Engineering Change Management - Implementation

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Abstract— Almost all Engineering Change Management systems focus is on approving changes and it e-circulation. The most important and critical part of engineering change life cycle is its implementation. Which involves lot of practical scenarios, multiple departments. An improper implementation can lead to major loss to organization which in many cases will not be realized. This paper try to present the complications involved in engineering changes.

Index Terms— ECN- Engineering Change Note, BOM- Bill of Material, ECM- Engineering Change Management, MPO- Material Planning and Ordering, ECO- Engineering Change Order, MRP- Material Requirement Planning , SCM- Supply Chain Management.

1 Introduction

Engineering Change Management is very critical activity as it makes changes in product which is going to affect each and every part of industry and ultimately the customer. There are many systems for engineering change management but are focusing more on e-circulation of change and its e-approvals. The final stage of ECN that is implementation has to be given more emphasis. Why it is required and how it can be done is explained in detail.

2 Flow of ECN

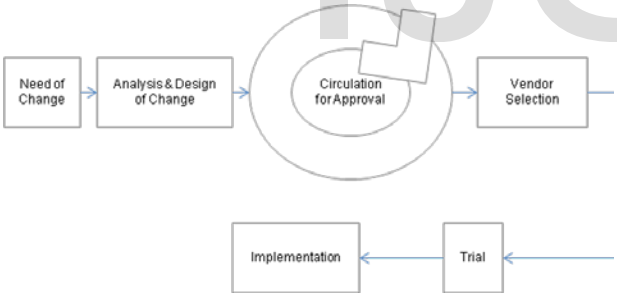

Fig. 1. Typical Flow of ECN

The ECN lifecycle typically starts with its need which can have several reasons like field defect, quality improvement…. It is then analyzed & designed. Further it is presented to the approving authorities like production, purchase, quality…. After its approval vendor is selected and finally comes its trial and implementation. Till trial all the things are not affecting to the regular running production cycle as we are not affecting the MRP cycle. Till trial all the systems have details accommodated to record the dates and approval details.

3 ECN Implementation

After successful trial it comes to adjusting it to running MRP. There comes the question which type of ECN it is which are divided in to below types

a. Single part change
b. Multi part change with no interdependency.
c. Multi part change with interdependency.
d. Incoming Parts with existing consumption in other models.
e. Outgoing Parts running in other models or variants of same model after implementation.
f. Changes dependent on other change notes.

The ECN is affecting lot of departments as shown in below Fig. 2.

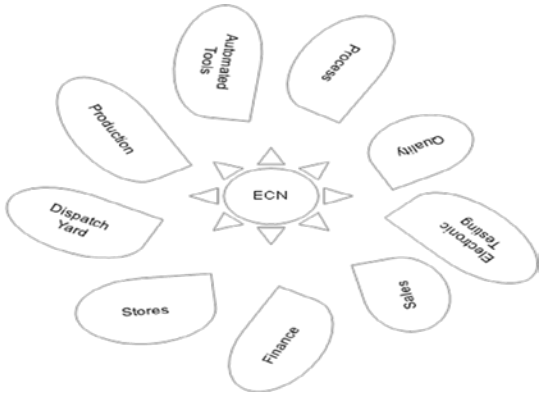

Fig. 2. Effect of ECN

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Even if single information is missed and if any single department makes mistake it can lead to several issue like line stoppage or faulty product production or heavy rework cost and time…….

Example: If there is improvement made in electronic control unit (ECU) of engine of a car which is also related to the change in engine. Both ECN numbers are different as there were some more improvements in ECU which lead to change in ECN number. What if the information not recorded in proper manner to highlight at the time of implementation or after implementation? This can lead to assembly of faulty cars and cause major rework as it can only be identified at the time of electronic testing.

4 REQUIREMENT

The implementation stage has to be treated as important as the design stage and must have proper system which will address all possible errors which can occur at the time of implementation. One of the most important thing is that all data must be arranged in such a manner that all the users should be able to understand it in effective manner.

5 CONCLUSION

The implementation stage which is final stage in life cycle of engineering change must be given high emphasis and must be supported with proper systems to make it full proof. At present the start of ECN lifecycle that is design stage is equipped with lot of design systems but there is lack in implementation stage. This leads to heavy losses but as they are scattered in various areas they are not summarized and severity of effect is not visible.

ACKNOWLEDGMENT

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