By applying Computerized Maintenance Management System (CMMS) and Computer Aided Maintenance Planning (CAMP) in production system. Application of computers is quickly and efficiently deciding, planning and organizing various jobs for effecting systematic plant maintenance. Because of the vast quantity of technical and economical data involved in maintenance management, computer support is very desirable. By applying Computerized Maintenance Management System (CMMS) and Computer Aided Maintenance Planning (CAMP) in production system we will observe that it may increase in productivity save time, Increase efficiency, smooth flow process.

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7. REFERENCES

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