



Implementation of Just-in-Time (JIT) Policy in Increasing Production Efficiency of Manufacturing Companies

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Article Info	ABSTRACT
Corresponding Author: Suwanda E-mail: suwanda@unkris.ac.id	<p>Just-in-Time is an operational management approach that aims to reduce stock, optimize work flow, and increase production responsibility. This research aims to evaluate and analyze the implementation of Just-in-Time (JIT) policies in increasing production efficiency in industrial environments. This research uses a qualitative approach with descriptive methods. The research results show that the implementation of the Just-in-Time (JIT) policy in increasing production efficiency has had a positive impact. By focusing on demand-based production, inventory reduction, and small-lot production setup, the company managed to increase operational flexibility and reduce waste. The emphasis on quality and continuous improvement provides positive results in continuously improving quality standards and production efficiency. Close collaboration with suppliers has also been proven to help maintain a smooth supply chain. Overall, this research provides empirical support for the effectiveness of implementing JIT as a production management strategy that can improve company performance.</p> <p>Keywords: Just-in-Time (JIT), Production Efficiency, Manufacturing Companies.</p>

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INTRODUCTION

Companies, as entities that exist in the business world, must be able to adapt to an environment that is constantly changing rapidly, dynamically and complicatedly (Teece, 2007). These changes are not only evolutionary, but often have a revolutionary character that can profoundly change business paradigms (Gersick, 1991). In a business context, the environment is defined as a pattern of conditions or external factors that significantly influence the life and development of a company. These factors include various aspects such as economics, politics, government policies, market conditions, industrial competition, relationships with suppliers, social and cultural dynamics, and technological developments (Dragnic, 2014).

Changes in the business environment can include shifts in consumer preferences, new technological developments, changes in government regulations, or even a global economic crisis (Freeman & Perez, 1988). Companies that are able to read and respond to these changes quickly and flexibly will have a greater competitive advantage. A company's ability to adapt to environmental changes is the key to success in carrying out its operations and

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achieving long-term business goals (Hitt dkk, 1998). In facing these complex dynamics, companies need to develop strategies that can integrate a deep understanding of these environmental factors, so that they can make appropriate and sustainable decisions (Wu & Pagell, 2011).

Rapid developments in the industrial sector today bring increasing challenges for every company in achieving its business goals. The intense level of competition forces every business entity to continue to innovate and increase its competitiveness (Sangwan & Bhatia, 2020). In an effort to achieve optimal profits, companies compete to outperform competitors or even overthrow them, in the hope of winning the market. These competitive strategies often include improving the quality of products produced and cost efficiency (Pietersen, 2010).

Improving product quality is one of the main focuses, considering that modern consumers are increasingly demanding products that are innovative, reliable and suit their needs (Van Hoek dkk, 2001). Companies must be able to understand and respond quickly to changes in market trends and consumer needs. On the other hand, cost efficiency is also a crucial factor in maintaining competitiveness (Helo, 2004). Companies need to continue to optimize production processes, supply chain management and resource management to reduce operational costs without sacrificing product quality (Ketchen dkk, 2007).

Cost efficiency is a concept that reflects a company's ability to manage and use resources as optimally as possible to achieve its business goals (Nath dkk, 2010). This involves reducing operational costs without sacrificing the quality of the products or services provided (Mont, 2002). In a business context, cost efficiency includes a number of management strategies and practices designed to reduce waste, increase productivity and maximize the added value of each unit of cost incurred (Anderson, 2006).

Cost-efficient companies are able to identify areas where expenses can be reduced or optimized without sacrificing overall performance. This involves continuous monitoring and evaluation of production processes, supply chains, energy use, technology used, and other aspects of a company's operations (Akeem, 2017). Cost efficiency also includes intelligent management of human resources, such as efficient workforce placement and training to increase productivity (Schuler & Macmillan, 1984)

By optimizing cost efficiency, companies can increase their profitability, provide added value to stakeholders, and increase competitiveness in the market (Jensen, 2002). This approach is not only tactical in the face of intense competition, but also supports the company's long-term sustainability. Cost efficiency is one of the fundamental pillars of effective business management, enabling companies to respond to changes in the business environment with more agility while still achieving their financial and operational goals (Tria et al., 2016).

One operational strategy that can significantly support cost efficiency is the Just-in-Time (JIT) concept. Just-in-Time is a supply chain management approach that aims to reduce stock and optimize production workflow by delivering raw materials and components only when needed in the production process. This concept focuses on meeting production needs in a timely manner without holding excessive inventory (Lyu et al., 2020).

By adopting Just-in-Time, companies are able to reduce storage and stock management costs which can burden finances. Production processes become more responsive to market demand, so companies can avoid wasteful costs associated with

storing unused goods or changes in market demand (Iwasokun et al., 2023). Additionally, JIT encourages companies to improve overall operational efficiency by identifying and addressing potential waste of time and resources (Garcia-Alcatraz & Maldonado-Marcias, 2016).

Just-in-Time implementation has a positive impact on cost efficiency through reducing waste, saving storage costs, and increasing productivity (Akintoye, 1995). However, JIT success also requires careful coordination in the supply chain, consistent quality, and on-time delivery from suppliers. Nonetheless, the long-term benefits, including increased competitiveness and profitability, make the Just-in-Time concept an effective strategy in achieving cost efficiencies in a rapidly changing and dynamic business environment (Musara, 2012).

METHOD

In this research the author used a qualitative descriptive method. The qualitative descriptive method is a method that places more emphasis on aspects of understanding in depth a problem rather than looking at the problem for generalization research (Gerring, 2017). The aim of the research is to find out how the implementation of the Just In Time system can increase production efficiency in manufacturing companies. In this research the author used a qualitative descriptive method. The qualitative descriptive method is a method that places more emphasis on aspects of understanding in depth a problem rather than looking at the problem for generalization research. The aim of the research is to find out how the implementation of the Just In Time system can increase production efficiency.

RESULTS AND DISCUSSION

Just In Time (JIT) production is an operational management approach that is based on the concept of eliminating waste and ensuring that each step in the production process is only carried out when needed. This concept aims to achieve high efficiency by reducing stock, production cycle time and overall production costs. The way JIT production works involves several main principles and steps that are integrated with each other, here are some of them

Identify Customer Value

The Just-in-Time (JIT) production way of working involves a series of key principles and integrated steps, among which is the identification of customer value. In the context of JIT, this initial step is very important to understand customer desires and expectations for the products or services provided by the company. Identifying customer value is not just an introduction process, but rather an in-depth search for the value elements desired by consumers.

The customer value identification process involves a thorough analysis of a customer's preferences, needs, and expectations for a particular product or service. Companies need to analyze customer feedback, conduct market surveys, and understand industry trends to formulate an accurate picture of the value customers consider important. By understanding these values, companies can design products or services that not only meet quality standards, but also provide additional advantages according to customer expectations.

Once customer values are identified, companies can direct their efforts to integrate those values into the entire JIT production chain. This includes setting up the production process, selecting raw materials, and determining appropriate product features. Thus, identifying customer value in the context of JIT production is not only an initial guide, but also a strategic basis for creating products or services that suit customer desires in real-time, supporting production efficiency and increasing customer satisfaction.

Value Stream Analysis (Value Stream Mapping)

Production processes require in-depth analysis to identify the value flow from raw materials to finished products. In the context of modern manufacturing, focusing on the value stream is key to increasing efficiency and optimizing output. The initial step in this analysis is a thorough understanding of each stage of production, mapping each step from start to finish, from raw materials to finished product.

Next, the process of identifying steps that do not add value (non-value-added steps) becomes essential. This includes activities that do not provide direct benefit to the product or service produced. Examples of these measures may include waiting times, unnecessary transportation, or excessive use of raw materials. Once these steps are identified, companies can look for ways to eliminate or minimize them.

Eliminating or minimizing steps that do not add value can be done in various ways, such as increasing automation, optimizing production routes, or even restructuring the entire process. These steps aim to improve operational efficiency, reduce production cycle times and eliminate unnecessary waste. This approach is in line with the Lean Manufacturing concept, where the main focus is creating value without adding unnecessary additional burden.

By implementing value stream analysis and eliminating steps that do not add value, companies can achieve more efficient production, reduce production costs, and produce higher quality products. This strategy also supports Just-in-Time (JIT) principles, where every production step is directed to provide added value directly to customers, creating a production environment that is adaptive and responsive to market demand.

Inventory Reduction

Inventory reduction is the main characteristic of a Just-in-Time (JIT) production system, which is characterized by having minimal inventory or even zero inventory. The basic principle behind this is to avoid unnecessary inventory accumulation and only produce or order materials and components when needed in the production process.

In the context of JIT, minimal inventory has several significant benefits. First, it reduces carrying costs typically associated with large inventories. Warehouse costs, insurance and the risk of damage or obsolescence of goods can be reduced substantially. Second, inventory reduction speeds up production flows, allowing companies to respond to changes in market demand more flexibly and quickly.

In some cases, companies implementing JIT may rely on daily supplies or “Just In Time” deliveries from their suppliers. Close collaboration with suppliers is key to ensuring that the required raw materials or components are always available on time. While this can be challenging, this strategy can reduce the need for significant inventory holding and allow companies to optimize resource use.

By reducing inventory, JIT companies not only save costs, but also improve overall operational efficiency. More effective inventory management can help achieve JIT goals of

reducing waste and increasing production responsibility, creating a business environment that is adaptive and responsive to environmental changes.

Production Based on Demand (Pull System)

Production on demand, known as a pull system, is a key approach in Just-in-Time (JIT). In this system, the production process is initiated by a direct request from the customer or the next production stage. This means that production does not start without a concrete request, and each request acts as a trigger to start the corresponding production steps.

The existence of a pull system ensures that products or components are only produced when there is an actual need, reducing waste in the form of unnecessary inventory. Basically, this means companies organize their production to respond to real market demand, rather than simply producing large quantities based on projections or estimates. This approach increases production flexibility and allows companies to more efficiently manage their resources.

The pull system-based production process also encourages close collaboration between the various production stages and suppliers. Each stage of production is responsible for producing goods or components that meet subsequent demand. In other words, a request from a customer or the next stage of production acts as a trigger that triggers the movement of the entire production chain. This creates responsive and efficient workflows, reduces production cycle times, and maximizes resource utilization.

Demand-based production not only optimizes operational efficiency, but also supports sustainability principles by reducing waste and environmental impact. By implementing a pull system, companies can achieve better alignment between supply and demand, create added value for customers, and increase competitiveness in an ever-changing market.

Small Lot Production Setup

Small lot production settings are a fundamental principle in implementing Just-in-Time (JIT). This approach encourages production in smaller, more frequent quantities rather than large quantities, in line with the JIT philosophy of avoiding unnecessary inventory accumulation. Production in small lots allows companies to be more responsive to changes in market demand and supports operational flexibility.

By choosing to produce in small lots, companies can avoid building large stocks that may not suit customers' actual needs. Small lot production also provides the flexibility to adapt production to changing market trends or customer preferences more quickly. This minimizes the risk of waste, such as inventory going unsold or becoming obsolete, and maximizes resource use.

The importance of small lot production settings is increasing in a dynamic business era, where changes in demand can occur quickly. By maintaining shorter production cycles and producing in small lots, companies can respond adaptively to market changes, optimize production capacity and reduce the risk of wasting resources.

In addition, production in small lots also supports the Lean Manufacturing approach, which emphasizes eliminating waste and creating added value. By adopting small-lot production settings, JIT companies create an efficient, adaptive, and sustainable production environment, helping them better meet customer demands and maintain a competitive advantage in a rapidly changing market.

Emphasis on Quality

The emphasis on product quality is a critical aspect of the Just-in-Time (JIT) philosophy. A deep understanding of the quality standards desired by customers is the main basis for implementing JIT. In this context, quality is not just an additional attribute, but is the core of the entire production process. JIT emphasizes that if there is a defect in production, the production process must be stopped immediately until the problem can be identified and corrected. This approach is known as poka-yoke or “error-proofing,” which aims to prevent defective products from flowing through to the next stage of production. By focusing on improving quality at the source, JIT companies can prevent the waste of resources that occurs due to the production of defective goods.

The importance of emphasizing quality is also related to the concept of Jidoka, which means automation with humans. If any defects or abnormalities are detected in the production process, production will be stopped automatically to prevent further production of defective goods. This ensures that every product that comes off the production line meets established quality standards, reducing the risk of shipping defective products to customers.

By making quality the main focus, JIT companies can create reliable products, build a good reputation, and increase customer satisfaction. Meanwhile, an emphasis on quality also helps JIT companies to achieve efficiency goals and reduce waste, in line with Lean Manufacturing principles that support more efficient and sustainable production.

Continuous Improvement (Continuous Improvement)

Continuous improvement, known in the Just-in-Time (JIT) context as the Kaizen philosophy, is the main pillar in achieving the desired level of production efficiency and resilience. The Kaizen philosophy emphasizes gradual and continuous change to improve production processes. In JIT, production teams are empowered to actively seek new ways to increase efficiency and eliminate all forms of waste.

Production teams are engaged in a continuous search to perfect their product-process. By focusing on Kaizen principles, each team member is invited to provide input and creative ideas that can improve performance and production quality. This thinking creates a work culture where improvement is a shared responsibility, not just the task of management or a particular department.

The continuous improvement process is not only about large-scale improvements, but also involves the smallest improvements that can have a positive impact on the process. By approaching improvement as a joint effort, JIT companies can respond to change more quickly and more flexibly, making them more adaptive to market dynamics.

Additionally, continuous improvement creates a continuous learning cycle among production teams. Practical experience and knowledge gained from implementing previous improvements is the basis for continuing to hone efficiency and productivity. Thus, the philosophy of Kaizen and continuous improvement in JIT is not only a production strategy, but also a philosophical approach that encourages an adaptive, innovative and continuously developing work culture.

Collaboration with Suppliers

Collaboration with suppliers is an integral element in Just-in-Time (JIT) implementation. The JIT philosophy not only optimizes the company's internal processes, but also expands the collaboration network to its suppliers. Close collaboration with

suppliers brings significant benefits in maintaining a smooth supply chain and achieving production efficiency goals. In JIT, supplies of raw materials and components are relied upon to be received on time and in accordance with high quality standards. Therefore, effective collaboration with suppliers is key to ensuring that the supply chain operates as efficiently as possible. This includes open communication, smooth exchange of information, and synergistic inventory management.

Through close collaboration, companies can inform suppliers about their production needs precisely. Suppliers, in turn, can adjust their production and delivery according to the company's production schedule. This reduces the risk of shortages of raw materials or components which could hamper the production process. In addition, collaboration with suppliers also opens the door for mutual improvement. By sharing information and experience, companies and suppliers can work together to improve product-processes and achieve higher levels of efficiency. Improving quality and efficiency throughout the supply chain is a common goal, creating a collaborative environment that supports mutual success.

By establishing close partnerships with suppliers, JIT companies can achieve stable supply, minimize risks and increase their competitiveness in the market. Ongoing collaboration with suppliers not only strengthens the supply chain, but also creates a foundation for resilience and sustainability in a rapidly changing business environment.

CONCLUSION

Just-in-Time (JIT) is a production management philosophy that focuses on efficiency, eliminating waste, and improving quality. In its implementation, JIT involves a number of key principles, including demand-based production, inventory reduction, small lot production settings, emphasis on quality, continuous improvement (Kaizen), and collaboration with suppliers. Demand-based production leads to the production process being initiated by actual demand from customers or subsequent production stages, avoiding unnecessary stock waste. Inventory reduction, including the implementation of zero inventory, helps increase operational efficiency and flexibility in responding to market changes. Small lot production settings allow for high adaptability and prevention of waste. The emphasis on quality emphasizes the importance of preventing product defects and optimizing quality standards. The philosophy of Kaizen and continuous improvement provides a framework for continuous product-process improvement. Finally, close collaboration with suppliers is the key to maintaining a smooth supply chain and ensuring timely supply of raw materials and components. Overall, implementing JIT is not only about increasing the company's operational efficiency, but also creating a responsive, innovative and sustainable work culture. By focusing on added value, elimination of waste, and quality, companies that implement JIT can achieve better competitiveness, meet customer needs, and remain adaptive to continuous changes in the business environment.

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