Method to reduce the manufacturing costs

Psychology, Child Development

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Introduction

With the numerous advancements in the fields of Engineering and Science, its effect can be found in every aspect of life and it is certain to say that the manufacturing industry is reaping advantages from these developments. Times have changed, in the early time manufacturers relied on the craftsmanship of their employees to manufacture products. This often resulted in high production cost which demanded a large amount of capital to be invested and hence it was a time-consuming process which badly affected the manufacturing industry. Today, technology and advancement in Science have eradicated many issues.

Out of the many inventions, assembly line and automation are one of the most vital. Combination of the assembly line and automation has enabled manufacturers to maintain a standard quality of products also keeps the cost of production at minimal. Such methods are found in every business and industry. Certainly, these applications have resulted in the ‘ boom’ of several industries across the world. The reduced costs have increased the company’s sale and have made the products more appealing to the

customer, hence enabling the company’s business to expand. A prime example of this is the automotive industry in the mid-20th century.

Body

Going back into the 20th century, there is a perfect example of Henry Ford, who had a vision that every man in America owns a decent and reliable car in time when only the wealthy people afforded vehicles. To fulfill his vision, Henry Ford had to find a way to reduce the production cost of the car by a huge amount. This then leads to the discovery of assembly line. Unlike the method where the craftsman used to produce a unique automobile was very time taking and expensive. The assembly line started by placing parts needed to build the automobile on the side of the path through which the chassis of the car fitted with a wheel that would be pulled through. As a result, the time taken in the production of a single car reduced greatly also it costed less to the consumers. This is how the idea of the assembly line started and today almost every manufacturing industry has adopted this technique to enhance and increases their production in a smaller time frame.

Another method to reduce the manufacturing costs is Outsourcing. Majority of the companies around the globe look up to China when it comes to Outsourcing but times have changed, and India and Thailand have also been recognized as potential competitors in the Outsourcing market because of the continuous currency fluctuation and an aging population in China. Traditionally, companies use third parties for negotiations and quality control. Representatives from the third party then go to the production plant for inspection and quality check of the products once they have been

manufactured and sometimes they pick up random manufactured samples from the production line and send them back to the company to cross check if their requirements are met. Companies have witnessed increased production and profits after Outsourcing their products. This is since lots of labor workforce is available to work in factories on relatively low wages which then utilizes the assembly line method, hence reducing the overall cost of products.

Over-designing is one of the leading factors to the increase in the cost of a product. Products are usually engineered with materials that provide consistent performance and better reliability so that it meets and satisfies the customer’s needs. So, combining the cost of the materials with labors push the cost of the product unnecessarily high. For instance, making a spatula’s handle out of steel instead of wood would just increase its manufacturing cost but it will give the same use. In such cases, the material that is used to engineer such products become the reason of the hiked prices for the product, so they need to be re-engineered to lower the price.

Another technique to lower the production cost is to lower the inventories carrying costs. Some manufacturers make a variety of products that need the same material but for different components of different products. What benefit this has done is the fact that the company can purchase the material in bulk which assists in reducing the purchasing costs. Also, the manufactures save up on the inventory space as they do not need many different materials for diverse components. Furthermore, by selecting materials which are easier to work with can give flexibility to the labor

working and hence increases the productivity of the labor. At the end of the day, all these techniques and methods are adopted by the business to make a variety of products available to the consumers at a reasonable price.

Time is another key factor in driving the price of the product to rise significantly. During the development of physical prototypes, engineers waste lots of time. This is since, certain engineers rely on producing physical prototypes, which is time-consuming, to make decisions and find themselves with nothing to do until their prototype is finished. To overcome this hurdle, 3-D prototyping or digital prototyping is being used which numerous benefits. Digital prototyping reduces the cost as the materials that were going to be used to make physical prototypes are now being used for the production. It also solves the time issue because less time is required to make digital prototypes, this driver the cost of the product significantly down.

Manufacturers pay a hefty amount running their factories, in some cases the amount to run a factory is more than the total profit by selling their products. This issue is being tackled by ‘ Going Green’. ‘ Going Green’ has now an increasing demand all over the world and even the consumers prefer to use more ‘ Green’ products. ‘ Green’ products also help in creating a much healthier and safer environment for the worker which increase their efficiency. This results in factories being able to operate more efficiently monetary wise and production wise. In addition, factories can save costs on energy by not always operating at full potential. Many factories today

operate daily according to the demand of the product which assists in saving energy cost.

Factories now have also started to lay off extra skilled or unskilled workers. Unless their production demand is being fulfilled by a certain number of workers, they dispose of the other labor. This helps the manufactures to save on costs. Aspects, where a task requires no technical expertise, can be completed by unskilled workers. For instance, filing job can even be done by a college student or an intern who will work for as low as 15$/hr. compared to skilled labor. Another smart way to increase the efficiency, companies can train their employees which then results in high efficiency and reduced time in the production cycle.

Technology has also significantly helped in reducing the cost of a product. Utilizing technology is an efficient technique for engineers to work as a team either from their office or any other place. This collaboration saves time, increases efficiency and helps achieve the best possible decision. Similarly, technology can also help minimize the time required to sign-off a design by several different people. Changes can be noted immediately, and immediate action can be taken to resolvean issue. Also, the development of machines and robots have also contributed in making the task much more efficient and the biggest advantage is the machines do not get tired of doing a repetitive task when compared to a normal human being. The machines also help to maintain the consistency of the manufacturing object.

Conclusion

It is the past that has laid the foundation for the methods concerned with reducing the total costs in the manufacturing of a product. Automation is being widely used in production to decrease the amount of time and capital needed to produce products. Several other methods have been thought up of work in conjunction with automation to decrease costs even further. Outsourcing, to a foreign country with cheap labor, helps an organization to cut their expenses by more than half. Assembly line is also one of the most important inventions of the 20th century which has improved the process of production in terms of time and money.

These are the most significant developments which have led to the ‘ boom’ of certain industries. But the question arises how? So, the decreased costs have enabled the consumer to get access to a substantial number of products at a much cheaper price and better quality. As more and more people purchase their products, in return, companies are generating much more revenue compared to past and hence they are investing this money back into the company in the shape of capital which has helped in manufacturing products more efficiently, in a short span of time and again at a cheaper cost. Ultimately, total cost minimization has benefitted the consumers and producers and ways to refine these methods will be an interesting topic soon.