

Meta Analysis: Impact of Just in Time Implementation on Cost Efficiency and Profit

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ABSTRACT

Excessive inventory results in losses for the industry due to capital being held back, increased storage costs, incurring tax and inventory insurance costs, the risk of falling prices and quality, and giving rise to the potential for damage and theft. Inventory shortages can also cause losses because they can disrupt the production process. This research identified and analyzed 20 journals related to the implementation and impact of just in time implementation. Implementing just in time can reduce inventory costs, increase time efficiency and production costs so that producers can focus more on quality and increase company profits. The implementation of just in time is accompanied by an increase in other higher costs, this can be caused by constraints in the supply chain and the risk of uncertain demand.

INTRODUCTION

The main factor that supports the smooth production process of a company, both large and small scale, is raw materials, so that each company will maintain inventory so that the production process runs smoothly. Companies that are able to manage their raw material inventory well will be able to reduce inventory costs, because it affects costs, streamlines the production process and increases company profits (Oktaviani et al., 2022).

This current economic situation in Nigeria has forced many manufacturing companies to close shop due to the increasingly expensive production costs especially ordering costs, inventory costs, stock scarcity costs and storage costs which have an adverse impact (Ganiyu et al., 2019).

As this era continues to develop, companies must adapt to modern economic conditions so that they can continue to develop and progress in conditions of high levels of competition so that they will get maximum profits (Oktarini & Agustiningrum, 2022).

The goods delivery (logistics) or courier business is predicted to increase by 15% per year because the supporting factors for production and consumption activities are logistics companies. Manufacturing and service companies have the aim of ensuring the smoothness, continuity and development of short-term and long-term businesses. The company's main goal is to obtain maximum profits. The case of transportation in goods delivery service companies arises when a company wants to choose alternative delivery for several types of goods from several places of origin to various destinations with minimal costs (Barokah & Putri, 2022).

PT PINDAD (Persero) uses the just in time method to manage inventory of products made to order which is considered to be able to optimize production at the right time according to consumer demand and reduce storage costs in the warehouse (Purnamasari et al., 2021).

During the Covid-19 pandemic, companies were faced with conditions of decreasing sales and decreasing profits because production costs were relatively increasing, so just in time was the best inventory control method (Oktaviani et al., 2022). Research by Rehman et al.(2023) observed various hospital inventory management policies such as reorder point, periodic ordering, and just in time to reduce aggregate pandemic costs for items such as drugs, vaccines, beds, etc. and the just in time method was found to be most cost effective when not there is a lockdown or in a state of partial lockdown.

Milewski (2022) discussing the benefits of just in time for companies and external costs to find out the conditions for implementing an effective JIT system by referring to various publications regarding the effectiveness of the lean management (LM) concept and just in time systems during the pandemic shows that the magnitude of the benefits is very dependent on product value and scale production.

This research will provide an overview for industry and academics in the field of management accounting in evaluating the impact of just in time implementation on company profits and costs. This research is expected to provide information that will help companies determine appropriate inventory

management policies and provide insights that can contribute to the company's long-term success.

LITERATURE REVIEW

1. Inventory Management

Companies recognize the importance of managing inventory levels to gain long-term competitive advantage. Quality, product engineering, price, overtime, excess capacity, ability to respond to customers (on-time performance), lead time, and overall profitability are all things that are affected by inventory levels. In general, companies with higher inventory levels than their competitors tend to be in a weaker competitive position. Inventory management policies have become a competitive weapon.

Inventory management systems with a traditional approach assume that uncertainty in consumer demand results in uncertainty in production and purchasing so companies must have inventory. Management tries to overcome this uncertainty through the best possible inventory planning (Hansen & Mowen, 2007).

2. Just In Time

The manufacturing environment has changed rapidly in the last two decades. Competitive markets have no boundaries between countries. Advanced communications and transportation have contributed significantly to the creation of global competition. Technological advances have contributed to shorter product life cycles and increasingly varied products on the market. Overseas companies are able to produce products of high quality and specific features at low costs. This competitive pressure encourages companies to start using a JIT approach. Just in Time, translated into Indonesian, means a just-in-time production system. What this means is that all supplies of raw materials that will be processed in production activities must arrive on time in the right quantity. Not only raw materials, all components, both main and supporting, must be maintained at minimum quantities. Based on this understanding, it can be seen that Just in Time is a production system that has the main objectives of reducing costs, making work efficient, and obtaining quality according to company standards. The Just in Time system was created, of course, to minimize waste due to overproduction, excess inventory and long production process queues (Hansen & Mowen, 2007).

JIT has two strategic objectives, namely increasing profits and improving the company's competitive position. Both of these goals are achieved through controlling costs, improving delivery performance, and improving quality. JIT offers cost efficiency and flexibility in responding to customer demands for better product quality and greater product variety. Quality, flexibility and cost efficiency are the basic principles for world-class competition (Hansen & Mowen, 2007).

3. Profit

Profit is the difference between the increase in economic benefits or the amount of income minus all costs or expenses incurred in one accounting period cycle. Profit describes the condition of a company's financial performance which can provide an idea of how the company will perform in the future. Companies that succeed in making a profit every year will be able to maintain and extend the continuity of their business so that profit has a very important role for the company (Wicaksono et al., 2022).

Components that influence profits are as follows:

- a. Revenues, which are cash inflows, come from the company's current business activities such as cash sales and prospective cash inflows such as credit sales.
- b. Profits (Gains) which are cash inflows originating from transactions and events related to the company's current business activities.
- c. Expenses, which are outflows or allocations of past cash outflows originating from the company's current business activities.
- d. Losses, which are a decrease in net assets resulting from incidental activities.

4. Cost

Costs can be recognized from the limitations or terms related to costs where transactions can be identified easily so that they can be included in financial reports correctly. Most of the recording of costs from accounting values is at the expense stage. The concept underlying costs is the concept of effort and results (efforts and accomplishment).

The comparison concept is used to find the basis of a significant relationship between income and costs. Revenue is the result that is the company's target, while the costs incurred to obtain this income are the efforts carried out by the company (Wicaksono et al., 2022).

Based on the main activity costs can be grouped into functions as follows:

1. Production Costs are the amount of expenditure in the production process to produce goods or services including raw materials, labor, operational costs, etc.
2. Marketing Costs (Marketing Expenses) are the amount spent on the marketing process to ensure that all products produced can be sold.
3. Administrative and General Expenses (General Administration Expenses), namely the amount of expenditure for managing production activities and other company activities. For example, employee salaries, office overhead, etc.

METHODOLOGY

This research uses a meta-analysis research method by objectively identifying, analyzing and interpreting existing research by describing and examining the parts of each study and the relationships between each study to obtain conclusions and in-depth understanding of the research studied.

This research identifies, analyzes and compares the results of previous research in 20 published journals related to the theme of the impact of implementing just in time on companies, in order to draw conclusions regarding the impact of implementing just in time.

RESEARCH RESULT

Based on the results of identification and meta-analysis from previous studies, it was found that the impact of implementing just in time is as follows:

1. Storage Cost Efficiency

Basically, transportation and storage costs are very dependent on quantity and area supply, the reduction in transportation costs of one unit of production goods is proportional to the vehicle capacity for transporting goods (Galkin et al., 2022).

Inventory control using the just-in-time method requires less storage costs compared to traditional methods (Oktarini & Agustiningrum, 2022), (Purnamasari et al., 2021).

The implementation of just in time can save storage costs by 50% at UD Sukri Dana Abadi (Hasanah & Pandin, 2021), 8.51% on UD. MASTURA Palu City (Rahayu et al., 2022), 30.76% in Dewi Arum Batik MSMEs (Sahara et al., 2022), at Much Dessert - Bandung reached 75% of granulated sugar raw materials, 83.1% of whipping cream raw materials, and 75% of milk raw materials during July - December 2020 (Susanti et al., 2021).

In addition to obtaining efficiency in raw material storage costs, implementing just in time can avoid production surpluses, because the production process is carried out in accordance with consumer demand which can determine precisely the needs of the final product, can eliminate defective products during production because they can be detected and processed quickly (Abu-Khalifa & Al-Okdeh, 2021).

The just in time method is the most cost-effective method when there is no lockdown or partial lockdown during the Covid-19 pandemic (Rehman et al., 2023).

As previous research has proven, just in time can be applied in all conditions, both during normal times and during the Covid-19 pandemic, which can save storage costs, both raw material storage costs and finished goods storage costs because raw materials are ordered according to needs for production. has been projected according to consumer needs.

2. Efficient Production Costs

According to Aprilianti et al. (2019) the implementation of just in time has a significant effect on production cost efficiency. The production cost efficiency of Isolating Cock that occurs at PT PINDAD (Persero) Bandung is 5% which can be seen in the comparison of production costs for one fruit of 60,000 which is smaller than the previous production costs due to a reduction in costs in carrying out production activities (Purnamasari et al.,

2021), at Toyota Boshoku the implementation of just in time has a significant effect on production cost efficiency (Ariesty et al., 2018).

Implementing just in time can reduce the risk of delays in the production process (Purnamasari et al., 2021) because the supplies needed will arrive exactly when they are needed, which will have an impact on the quality of the products produced (Oktaviani et al., 2022).

Previous research proves the basic concept of just in time which prioritizes timely processes and reduces waste that may occur in the production process, whether waste in terms of time, for example by inefficient material flow or transportation which can result in the production process being hampered or taking longer, aligned so that it is timely and efficient which has an impact on improving quality and reducing production costs.

3. Increase Company Profits

Inventory control using the just in time method can increase company profits (Abu-Khalifa & Al-Okdeh, 2021) because it reduces storage costs for production raw materials and project raw materials (Ariesty et al., 2018) which is usually found in traditional methods because it requires a storage warehouse (Oktarini & Agustiningrum, 2022).

During the Covid-19 pandemic, costs were reduced and profits increased (Oktaviani et al., 2022). The implementation of just in time can increase profits as shown by the value of the tax payable that must be paid by Batik Dewi Arum MSMEs increasing by 0.07% (Sahara et al., 2022), large logistics cost savings including 80% savings in external costs resulted in increased revenue, applying just in time to expensive products can result in logistics cost savings of more than 70% even over long distances.

The implementation of just in time in Nigerian manufacturing companies contributes positively to the company's financial performance and the company can obtain greater benefits and increase profits by 16.3% (Ganiyu et al., 2019).

Previous research proves the basic concept of just in time which prioritizes timely processes and reduces waste that may occur in the production process, whether waste in terms of time, for example by inefficient material flow or transportation which can result in the production process being hampered or taking longer to complete. aligned so that it is timely and efficient which has an impact on improving quality and reducing production costs.

4. Problems with Just In Time Implementation

a. Factors that must be considered when implementing just in time

The implementation of just in time in micro, small and medium enterprises does not all run as expected. Factors that influence the success of implementing just in time in micro, small and medium enterprises are: quality of suppliers, suitability of layout, accuracy of scheduling, employee competence, how much management is committed to quality, as well as inventory management, and efficient material flow (Sakti et al., 2023). Supplier failure to meet the quality

standards required by producers or delays in supply cause failure in the production process because in just-in-time inventory is very minimal and there may even be no raw material inventory in the warehouse. Warehouse and production areas that are not well designed will hamper the flow of materials and production processes, causing wasted time and waste. Improper setting of raw material delivery schedules can hamper the production process and can cause shortages or excess inventory. The implementation of just in time requires employees who have several skills so they can do several jobs with different roles according to customer orders.

b. There are greater costs due to demand uncertainty and product failure

Companies are burdened with higher costs for ordering raw materials (Kubasakova & Jagelcak, 2016) because purchases are made more frequently, especially for cheap products over long distances (Milewski, 2022) or there is a product that is damaged due to a failure in the production process, and the supplier cannot fulfill the raw materials in a short time so that it requires a longer lead time (Dewi et al., 2014), so it is necessary to maintain good cooperative relationships with suppliers so that raw material needs can be met properly (Rahayu et al., 2022).

c. Requires an adequate logistics system

According to Kubasakova et al. (2016) It is very difficult to implement a just in time system, so that the system runs effectively. The benefits of implementing just in time only emerged over a long time ago and require management of material availability, good materials, storage, raw material planning, visual management and information systems (Oktavia et al., 2015). Relationships with suppliers must be well established so that raw material needs can be met (Rahayu et al., 2022)

CONCLUSIONS AND RECOMMENDATIONS

From the results of the discussion on the implementation of just in time, the implementation of just in time is influenced by supplier quality, layout suitability, scheduling accuracy, employee competency, quality management, inventory management, efficient material flow, number and type of products, and distance between suppliers and producers.

If these factors can be managed well, the implementation of just in time will have a positive impact on the company, namely storage cost efficiency of up to 50%, production cost efficiency, time efficiency, improving product quality, and can increase company profits.

The application of just in time to control production materials by building strong relationships with suppliers so that the raw materials needed for production are provided on time, production can be carried out in the quantity and time required according to customer needs, allowing companies to reduce costs and focus on the quality of the final product so that maximize its profitability.

From the results of the discussion on the implementation of Just In Time (JIT), it can be concluded that the success of JIT implementation is heavily influenced by several factors. These factors include supplier quality, layout suitability, scheduling accuracy, employee competency, quality management, inventory management, efficient material flow, number and type of products, as well as the distance between suppliers and producers. If these factors are managed effectively, the implementation of JIT will yield positive impacts for the company, such as up to 50% storage cost efficiency, production cost efficiency, time savings, improved product quality, and increased company profits. Furthermore, the application of JIT enables better control over production materials by fostering strong relationships with suppliers, ensuring timely provision of raw materials for production aligned with customer needs, thereby reducing costs and emphasizing the quality of the final product to maximize the company's profitability.

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