

Lean Operational Excellence – Ford Best Practices

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Abstract— Operations management emerges as the less understood aspect of the various business activities. In the manufacturing industries, it is usually left to the specialist such as the engineers. Some of the service industries are yet to incorporate operations management. The purpose of this study is to identify various aspects relating to operation management in the automobile production industry. The Ford Company has been used to discuss some of the concepts entailing car production. The methodology utilized in this research is based on secondary research. The paper identifies that operations management entails overseeing, controlling and designing production process. Also, it involves redesigning an entity operation to meet efficiency about the use of resources and meeting customer needs.

Some of the factors identified to influence the cars assembling include the following. Supplies from the outside parties; the raw materials affect the production depending on their availability, cost, and quality of other aspects. Then there is the equipment; it is important to note that automobiles are one of the products that require the use of various devices. Thus, it requires ensuring that the available equipment is efficient to avoid the disruption of the producing process (Heizer & Render 2001). The other factor includes the factory overheads; these are the utilities of the plant. They may include the power machines, lighting, and technology in place among others. Furthermore, the production of the automobiles is greatly influenced by the availability of the special parts in the factory. Due to the competition in this field, the manufacturers are investing in new attributes that would make the automobile unique.

Index Terms— Lean Manufacturing, Lean Engineering, Operational Excellence, Management, Best Practice, Production Line, Process Design Production Planning, Car Productions. Quality Control. Voice of the Customer

1. INTRODUCTION

Operation management is a critical area of the business management. It is an area that is characterized by the designing and mapping the process of productions. Thus, the operations managers play the critical role in the business to ensure efficiency in the enterprise operations directed towards the products production. It is important to note that the time changes have brought about new changes in the business. Currently, the business operators have to consider the customer views, opinions and needs before producing the products. In this case, the paper examines the production of the motor vehicles of the Ford Company and the factors influencing their assembling. Cars are one of the products that are subjected to a growing market. Some factors are related to the production while others such as the reputation of the company are not linked to the production. [1]

2. PROCESS DESIGN

Since its initiation, the Ford company is known to implement significantly process designing in its car manufacturing. Process design has been defined as the action of identifying, equipment needs, workflow and executing requirements to a particular progression. In this case, the Ford company operations manager puts to using various tools that enable the company to continue in producing quality cars. Some of which include scale models, flowcharting, and modern software. The production of automobiles relies on the process design substantially since it requires the conceiving of the looks, arrangements and preferences before it is produced [5]. However, the most appropriate approach to process design is accord-

ing to the future volumes and attributes of the automobiles. The Ford Company has proved that small changes in the design of its cars have profound consequences. [2, 4]

Furthermore, studies identify that the company's design of the process could constrain the freedom of designers. However, overlapping in design activities is mostly evident in service production. It is because in the case of services customers are part of the transformation process. The idea of the design process incorporation in the automobile production is to ensure that performance coincides with the preferences of the prospective clients. It is important to note that processes are managed at the operational level of the company; thus, it requires consideration of all the objectives of all the other levels.

3. OPERATIONS MANAGEMENT IN MANUFACTURING

The manufacturers in the automobile productions play a significant role in transforming resources into finished goods. As identified, today's business entails the manufacturers to strive in ensuring the operational efficiency. The operational managers make the required contributions in prospecting for the product that would do well in the market. It is the product that which will attract more of the available customers in the market. Thus, the operational managers work closely with the product designers in putting the designed products into reality. Additionally, the functional managers work closely with the researchers, product developers and the field operators to collect the ideas concerning the consumer needs. It is im-

portant to note that the quality of the product is a significant factor that influences its sale. The operational managers ensure that the production processes at hand are directed in a manner that they concentrate on the quality of the product. They influence the cost of the materials and labor to be used in a way that they eliminate those that do not add value to the final car. Therefore, in the case of the car assembling, the operational manager plays the following role. [1, 2]

4. PRODUCTION PLANNING

The production planning is a major factor in the car production. It entails putting various factors that significantly determine the quality and quantity to be produced. The first factors in consideration are the supplies of the raw materials. A car requires different raw materials some of which the company would have to buy from other firms. Hence, the operations manager has to assess the availability of these raw materials, their timely arrival, quality and quantity [12]. An operation manager identifies that a smooth supply operation and well-managed inventory as according to the schedule influences the production considerably. Then there is the aspect of the equipment availability in the factory. The car production requires complex machines and their failure could affect production to a large extent. The operational manager of the production car company identifies the means of improving the efficiency of the equipment. It is to promote a continuation and more efficient operations in the production. Additionally, the material is placed in a way that the individuals operating them can carry out a satisfactory part of the production.

Furthermore, the utilities of power, lighting in the factory determines the extent of production. Hence, inconveniences such as the shutdown of the power supply could interrupt the car production. The other aspect is the management style that is employed by the Ford Company. The management style adopted in the business significantly affects the quantity of the cars being produced. It relates to the conformance of specifications since they influence the quality of the car significantly. A car is an example of the machine that is built to specs. However, in certain cases the aspect of made-to-order parts have the significant impact on the production process in general, for example, in the case, some of the parts are to be shipped from long distances. The disparities in actual qualities of the car that the Ford Company produces require a large number of orders [10]. On the other hand, the workforce is a critical part of the production and could affect the process of manufacturing in many ways. The human factor of production requires specialized skills to handle. Good relations with the employees lead to more labor efficient and cost effective manners of production in a positive approach.

5. QUALITY CONTROL

It is important to note that car production is one of the competing businesses in the market. In that, there are varying designs, models and types of car on the market. These cars are manufacturers based in different social classes with which different people can afford. Thus, the Ford Company ensures

that its automobiles are made in a manner that they can meet the needs of different people. However, no matter the social class that the car is targeted, quality is a significant factor for consideration. Thus, the approach to the production of the car, the process, and the raw materials are critical factors that influence is quality. There are cars whose prices are fascinating and have been identified as treasures. 6]

The quality standards play a significant role in determining the success of the company. For example, over time the Ford Company is associated with producing high-quality vehicles. The primary goal of the first owner of the company was to ensure that the company produced high-quality vehicles at affordable prices [9] In the case of the quality control in the car production, the operational managers have to consider the goals made by the marketing managers. These include the competition strategy that the company intends to use in the market. For example, low cost of car production and then the company employs price based competition approach. Also, the company may be aiming to build its reputation through quality products. It is important to note that the production decisions entails trade-offs. However, the fact that low-cost production would not go hand in hand with the high quality of the cars.

6. CAR PRODUCTION DECISIONS

In the case of Ford Company car production, the first step in planning the car production is establishing the production process to be adopted. The production process chosen is an important determining factor in the quality and quantity of the car produced. As identified, production process relates to the product design. Hence, it involves finding answers to a broad range of questions influencing the production of these includes the potential income to be gathered from the sale of the vehicles. Additionally, the car production involves being able to determine whether the company could be able to produce a car base on the customer special instructions. It is important to note that such institutions as schools, hospitals, and some companies give special instructions to the producer companies. They specify on the type and quality of car that they would wish to be produced. In most cases these are identified as the customizing aspects of the company. [5]

7. THE ANALYSIS OF THE FINANCIAL CONDITIONS OF THE COMPANY

These are the direct factor that influences the production of the motor vehicles. It is important to identify that like any other market cars market has changed. The technological advancements have made the market right for some companies while it has become challenging to some of the other companies. Hence, depending on the position of the business in the market; it would be appropriate for the management to carry out an assessment of the cost-benefits status of the enterprise. Thus, the operations manager may have to adjust the plan laid forth for production to fit in the top management recommendations. For example, the company may be willing to cut some costs of production of the cars. It would require the use of low

quality of some of the raw materials, for example, the car seats or car body. On the other hand, the management may realize that it is making more profit thus, it may require adjustments in ensuring that high-quality standards are met. It may include the reconstruction of the car engines, to increase its consumptions, speed energy among other factors. [15]

8. THE CONSUMER SPENDING TRENDS

As identified such products as cars fall in the secondary class of the human needs. Hence, their purchase substantially depends on the consumer's disposable income. Assuming that a country that is experiencing a high growth rate and the people are adopting high standards of living, and then there is the likelihood of such people purchasing a lot of cars. As a result, the operation managers would focus on the number of cars to be produced in a given period. Also, the customer spending may be directed to a precise model of the company cars. For example, the price is treasured by many people as a classic car for the middle class. In this case, where the consumers are mostly interested in this form of the car then its production would have to be increased [16]. Furthermore, the automotive industry has experienced an intensive increase in prices. Thus, the producers require balancing the cost of production and estimating the acceptable rates by the consumers.

The current consumer spending habits stipulate that over time the vehicle prices could offset the possible spending behavior. It is speculated that in the next decade there will be a tremendous increase in car expenses. As a result, the producers are being faced with the promising amount of income. However, the extent of innovation in the company and the ability to meet the consumer's needs is an important influencing factor. Thus, the operational managers would need to balance the model of the car its quality and the prospective customers. It is true that the individuals in a higher income bracket are subjected to buying more cars and often. On the other hand, almost low income will be requiring owning a car.

9. THE MARKET VOLATILITY

The market volatility is also one of the major factors influencing Ford Company automobile designs. On the other hand, the market volatility is influenced by other factors. These include the commodity prices. In the past, the automotive industry used steel and resins. These materials are in high demand now globally. As a result, the global steelmakers have responded by increasing the production of steel quantity. Hence, this reflects a possible international pressure that which could affect the car production considerably [4, 7]. The automobiles are commodities whose demand is well spread globally. In some areas especially, Africa, they rely on importing cars from countries such as United States, Japan among others. Most of these countries are subjected to increase in living standards, and this stipulates the increase in the need to meet the secondary wants such as cars. Hence, the car producers would steel competes with the raw materials. It elaborates that the operation managers would require ensuring that they are equipped with the required raw materials.

The currency exchange trade volatility is one aspect that influences the market volatility. It is in line with the appreciating and depreciating of the United States dollar against other powerful currencies. In the case the dollar depreciates the automobile companies would not have market advantages. It has occurred in the cause of time leading to downward pressure on the United States auto manufacturers. For example, in Europe, such cars as the Land Rover and Jaguar are produced to be sold in the United States. Such company as Ford is known to have experienced margin pressure. However, the company was able to emerge due to the foreign exchange derivatives. The car producing industries in the United States are always subject to the depreciating dollar due to the enormously competitive pricing environment.

10. IMPLEMENTATION OF LEAN PRINCIPLES

In this case, the paper will focus how the implementation of the lean principles could assist the operations manager. It is important to note that when well employed the lean principles could lead to the optimizing of efficiencies while minimizing cost and improving customer service levels. The main lean principles include the following. The operational manager is required to identify clients and specify a value (13). Then there is a need to identify and plan the value stream to be followed. Also, they identify flow in the production trough eliminating wastes in the process. Furthermore, the operational managers are required to respond to the customer pull of needs and wants. The last principle requires directing the processes towards achieving perfection.

In applying these principles, it would entail identifying the following facts. The automobile industries satisfy the consumer by meeting the product design. Moreover, the Lean's principles are aimed at ensuring that the factors influencing production do not hinder efficiency. In that, the process selections and the capacity planning are one of the factors affecting the ability of the company production system to meet the consumer's needs. Thus, while the operations manager is implementing the car design they need to consider the costs, flexibility and the production time. Furthermore, the layout decisions relate to the workplace arrangement. These would affect the flow of production of the cars. Hence, the car design and the implementation of the lean principles go hand in hand. The car designing is more of focusing on the human elements. The current operation managers have realized that workers are valuable assets of the company. The employees could contribute substantially to the success of the company besides the strategic planning concept; the employees can influence potential customers in the market. They are also able to gather information concerning what the customers in the field prefer. In the car production, it is important to identify the possible clients and their requirements. It is in line with specifying the value of the car to be assembled. According to lean thinking, it is only a small fraction of the company time effort that adds value to the end product. Thus, a precise definition of the product in connection with the end customer perspective

would be cheap for the company. It is followed by creating a viable plan that the value could follow. In this case, the operational manager puts into consideration the entire set of activities attributing delivery of quality car ([13]. For example, the location of the raw materials or the company would require consideration. The closer the company is to the potential market and the raw materials the more the company will be subject to low transportation costs. Also, the material costs, labor costs and the access to the markets if they are at ease for the organizations then operation cost would be reduced without compromising the quality of the cars.

Moreover, lean principles stipulate the removal of the inefficiencies and the waste that could affect the production. It involves concentrating on the process or the system of production. For example, the company may be purchasing more plastics that the companies do not require. Also, the employees may be paid more while they are working for few hours, or it could be that the company has more employees than required. It would then require laying off some of the employees and concentrating more on the quality. The other inefficiency would be the failure of the company to purchase equipment that would ease the production and improve quality at a lower cost. Additionally, it would call for removing, customer delays, and the waste of inventory, unnecessary steps, wasted movement and errors. It is followed by managing by evidence. It requires the operational managers to achieve through testing the process, carrying out investigations and ensuring continuous improvement. [15]

11. CONCLUSION

In conclusion, the company is obliged in understanding the customer demand for the car. It is in line with the customer fashion and preference requirements. Then after understanding the management should respond to them by producing products that meet the specifications. Research indicates that if the client could be able to get what they want at the time they want then their loyalty to the company is likely to increase significantly. However, the other people involved in the operational process plays undisputable role. Thus, the operations manager follows acceptable means in pushing them to use their skills fully. In pursuing perfection the director of operations radically reorganizes the individual process to influence perfection. Moreover, it is important to identify that the employees training contributes significantly to the efficiency. Also, the communication and feedback conduct to the parties play a significant role.

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