

Importance of Cycle time Reduction for Productivity Improvement

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ABSTRACT: *The ability to reduce production cycle times can be a powerful competitive advantage. A company's cycle time is a measurement of their efficiency and a bellwether for profitability and competitiveness. However, it's not easy to reduce manufacturing cycle times, focus on learning how to reduce cycle time, or justify the expense of additional logistics investment without understanding the value. Indeed, the benefits of reducing cycle times can more than compensate. Cycle time reduction benefits include faster time-to-market and, if other cost factors are kept in check, an opportunity for higher profitability. Cycle time reduction also helps a company be more competitive against other businesses that offer similar products to the same customer base.*

KEYWORDS: *Cycle time reduction, Efficiency, Organizational growth, Productivity improvement.*

INTRODUCTION

The cumulative time required to complete a work, assignment or operation can be determined as cycle time. In other words, the overall period taken for the completion of the operation can be specified [1]. A cycle time starts when the operation starts and stops when the operation is finished. When production starts or when a unit's production begins, the loop period begins and concludes with the conclusion of its production. A manufacturing operation entails a vast number of minor tasks, and these activities take time and resources. Many of these undesirable behaviors are a less efficient manufacturing process. Therefore, organizational professionals actively aim to discover and remove behaviors that don't impact the manufacturing process so that cycling time is minimized. Moreover, some tasks at cycle cycles are not carried out successfully [2].

The cycle time efficiency of the whole manufacturing process is increased by enhancing these practices. By performing the business process reengineering (BPR), the cycle time of a manufacturing process. Market process reengineering analyses and redesigns the operations of the overall manufacturing process to boost the production process efficiency and quality and cut cycle times. Production time can be defined as the time when the production process is sub-produced [3]. To create a cell telephone, for example. There are multiple cycle time processing operations including the development of the telephone motherboard. The motherboard development is a sub-productive operation of the cell phone production process. Both sub-processing methods apply to the entire time spent as the production time of the process. The time to assume output is the time to wait between two sub-processes. The longer the wait, the longer the processing time and the lower the productivity of the manufacturing process are. Furthermore, in order to minimize the time of production, businesses aim to reduce the expectation time between two production processes. Because waiting is an empty period where the company's money, such as the waiting time, are absolutely expended, workers must also wait before the next stage starts [4].

LITERATURE REVIEW

1. Significance of Reduced time cycle:

- Less cycle time means less lead times for market launch. Companies can faster sell their goods and keep competitive of industry with shortened production times.

- Less cycle time means that in a shorter span a corporation can generate more commodity units that allow it to maximize the usage of corporate capital.
- Less cycle time means more units of products to sell in the market, which helps in the generation of more revenue.
- Consumers typically favor businesses that can supply customers with goods with less time. By reducing the cycle time, you will reduce the overall shipping time for the goods to a customer. Therefore, you will compete against your rivals on the market in this manner.
- The time is taken to produce a unit product that also lowers, which means lower higher efficiency and lower cost. A reduced cost of production helps companies to generate more Return on Investment (ROI).
- Lesser cycle time means increased productivity.
- The biggest advantage of cycle time is customer satisfaction. Customers prefer quality products in a lower time. Reduced cycle time helps companies to deliver products to customers in less time, which in turn increases the customer base.
- In order to lower cycle time, companies make constant efforts and achieve this by reducing extra activities involved in the production process. Reduced number of activities means the lower expense of production and effective production process.

2. How to reduce cycle time production process:

2.1 Apply Business Process Reengineering in the production process:

Business Process Reengineering (BPR) is a process that analyses and redesigns the organization's entire manufacturing process to increase its productivity. The BPR method leads to reducing the time, lead time and time taken by the company to increase its performance. This method can be used to identify and remove or substitute all unnecessary behaviors with better and efficient activities [5].

2.2 Effective Management of cycle time and scheduling tasks:

Another way to minimize this is by handling time efficiently and organizing projects correctly. During the waiting time, two operations that are not related to cycle time may be completed at the same time or tasks that are not related to the current process. This not only decreases the time of waiting, but also the output time by the projects you conduct during other operations in advance[6]. It is not therefore easy to do; the procedure and the preparation are important to consider the operation in the waiting period in a profound way [7].

2.3. Making the use of Kanban board in cycle time process:

A Kanban board will reduce the cycle time. In order to control the work such that the work is carried out in the manufacturing process whereby production process capability is allowed, instead of pursuing the process directly. This requires workers to imagine and schedule a "Kanban cycle time" board for operation modification if time is appropriate [8].

2.4. Involve the participants of the production process:

In general, management practice is performed in organizations, preparing and planning, and workers actually follow the orders they get. This, though, is an inefficient way of operating when supervisors do not know how work is conducted at the level of the warehouse. So it just pushes workers to work and insists on results. Involve them in making decisions and use their experience to understand how to decrease cycle time [9].

2.5 Reduce waiting time in the cycle time process:

Reducing the waiting time of the production process is the simplest and easiest way of reducing total cycle time. Waiting time can be reduced by making the use of automation and machines.

3. Cycle time and Business Strategy:

Many businesses use cycle time as a benchmark of their productivity. As such, in the long run most companies wish to decrease their cycle times to improve productivity and thereby reduce costs[10]. However, a number of additional benefits can arise from reducing cycle times, including

- competitive advantage from products reaching the market sooner
- better understanding and management of the corporate cost structure
- Improved profitability from cost savings.

Indeed, some companies find that these side benefits of analyzing and reducing cycle times can outweigh the more obvious and direct efficiency gains.

However, companies must still be vigilant when modifying the cycle times that they are likely to counteract the balance between the procurement and delivery networks. When a manufacturer is delivering new goods to the market much quicker than in the past, for example, it can need to change its marketing campaigns and buyer service processes so that distribution can be facilitated faster.

CONCLUSION

The results of this research apply to the existing literature many times. Global competition challenged all industrial sectors worldwide. Such competition has made it difficult for manufacturers to reduce the product cycle times which lead to reducing costs and deliveries on time. It is recommended that other novel methodologies be applied to help compare better cycle time reduction methods in the manufacturing sector. The producers face high competition while at the same time improving efficiency and sustainability.

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