

A Smart Management of small scale Automobile manufacturing industry for maximum Production: A critical Review

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Abstract— In the present review article the author has shared his points after reading many research papers. In which specially explained some tools which are very important from an automobile manufacturing industry point of view Incoming of the material in the industry and then having different types of process on the same material and lastly to become a final product which enables to manage the data in the inventory. Then how is it transported from one place to another by loading it on the transport to reach the end user from there? What is the role of maintenance in all these processes, as how every big to small thing is taken care of and then how are they solved, just this has been tried to tell in this paper.

Keywords— SCM, Maintenance Engineering, Transportation and Logistics, Manufacturing & Customer Relationship

Introduction

Small scale industry is a small size company in which maximum 100-150 employee's work. According to the size of the company, sometimes the company's category is also done it is often seen that every person starts with a very small company or firm in starting, which later the same company takes the size of a bigger size [1-3]. Which often transforms from Tiny Company to Small Scale Industry and then later into Big Industries. But it has also been seen at times that it is not necessary that the company and whose owners this production setup or in any way. The company that has been set up will definitely be successful there may be reasons for this which is below [4-8]:

- ✓ Cost of production
- ✓ Labour and employees availability
- ✓ Sources ease and nearby available
- ✓ Market competition

- ✓ Transportation
- ✓ Inventory management
- ✓ Supply chain and logistics management and
- ✓ Maintenance policies
- ✓ We are elaborating all these one by one in detail below.

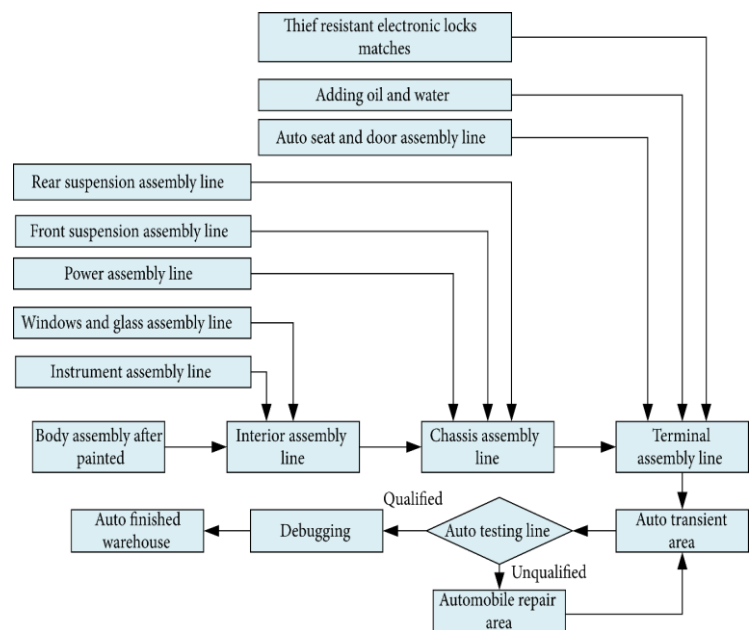


Figure 1: Automobile assembly process

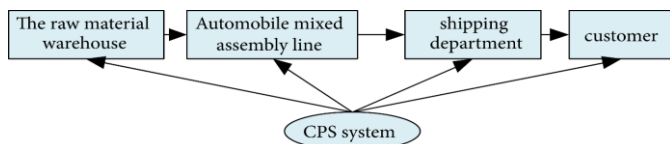


Figure 2: The model of automobile mixed assembly line

Cost of Production:

Costing money that the owner of the company has taken from his pocket or on interest borrowed from someone have put, it is often seen in this that if Malik has invested money from his pocket, then it does not matter much. Because planning is fixed in the mind of such honour for how long do I want my amount to return and under what condition will it be at the rate of growth. But if the owner has borrowed money from any government bank or private person, then there are 2 conditions in this also [9]. If the money is taken from government agencies, then it gets some relief in interest and subsidy is also available from the government at times so that it does not load much. But if he has taken a large amount from a moneylender, then his interest meter runs very fast and he is not able to meet his needs. At the end of the month, he keeps thinking that how much he has given so far and how much he has to give, for which he has to work very hard day by day. Due to all this, it takes time to become a new and successful entrepreneur [10-11].

Labour and employees availability:

In the area where the industry is set up, Honor should first of all see whether its people are ready to do that work or not what work do you want to do or produce in your industry? Many times it comes to see that the local people do not give preference to that work in the area where you want to set up a company with your mind set which can have a bad effect on your firm. That is why it is very important to first of all how much man power is needed in your employer and it will always be there. Along with this, it is also important to see what kind of employees will be required. For example, if you want to set up an automobile manufacturing plant, then a skilled craftsman will be required to run the automobile that is manufactured who is proficient in operating that machine and knows everything about it in detail [12-13]. Along with this, people working with him will also be needed such as labour class who can load and unload goods from one place to another. There are many such examples, so you have to check the locality around you, whether they are such people or artisans (skilled) or not. If you have to import these from outside from any other city then the cost will add a lot and you will not be able to survive in the market [14].

Ease Sources and nearby available:

This means that where you want to set up the company, whether every type of source is available or not. First of all, the basic facilities which are related to the interests of the employees working here, Water, electricity, ration shop or

market and other daily needs are met as basic facilities, important bank facility Then after that you have to see whether the transport facility can come on the place where you are putting this setup or not [15-17]. The kind of material to be produced by honour, whether its raw material is available around it or not, it is the most important thing. Sometimes in such a case, raw material has to be transported from far away, due to which the cost of production is greatly affected. Therefore, first of all, a list of raw material vendors should be prepared, who can reach you in material right quantity on time [18].

Market competition:

A competitive market is one in which many producers compete with each other to provide the goods and services that our consumers want and need. In other words, no single producer can control the market [19]. Honor must think about this parameter before setting up an industry that the factory or company that he wants to set up, how many companies are there in the same way that make the same products for which he is also planning? It is very important for a new Entrepreneur to know that how many more such companies are there in the market, from which he should be the first to compete directly. Because these are the companies which are with big brand name in the market and are fully established, no one knows to shake them so easily unless you have Do not have a good policy to compete directly with them.

Transportation:

Transportation also plays the most important role in all the aspects we are looking at here to establish a company. There are some factors in this which are directly related to the government and industry, which sometimes have an impact both directly and indirectly. Like supply of raw material from vendor to company and supply of finished good material again from company to vendor [20]. The wedges used in this are always changing due to which there is a lot of impact on the production as well as the material which is finished good during this period The wear and tear of the goods being supplied is also part of the company, which has to be borne by the company itself, but it is directly related to the customer Well we were talking about which direct and indirect taxes are being imposed by the government as well as the fuel prices are increasing [21]. All these are helpful factors in increasing the price of a product so that a new setup does not come to its break-even point soon. If we talk about government factors, then first of all talk about the road which is found in it which is not completely compatible with the vehicle and due to which Vehicles ask for maintenance every day, then after that a lot of taxes in the name of toll tax, fuel, surcharge, all these are helpful in increasing the production cost. That is why the setup of a new company should be done where the government has already done the place, in which there is no problem of land acquisition, no labor. And no, the government and industries give everything by setting their own paths.

Inventory management:

Every industry has an inventory or storage department where raw materials are processed to store finished good materials. In this, the company cannot do storage according to its own, it has some software through which the material is stored. In this, both the location of raw material and the location of finished goods are different. But both the records are maintained simultaneously Inventory management lets us know exactly how much inventory we have at the moment and how much we can produce now and how much more we can produce. According to this Strategic, we do our future planning easily, as well as we also know the market trend on the basis of our Vendor or customer's feedback requirement and need with demand. And with this management we can easily do our production planning. So that the stocking of material is not much when the time comes and the material is also available on time, so that full attention can be paid to the demand and supply of the customer. And the most important thing is that when our production is going on, then we come to know only through this inventory management. How much material is available in stock and how much to order which can come on time so that the production of the company does not stop It is also called lead management in the company or it is also called store manager, nowadays all this has become computer based. By which we get the information of every moment, the smallest thing, whatever is needed, we can easily trace it That is why it is very important to have inventory management in companies.

Supply chain and logistics management:

In this review paper, we have discussed above about transportation. There is no difference between logistics and transportation, but if we talk about supply chain management, then the point of discussion here becomes a little better. SCM means that the material produced by the company has to be found in the hands of the right person at the right time at the right place. This is possible only and only when you manage this supply through a good channel like Trace your vehicle on time and find Live Location for better and smooth functioning. In-house Material Handling Property This is also a part of the scrum to get the material from one machine to another at the right time. Like the initial raw material coming into the industry first goes to the inventory, then its entry should be done after that which is further processed for further processing. Similarly, according to the need of the station, the station should move forward through its channel, so that there should not be any obstruction and when all the work is completed, it reaches the inventory for dispatch again.

Maintenance policies:

Be it any type of industry, maintenance is needed by everyone and when we talk about automobile industry then we need maintenance engineer in it and where the machine is talked about, it is always discussed about the maintenance

policy because the machine can stop running at any time. That is why it is necessary to maintain it on time so that the machine keeps on producing as usual without stopping. But it is not possible, no matter how much maintenance you do, sometime such problems come in the machine which is unexpected. That's why the engineers have been dealing with it in different ways, such that the maintenance has been divided into some category are as following [22-25]

- ✓ Routine maintenance
- ✓ Schedule maintenance
- ✓ Preventive maintenance
- ✓ Predictive maintenance
- ✓ Break down maintenance

Routine maintenance is the maintenance in which the company gets the machine checked and servicing at a fixed time interval. It would have been just like a routine check-up, so the engineer overhauls the machine, if any fault is seen, then corrects it otherwise goes back after servicing, In this condition, the machine operator is repaired on the basis of the same feedback as the machine operator will tell.

Many companies use both routine and scheduled maintenance policies. We have seen above in routine maintenance, but regular maintenance is done with a special purpose. In this, there is a focus on some special parts, due to which there may be an impact on the accuracy of the product, so some such factors should be considered And whether it is bad or not, they are replaced which the industry also says not to take future risk.

Talking about both preventive and predictive, these maintenance policies should be used in today's time and it is happening in some places. There is some similarity between these two, so they seem equally different from each other [26-27]. In preventive maintenance, it is said that the skilled operators, who are working on the machine, tell which part of the machine is going to be defective. This can also be called their experience and sometimes it is accurate so that the company is saved from causing big losses. The same if we talk about predictive maintenance, then the operator or maintenance engineering can tell this by looking at or operating the machine after some time this part will wear out or break so that it is already replaced. All this is not a theory, it practically happens in the industry, which also benefits the employees a lot, all these processes have become computer based [28-30]. So that nowadays we can assess the parts of every machine in the true sense and at the same time the experience of the machine operator is also very less which is about the machine collect each and every details on time.

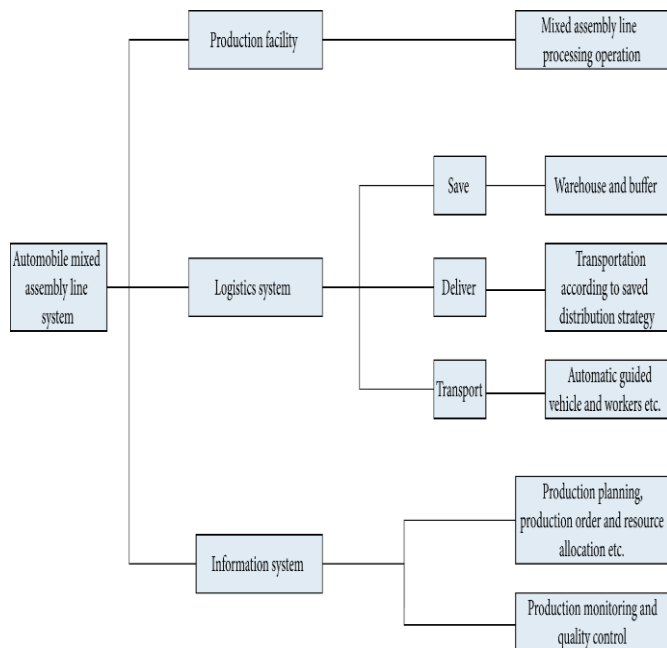


Figure 3: The composition of automobile mixed assembly line system

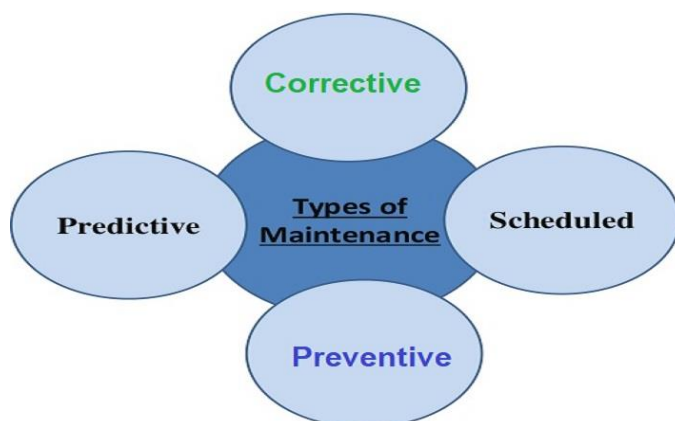


Figure 4: Types of maintenance

Future Scope /Requirement:

The scope of smart manufacturing technologies has become broader due to the inter-operation of various technologies resulting in cost-effectiveness, time-saving, easy configuration, better understanding, and quick response to market demand, flexibility and remote monitoring. Maintenance management encompasses all of the processes involved in preserving a company's physical assets. Its main goal is to improve asset availability and reliability to maximize the efficacy of the company's core services. As such, it is a foundation for industrial maintenance and facilities management. For any machine some of its parts are fixed while other is replaceable. Such equipment or mechanical devices and their components require constant and continuous services such as cleaning, lubrication, repair and replacements etc. so that their operational efficiency can be maintained.

Conclusion:

The successful implementation of industry in the future will save a lot of cost for enterprises and bring huge economic benefits. The paper analyzes the automobile mixed assembly line system. This article demonstrates that vehicle production is a complex process, in which full knowledge is required for the evaluation of the next steps that can be achieved by the automotive industry. To reduce the energy cost and environmental burden of manufacturing processes, automotive original equipment manufacturers focus on energy efficiency and thermal energy management practices. The article reviews the automotive manufacturing process and the steps undertaken by manufacturers towards the realization of a sustainable sector. The optimized results show that the optimized model and method proposed in this paper are good guide and reference for solving the complex multi objective modeling problem.

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