

MANAGING OPERATIONS FOR MAINTAINING THE EQUIPMENTS, AIMING TO STABILIZE AND INCREASE OF PRODUCTIONS

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ABSTRACT

The objective of this study relates to activities for maintaining and keeping the equipments operational, which limits the production and that are still used and active in technological chain as well as those in repair process. The development of interdependence operations during these activities depends on personnel, experience time and other measurable factors that determine the best possible maintenance. The entire values of the process will be based on personnel experience, operational capacities and recommendations from the manufacturer. A professional composition of procedures and good management of them will be parameters that can produce positive results. The advance forecast of equipment failures is a prognosis based on personnel experience and manufacturer's instructions.

Keywords: Equipments, maintenance production, process, procedure.

1. INTRODUCTION

The maintenance of equipments as an important field and determinant to achieve work results in production is characterized by its operational specifications. The essence of its understanding and right evaluation include structural (hierarchical) organization, human resources potential, task assignments, objective and planned and unplanned working activities in order to maintain and repair the equipments. The complexity and importance of this service by the time and the apparent problems have influenced the maintenance to be developed and profiled in the function to fulfill the obligations enounced by production side. Depended on needs, the maintenance as a service has also the capability to provide additional services by specialized companies for specific tasks in order to finalize the service. At each service provided with a special emphasis on correction, it's aiming to minimize the time lost, the quality of the service provided as well as a low cost of expenses.[1,2]

2. MAINTANCE ACTIVITIES

The maintenance as a process is an integral part of the whole production process with its main objective for the equipments that are active in technological chain in keeping them operational ready in order to achieve the maximal production. For all those equipments pending and planned to be launched, permanent activities are planned to enable them to be ready and if necessary they can be put

into process. There are three main objectives that are tempted to complete regarding the maintenance and operating the equipments, which are as follows:

- The maintenance cost to be as lower as possible
- The intervention time to be minimal and
- Equipments to operate in continuity (without problems and interruptions).

The problems that generate these objectives are in disharmony; therefore the aim is to find a more reasonable compromise that could optimize successfully the whole process. The aim to achieve objectives, which is related with an efficient maintenance of equipments, is comprised by:

- Correcting maintenance and
- Planned maintenance.

2.1 Correcting Maintenance

The correcting-prevention maintenance is identified by operational activities in those equipments, which are into production line and from which the production is limited. In these cases a quick intervention is imposed to avoid the fault and to turn the equipment back to work. At the first sight, such an intervention has a small cost because the intervention is limited but a detailed analysis indicates that this type of maintenance is unfavorable and has a higher cost. The demand to complete the production and the need for best possible repairing will be disputed so in most of cases there're be repeatedly the need for more interventions, thus the time loss, too. This type of maintenance requires more spare parts and stationery, which also increase the cost. Since the work is done under high pressure it is required to have a more extended discipline.[1,3,4,5]

2.2 Planned Maintenance

The planned maintenance includes all those activities that are planned according to the needs based on recommendations from the manufacturer of equipments including the achievements and technological innovations. Using of this maintenance type it's possible to avoid the faults on time and to unable unbearable equipment failures. The plans should be comprehensive to enable a more successful execution. A department for technical preparations can enable a successful application of these plans supported by a projecting-construction and planning office. There's no doubt that it requires e high discipline in execution.

Even though the apparent analysis may perform e high cost, the entire analyses indicate that this maintenance type is more favorable.

Due to the specific nature of production these two types of maintenances can be combined by a mix of maintenances, which can provide better results.

It's necessary to have a central workshop where the equipments can be processed including small and big size repairs.[2]

The field of projecting and implementation of new projects must relate with finding and determining the problems as well as to eliminate the narrow throats in maintenance process.

Special caution should be given to supply with modern working equipments and tools including even those sophisticated ones for monitoring the conditions of equipments. All these above-mentioned parameters make the maintenance more completed and more readily to keep the situation under control and to respond the needs of the time.

3. ORGANIZATIONAL STRUCTURE

The procedures of an effective maintenance cannot be imagined without an efficient organization of the human potential according to profession, experience and the time consumed to complete the working activities. An authentic allocation of the available potential will be evaluated as a successful factor and programming network diagram of activities linked and depended between each-other where without any doubts it'll eliminate the vacuums appeared (unnecessary interruptions) of the working diagram and not to perform jams or negative working results.

The maintenance as a service must contain a very efficient organizational structure both in "macro" and "micro" levels with a full acting synergy for authentic task assignments and acceptable decision making for the whole staff. The action fields of this supporting service not only help indirectly the production process but in major cases it is involved directly in work output with a special emphasis on technologic process advancements as if occurs in new project developments and eliminating narrow

throats in the process. In order to follow-up the developing trends it is planned also to train the personnel in specific fields aiming not to have any “gap “ between technological advancements of equipments and personnel that should operate with them. Personnel, equipments, experience and work are factors that dictate the general maintenance productivity of equipments and their usage coefficient in relation with time and physical volume of the product.[5]

3.1. Analyzing factors of success

Analyzing the factors of the success represents certainly a participating review of them in case of developing the working activities. There’re four factors specified as important, such is: personnel (P₁), equipments (P₂), experience (P₃) and work (P₄), which as an end result provide “productivity”.

$$P = P_1 + P_2 + P_3 + P_4 = 4P_n \quad \dots (1)$$

Where **P**- is productivity,
P_n- personnel, equipments, experience and work,(**n=1~4**).

Four factors are in function of work efficiency and results representing a synergy among each-other. If we make an approximate pondering of them, we may face dilemmas of which real indexes we can use to evaluate them. A sample study case can be presented as follows:

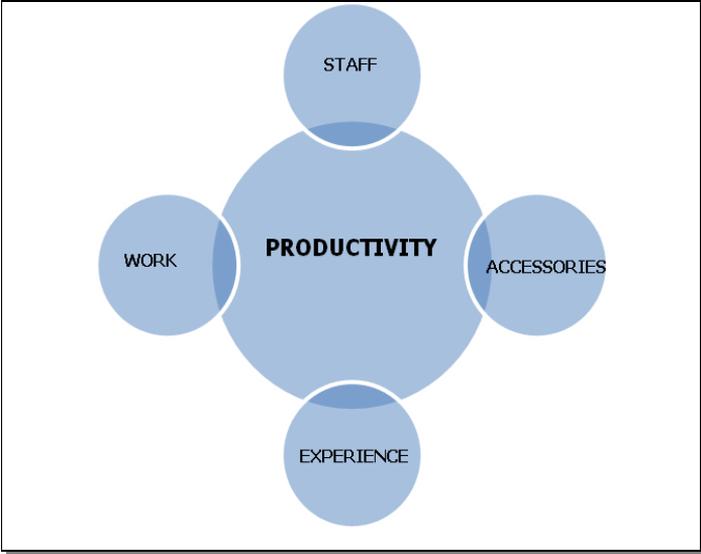


Figure.1. Elements of productivity and their relation

Table.1.Pondering of success factors.

Nr.i alternativ.	P ₁ (%)	P ₂ (%)	P ₃ (%)	P ₄ (%)	P
a	50	25	20	5	Productivity
b	25	50	5	20	
c	20	5	50	25	
d	5	20	25	50	

Graphical performance values of success factors (personnel, equipments, experience and work), as shown below:

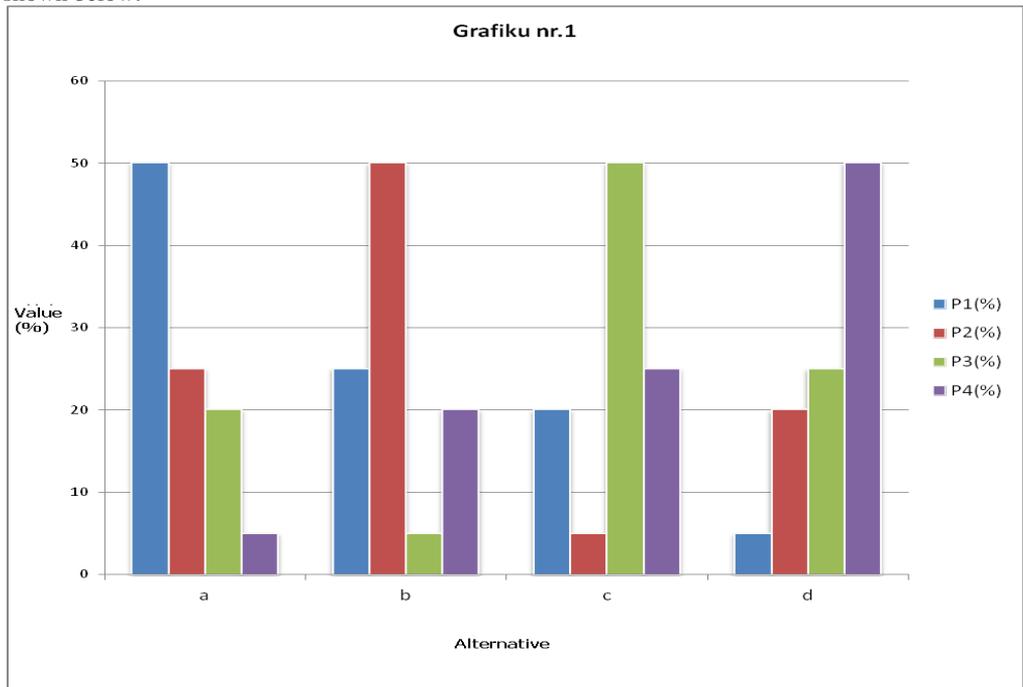


Figure.2. Graphical performance values of success factors.

4. CONCLUSIONS

Without a permanent maintenance there's no possibility to fulfill the production objectives.

The maintenance of equipments as a process should follow the technological development trends and to be advanced according to the needs.

The elimination of "narrow throats" in the process of production is impossible without a conditional maintenance of equipments.

The Monitoring and the control of equipments is an integral part of the whole maintenance process. Continuously there're must have access to the information about technological innovations.

5. REFERENCES

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