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Original Article

Analysis of Production Planning and Raw Material Inventory Control Using the Just-in-Time Method

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Abstract

PT. Palma Indo Boga (Catering Service) is a company engaged in catering, particularly for important events or other occasions. PT. Palma Indo Boga (Catering Service) requires raw material supplies ordered from suppliers; however, it often faces production process issues due to insufficient raw material supplies with the desired quality, caused by uncertainty from suppliers, as well as fluctuating raw material prices due to seasons or other factors. The research aimed to identify how planning at PT. Palma Indo Boga is conducted using the just-in-time method and to understand how the control of raw material inventory at PT. Palma Indo Boga is managed using the Just in Time method. Based on the findings, it can be concluded that production planning at PT. Palma Indo Boga is carried out in writing so that the production department can more easily execute the production process if it is made in writing so that it can be seen directly, accurately, in detail, and according to schedule, then PT. Palma Indo Boga does not stock raw materials in large quantities, as this can lead to the accumulation of raw material inventory that may spoil the raw materials and increase storage costs. PT. Palma Indo Boga often experiences both excess and shortage of raw materials, so PT. Palma Indo Boga orders raw materials according to production needs. However, if there is an excess of raw materials, it can be used as reserve stock, and if there is a shortage of raw materials, the company will reorder.

Keywords: Catering Industry, Inventory Control, Just-in-Time, Production Planning, Raw Material Management.

1. Introduction

The catering business is one of the most profitable home-based businesses with high potential for expansion and growth. It is both financially rewarding and enjoyable. Serving events such as birthday parties, dinners, or wedding receptions provides new experiences and challenges with a new group of people. Demand for catering services has been steadily increasing over the years. The driving factors include the growing number of high-income households, rising marriage rates, and corporate events. Many companies utilise catering services for lunches and dinner meetings to build their brand image and boost sales. The revenue potential of the catering business depends on the size of the events served. Like any other business, catering requires good business management and organisational skills to succeed. The ability to maintain operational costs while maintaining high-quality service is also important (Iry & Rain, 2020; Ratnawati et al., 2022). Many people say that the profits in the catering business are the best in the food and beverage industry. However, in 2020, Indonesia was hit by the COVID-19 pandemic. The catering industry was severely affected by the pandemic, with many parties cancelling wedding catering orders.

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Irwan Iden Gobel, Chairman of the Indonesian Catering Service Providers Association (PPJI), admitted that the impact of the COVID-19 pandemic had caused catering business sales to plummet by 70%. As Indonesia began to be affected by COVID-19, the Indonesian government urged the public to work from home (WFH) and implemented policies and regulations prohibiting gatherings or crowds and requiring social distancing. These regulations led to a slowdown in business activities in certain areas and across most of Indonesia. From the labour sector to the industrial sector in Indonesia, the effects of COVID-19 have led many businesses or industries to reduce their operations, and in some cases, even cease them entirely (Ezizwita & Sukma, 2021). This has resulted in widespread layoffs or furloughs. Faced with this situation, workers have had no choice but to innovate to meet their daily needs, with some turning to business ventures as a form of innovation.

One of the businesses affected by the COVID-19 pandemic is the catering service industry. Due to the pandemic, gatherings are prohibited, especially events or ceremonies such as weddings, religious gatherings, or celebrations (Sugianti & Anwar, 2021). As a result, business owners in this sector have felt the impact significantly. Previously, they could receive orders twice a week or eight times a month, but since the pandemic began, orders have been limited and reduced to only two or three times a month. Moreover, with warnings or appeals from the government, event organisers are also restricted in the number of people they can invite to events or parties during the pandemic. Rifani (2015) said that catering businesses are the most popular businesses in the culinary field. At every opportunity and moment of an event, we often encounter a variety of delicious foods served by catering businesses.

The government has issued guidelines through the Decree of the Minister of Health of the Republic of Indonesia No. HK 01.07/MENKES/328/2020 dated 20 May 2020 on Guidelines for the Prevention and Control of Covid-19 in office and industrial workplaces to support business continuity during the Covid-19 pandemic. There are several measures that must be implemented by management and workers when establishing employees to return to work in the office, starting from leaving for work, arriving at the office, to returning home, they must comply with all health protocols. With the enactment of new policies and regulations, catering businesses have resumed production and catering business owners must be able to plan production and control raw materials properly. Production planning is the most important aspect of running a business in a company. Production planning is part of the company's strategic plan and is developed in sync with the business plan (business planning) and marketing plan (marketing planning) (Kotler & Keller, 2016). Production planning can be defined as the process of determining production volume, inventory levels, and workforce levels to meet fluctuating demand (Smith, 1989). In the business world, there is intense market competition, and companies must be able to properly plan the quantity of products to be produced to optimise profits by considering factors such as raw materials, labour, capital, and demand (Rasmussen, 2012).

PT. Palma Indo Boga (Catering Service) is a company engaged in catering, particularly for events or other important occasions. Inventory in a company is viewed as idle resources, yet its existence is unavoidable (Nasution & Prasetyawan, 2008), therefore it must be optimised. If the amount of inventory provided to meet consumer demand is too large, the purchase of raw materials will be wasted and can cause damage due to excessive storage and reduce the quality of the raw materials. However, if the inventory cannot meet consumer demand, there will be lost sales, resulting in a loss of profit opportunities for the company. Additionally, consumer confidence may decline if the raw materials used are of poor quality due to inadequate inventory planning. Inventory management in the catering industry is crucial for maintaining raw material quality by securing supplies of good quality to ensure the

continuity and smooth operation of the business. A common issue faced by catering companies is production process disruptions caused by insufficient raw material supplies for production.

PT. Palma Indo Boga (Catering Service) requires raw material supplies ordered from suppliers, but often faces production process issues due to insufficient raw material supplies of the desired quality, caused by supplier uncertainty, Additionally, raw material prices may fluctuate due to seasonal factors or other reasons, potentially disrupting production processes. Therefore, every company must have a production plan and optimally manage raw material inventory to ensure smooth production processes. Especially in the catering industry, timely preparation of orders for customers is crucial. Through optimal planning and inventory control, companies can meet customer needs on time and minimise inventory costs, thereby achieving their business objectives.

The following table 1 shows the purchase and use of raw materials in 2021 at PT. Palma Indo Boga (Catering Service).

Table 1. Purchase and Use of Raw Materials PT. Palma Indo Boga 2021

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	$\bar{x}$
Raw Material Purchases	980	1011	950	1015	800	890	1000	910	850	750	940	1120	934
Raw Material Usage	750	900	1005	920	710	930	950	850	830	710	1070	1010	886
Percentage	77%	89%	106%	90%	88%	104%	95%	93%	97%	94%	113%	90%	94%
Shortages and Surpluses	13%	11%	-6%	10%	12%	-4%	5%	7%	3%	6%	-13%	10%	6%

Based on Table 1, it can be seen that the purchase and use of raw materials are less than optimal. The raw materials in question include rice, spices, vegetables, and others, with shortages occurring in March, June, and November and surpluses occurring in January, February, April, May, July, August, September, October, and December. Table 1 shows that one of the factors affecting the smoothness of the production process at PT. Palma Indo Boga is the lack of optimal production planning. Production planning involves determining what products will be produced and in what quantities during a future period, and it is part of the operational planning within the company. Poorly planned raw material orders will result in increased inventory costs, necessitating production planning to ensure smooth production processes.

Another common issue at PT. Palma Indo Boga is the availability or unavailability of raw materials for processing in the production process (Table 1). If there is a shortage of raw materials, it will impact the company's production process, while an excess of raw materials will result in high storage costs. Previous research has also yielded positive results. According to Yamit (2003:288), there are three reasons why inventory control is necessary for companies: (1) uncertainty regarding suppliers, and (3) uncertainty regarding order lead times. Based on the aforementioned information, the purpose of this study is to determine how PT. Palma Indo Boga uses the just-in-time approach for planning and to comprehend how the just-in-time technique is used for raw material inventory control at PT. Palma Indo Boga.

2. Methods

In conducting research, planning and designing the research is necessary so that the research can be carried out properly and systematically. Research methods are scientific ways of obtaining data for specific purposes and benefits. This research uses a qualitative descriptive research model. Qualitative descriptive research is a research method that utilises

qualitative data and describes it descriptively. Qualitative research aims to obtain a complete picture of something according to the perspective of the people being studied (Arikunto, 2013)v. Qualitative research is related to the ideas, perceptions, opinions, or beliefs of the people being studied; all of which cannot be measured with numbers (Basuki, 2006). As stated by Narbuko and Achmadi (2018), 'descriptive research is research that seeks to describe the solutions to existing problems based on data.' Moleong (2007) also states that "research experienced by research subjects, such as behaviour and perceptions. Qualitative research seeks to understand phenomena holistically through descriptive words and language within a natural context using various methods.

In this study, the author conducted research at PT. Palma Indo Boga, located at Jl. Pam No. 3 RT 02 RW 03, Mekar Jaya Village, Serpong District, South Tangerang City, Banten 15310, over a period of three months, from January 2022 to March 2022. In conducting this research, the author used primary and secondary data sources and types. The primary data from this research were observations and in-depth interviews with the company's leader, Mr. Sarwoto, while the secondary data were obtained from documentation, books, scientific journals, letters, and notes related to the research.

3. Results and Discussion

3.1. Company Profile

3.1.1. Company history

PT. Palma Indo Boga is a catering company that serves catering needs for events such as weddings, birthdays, and other celebrations. The company was founded by Mr. Sarwoto on 6 March 2018. Initially, the company was established to support wedding catering needs, but over time, it began to expand its services to other events as well. PT Palma Indo Boga is located at Jl. Pam No.3 02/03 Mekar Jaya, Serpong District, South Tangerang City, Banten 15310.

3.1.2. Company Vision and Mission

PT. Palma Indo Boga is the best partner for the industry in providing reliable and trustworthy catering services. To be a company that can carry out mutually beneficial and trustworthy partnerships.

3.1.3. Company Structure

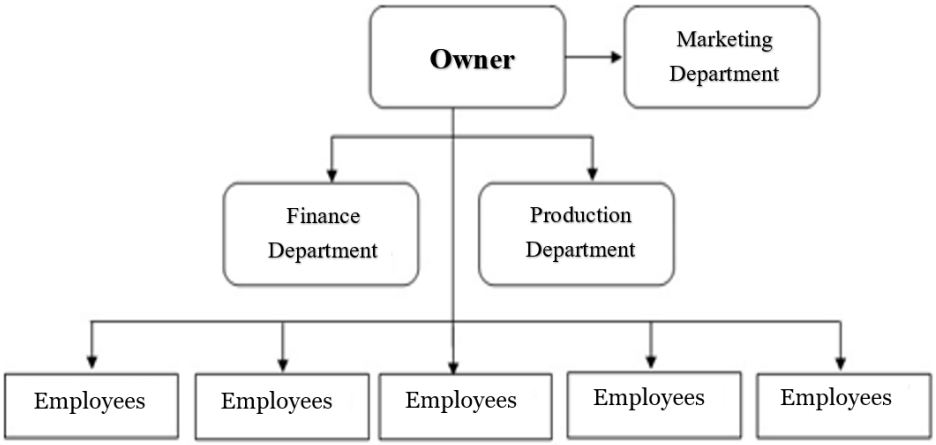

Figure 1. Company Organisational Structure Chart

3.2. Smooth Production

Smooth production is one of the most important goals for companies, especially those engaged in manufacturing. A production process can be considered smooth if there are no obstacles to the production process. This enables the production of products with the desired quality and quantity, as stated by Sofjan (2016), who notes that a production process can be considered smooth if it supports key production elements such as production planning, raw material inventory control, machine maintenance, quality control, and human resource management. At PT. Palma Indo Boga, production planning is crucial for production smoothness because if production planning is inadequate, the production process becomes disorganised, thereby hindering production smoothness. At PT. Palma Indo Boga, raw material inventory control is important for production smoothness because raw materials are one of the main factors in the production process of a company. If there is a shortage of raw materials, the production process may be halted, thereby hindering production smoothness.

Another factor that hinders smooth production is machine damage. Therefore, before production begins, the company must check its production machines because machines are tools for fast and accurate production compared to manual work. With machines, work can be done more easily and save energy, but machines are quite expensive and can reduce the empowerment of workers or human resources. The production process at PT. Palma Indo Boga is as follows:

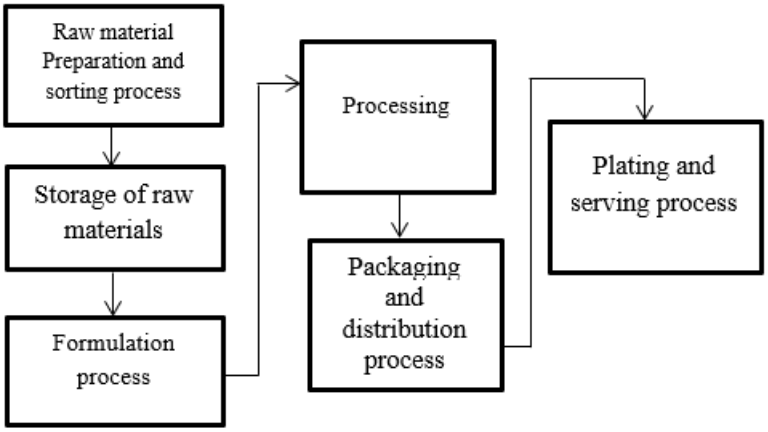

Figure 2. Production process at PT. Palma Indo Boga

3.3. Production planning

Production planning is important because it can prevent companies from producing goods at the wrong time, at the wrong price, and in excess or insufficient quantities upon completion. As stated by Gaspersz (2012), planning can meet the planned sales level and desired inventory. Production planning at PT. Palma Indo Boga is done in writing so that the production department can more easily carry out the production process if it is done in writing, making it directly visible, accurate, detailed, and on schedule. PT. GPS's production planning is determined by the number of orders from buyers using a Pre-Order (PO) system. Pre-order (PO) is a purchasing system carried out by sellers when goods are not yet available, so buyers must place an order in advance before the goods are produced. This makes it easier for companies to manage the quantity to be produced, but this system has the disadvantage of being less accurate because the amount of demand can change from consumers. PT. Palma Indo Boga determines consumer demand. PT. Palma Indo Boga's production capacity can reach 500 portions.

3.4. Raw Material Control

Raw material inventory control is crucial for smooth production, as raw materials are one of the primary factors in the production process of a company. As stated by Sofjan (2016), raw material inventory control is the activity of determining the quantity or quality of raw materials and finished products so that the company can protect the smoothness of production effectively and efficiently. Therefore, raw material inventory control is necessary to avoid hindering the production process. The raw materials used by PT. Palma Indo Boga to produce food and beverages amount to more than 30 types of materials. Raw materials used to produce food include rice, spices, oil, meat, eggs, and so on.

Raw materials are categorised based on storage location: raw materials in refrigerators, raw materials in freezers, raw materials at room temperature, raw materials in coolers (for items like vegetables and fruits), raw materials in freezers (for items like meat), and raw materials in warehouses (which are dry and can be stored at room temperature). The following is a table of raw materials based on storage location for food production at PT. Palma Indo Boga.

Table 2. Raw materials based on storage location for food production

Refrigerator	Fruit	Vegetables	Milk	
Freezer	Meat	Frozen food		
Warehouse	Rice	Flour	Oil	Spices

PT. Palma Indo Boga currently has several suppliers. Suppliers are parties that sell or supply raw materials to manufacturers or companies to be made into products. An important consideration in selecting raw materials is their quality, so companies must be able to find suppliers that meet company standards. The transportation of raw materials from suppliers is carried out via land transport using closed trucks or containers, as raw materials can be damaged and become contaminated if exposed to dust, sunlight, or rainwater.

Raw material orders are placed according to the company's production needs to avoid excessive inventory. If there is a shortage of raw materials during production at PT. Palma Indo Boga, the company reorders the raw materials. This ordering method is known as Just-in-Time (JIT), which is a concept where raw materials used for production activities are sourced from suppliers precisely when they are needed by the production department, thereby saving or even eliminating inventory costs and storage costs in the warehouse. As stated by Subagyo (2000), Just-in-Time (JIT) or the just-in-time production system is a production method that determines quantities based solely on the actual number of items to be sold or required, produced at each stage precisely according to demand. Similarly, PT. Palma Indo Boga's purchase and ordering of production inputs can amount to 100-200 kg of raw materials in a single order. The delivery of raw materials at PT. Palma Indo Boga uses land transportation, namely trucks, because the distance between the production site and the supplier is not too far and does not require crossing an island, so land transportation is the most appropriate option. Sea transport is used to transport large quantities of raw materials, typically when a company orders raw materials over significant distances that involve crossing islands. Air transportation is used when a company ships raw materials over long distances and wants them to arrive faster, but the shipping costs are more expensive than land and sea transportation. Problems that arise in the delivery of raw materials are usually damaged materials due to shaking in the truck, causing the raw materials to bump into each other, and another problem is the lack of raw materials due to the calculation of the amount of raw materials ordered being less than optimal.

Figure 3. Storage sequence to production

PT. Palma Indo Boga does not keep large quantities of raw materials in stock, as this can lead to a build-up of raw materials, which can damage the raw materials and increase storage costs. PT. Palma Indo Boga often experiences excess and shortages of raw materials, so PT. Palma Indo Boga orders raw materials according to production needs, but if there is an excess of raw materials, it can be used as a reserve supply, and if there is a shortage of raw materials, the company will order raw materials again. Raw material reserves can help save time and costs in the event of a shortage of raw materials during production. The raw material that is often overstocked is cardboard, as it is the primary raw material used in packaging production. Air temperature is a critical factor in maintaining raw material quality, so the company stores materials in areas protected from sunlight and water. To manage raw material inventory, PT. Palma Indo Boga conducts monitoring, also known as surveillance.

4. Conclusion

Based on the research that has been conducted, it can be concluded that production planning at PT. Palma Indo Boga is carried out in writing so that the production department will find it easier to carry out the production process if it is done in writing so that it can be seen directly, accurately, in detail, and according to schedule. Furthermore, PT. Palma Indo Boga does not maintain large inventories of raw materials, as this can lead to an accumulation of raw materials, which may damage the materials and increase storage costs. PT. Palma Indo Boga often experiences excess and shortages of raw materials, so PT. Palma Indo Boga orders raw materials according to production needs, but if there is an excess of raw materials, it can be used as a reserve supply, and if there is a shortage of raw materials, the company will order raw materials again. Raw material reserves can help save time and costs in the event of a shortage of raw materials during production.

This study imply that effective production planning and proper raw material management are crucial for the smooth operation and cost-effectiveness of catering services. The results of this study could be used as a valuable resource for other companies looking to improve their inventory management and uphold service standards.

The scope of this study is confined to examining the operations of PT. Palma Indo Boga, which may hinder the applicability of the results to other companies in the catering industry. Furthermore, the investigation mainly utilizes descriptive information and lacks the inclusion of quantitative metrics to gain a better understanding of operational efficiency and cost factors.

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