

Strategies for Net Structural Savings in Manufacturing Environments

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Abstract: In order to achieve specific goals, a number of tasks, known as projects, need to be completed. The project can include various types of activities: from optimizing the use of raw materials to purchasing and installing equipment at the factory, building a house, painting and much more.

In any project, the key stage is the need to draw up a plan before proceeding with the tasks set. This stage of planning undoubtedly requires considerable effort and organizational skills, and effective project management can greatly facilitate this process.

In order to ensure stability in today's rapidly developing markets, the introduction of new technologies into production processes remains a key factor for staying in the market among competitors.

Each manufacturing company finds ways to optimize operating costs and increase profits, and in 2023 this remains their main criterion for success. Project management in manufacturing industries seems to be a difficult task, but the use of production project management software helps companies optimally allocate resources through competent planning.

These programs provide an opportunity for companies to customize the tools in accordance with the requirements of the industry. Designed specifically for this purpose, they help companies allocate resources efficiently and create customized analytical reports. This approach allows you to focus on upcoming tasks through creative interaction and data analysis.

The aim of the work was to identify and study the currently existing structural economy strategies in the production environment. To achieve this goal, scientific works, specialized literature, and expert opinions were used.

Keywords: economy in the production environment, production environment, structural economy in the production environment, methods of economy.

Introduction

Project management is known as adequate adherence to the project schedule by efficiently handling and implementing various small tasks that help keep the project on track and completed according to schedule. This helps to structure a traceable way that helps with the proper execution of the work to reach the deadline on time.

To achieve successful results on time and within budget, IT departments use a variety of tools, techniques and software. These resources help achieve goals and complete projects successfully and efficiently.

Effective project management is required to have a clear release date and include managerial skills to maintain staff, technical skills and a general understanding to identify business needs. Achieving the goals of a company or an individual is possible with minimal costs thanks to competent project management.

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In the modern digital world, computerization of labor processes is the key to economic efficiency and environmental cleanliness. After the industrial Revolution, computerization allows manufacturers to track progress in real time and maintain effective communication with staff.

The process of computerization leads to savings in various areas:

Real-time tracking reduces the number of defects in finished products.

Training of management personnel and workers increases productivity by improving the accuracy of operational decisions.

Effective use of knowledge reduces training time and strengthens the skills of employees.

Compliance with local regulations, safety rules and environmental standards, as well as certification of the company and its products in accordance with international standards, are important stages. Setting performance indicators that stimulate employees directly affects the success of the business. This helps employees move in the right direction and interact with other departments of the organization.

1. Saving options

Recycling of waste. Waste reduction and active use of recycling should become the main slogan of all manufacturing companies. Almost every plant produces waste, and this is quite normal.

However, factories that produce excessive amounts of waste, such as garbage and defective products, face high costs. The main reason is the lack of strict quality control at these production sites. All the extra labor and materials wasted reduce the profit of the plant.

However, the development of Internet of Things (IoT) technologies has turned the situation around regarding the fight against negative practices at the production stage. Now defects can be detected using sensors, and the quality of the final product is controlled by automated calibrations. In case of equipment breakdown or disruption of the production process, an instant notification occurs, which allows technical personnel to respond promptly and troubleshoot problems without additional problems.

Errors that can lead to defects in the final product are detected at the early stages of production, which significantly reduces the number of defective products and increases the efficiency of the process.

Supply chain management. The lack of effective supply chain management and other relevant protocols negatively affects the activities of the production management unit. Sometimes, taking into account market fluctuations in raw material prices, procurement departments are forced to purchase additional stocks of raw materials as measures taken.

However, this is a practice that significantly increases costs for the manufacturer. The application of project management software and other tools can coordinate operations in the enterprise, providing accurate forecasts. This allows manufacturers to have sufficient stocks in stock and to carry out repeat orders in a timely manner, saving resources and optimizing processes.

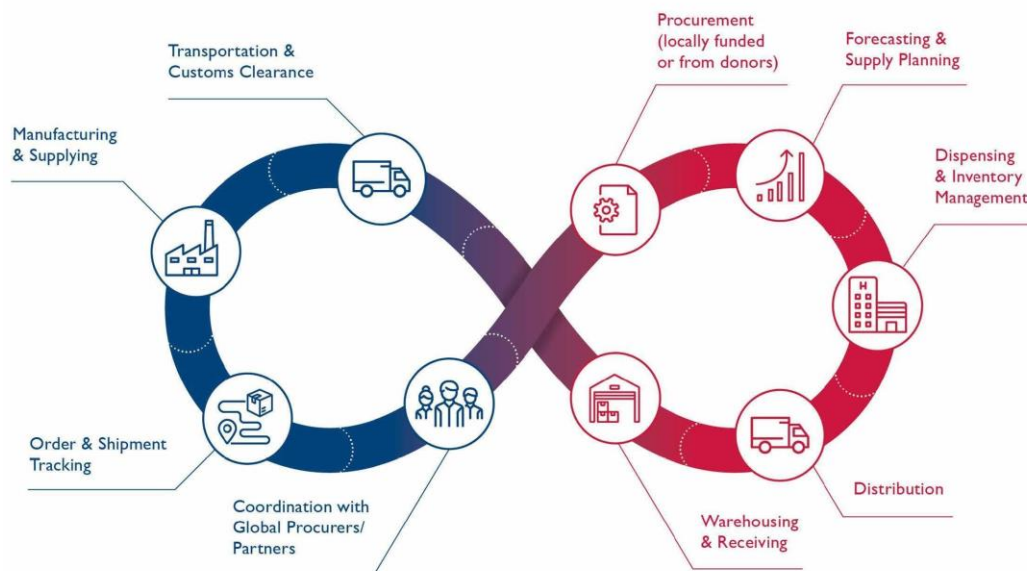


Fig.1. Supply chain

Health and safety of personnel. Due to complex processes such as welding and other hazardous techniques, as well as handling chemicals and operating bulky equipment, manufacturers face workplace risks that create dangerous situations.

Employees who are exposed to injuries, which subsequently leads to an increase in costs due to the time spent by the employee on sick leave. In this connection, manufacturing enterprises should actively take care of the safety of working conditions of their employees if they intend to solve the problem of a shortage of labor and qualified specialists [1].

Reduction of production costs due to individual orders. One of the key aspects of reducing production costs is the creation of standard products that can be made to order without the need to predict or store large stocks, as well as the manufacture of unique products through mass production for individual orders. With both approaches, the assembly of products takes place only after receiving a confirmed order.

The effects of this approach can be impressive. Inventory storage costs can be completely eliminated (according to the "rule of thumb", inventory storage costs account for 25% of their value), and procurement costs can be reduced by automatically replenishing inventory as needed. Theoretically, a more prompt response to demand leads to an increase in sales. This, although not a measure of direct reduction of production costs, nevertheless brings very positive results.

Standardization of parts.



Fig.2. Photo of the drone, which uses standard parts to create

In the process of individual assembly and mass customization, the reduction of production costs is achieved by optimizing parts and raw materials. Standardization plays a key role in this concept, ensuring that all the necessary parts are available at each point of use and eliminating the need to search, load or complete parts.

Standardization allows you to reduce the variety of types of parts and simplifies the process of their assembly. Buying fewer types of parts in large batches reduces material overhead. This also entails a reduction in the occupied production area, reduced overhead costs and time savings on setup, logistics and supply chain management. Other aspects of standardization, such as tools, functions, raw materials and processes, can also have a positive impact on the cost of production.

Streamline your product line.



Fig.3. Rationalization of the product line

Often, due to ignoring the opportunity to simplify operations and free up critical resources, there is a decrease in productivity and profit. Product line rationalization focuses on the most profitable products and the elimination or outsourcing of low-margin products that require high costs and are incompatible with strategies to reduce production costs.

The analysis shows that more than 60 percent of the product line brings less than 10 percent of the total profit. Successful rationalization initiatives have reduced overall supply chain management costs by up to 50 percent and increased inventory turnover by up to 100 percent for leading companies in the industry.

Measurement of total costs. Measuring total costs is a key step in a strategy to reduce production costs. This approach begins with an analysis of the factors that form the cost of products. Understanding the root causes of costs allows you to more accurately assess the current situation and develop strategies to reduce or eliminate them.

An integral part of this process is the identification of key factors affecting costs. Analyzing the overhead costs of a company helps to establish a connection between them and important cost factors. Some of these factors may be hidden, not manifest themselves explicitly in the form of material or labor costs [2,3,4,5].

Conclusion

Thus, in a world of rapidly changing requirements and competition, companies must constantly adapt and find ways to optimize their costs. There is no universal way to reduce costs and increase profitability. This requires serious efforts and consistent implementation of many measures that have a significant impact on the financial condition of the company.

To achieve economic efficiency, companies must use innovative technologies to reduce energy consumption, and be active in automating routine operations. In addition, the successful implementation of new standards and a system for monitoring key indicators are just a few of the strategic steps that the project management team at a manufacturing company should take to ensure cost savings in 2023.

References

- [1] Cost – saving strategies for managing production projects - Guidance for 2023 . [Electronic resource] Access mode: <https://pagestart.com/cost-saving-strategies-for-manufacturing-project-management/> .– (accessed 09.10.2023).
- [2] Effective ways to reduce production costs. [Electronic resource] Access mode: <https://bautomation.com/effective-ways-to-reduce-manufacturing-costs/> .– (accessed 09.10.2023).
- [3] 4 cost reduction strategies that really help. [Electronic resource] Access mode: <https://primetsr.com/insights/cost-reduction-strategies-that-actually-help/> .– (accessed 09.10.2023).
- [4] Sustainable development of production: obtaining a net positive profit. [Electronic resource] Access mode: <https://www.pwc.com/gx/en/industries/industrial-manufacturing/publications/sustainability-in-manufacturing.html> .– (accessed 09.10.2023).