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ỨNG DỤNG CHIẾN LƯỢC JUST IN TIME TRONG QUẢN LÝ CHUỖI CUNG ỨNG: NGHIÊN CỨU VỀ MCDONALD'S

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Tóm tắt

Nghiên cứu này nghiên cứu về việc triển khai và ảnh hưởng của mô hình Just-In-Time (JIT) trong quản lý chuỗi cung ứng, tập trung cụ thể vào việc áp dụng JIT trong ngành công nghiệp thức ăn nhanh, thể hiện qua chiến lược của McDonald's. Nghiên cứu đào sâu vào cơ sở lý thuyết của JIT, xem xét các nguyên tắc và phương pháp của nó, và sau đó nghiên cứu cách McDonald's, với tư cách là người đi đầu toàn cầu trong lĩnh vực thức ăn nhanh, áp dụng và điều chỉnh mô hình JIT để tăng cường hiệu suất của chuỗi cung ứng của mình. Nghiên cứu này phân tích các khía cạnh khác nhau của chuỗi cung ứng của McDonald's, như quản lý hàng tồn kho, quy trình sản xuất và mối quan hệ với nhà cung cấp, đồng thời làm sáng tỏ những thách thức và lợi ích từ việc triển khai JIT. Mục đích của nghiên cứu là thông qua việc nghiên cứu về phương pháp của McDonald's để rút ra được các kinh nghiệm để áp dụng thành công các nguyên tắc JIT trong quản lý chuỗi cung ứng, đồng thời đề xuất những bài học và khuyến nghị cho Việt Nam trong các ngành công nghiệp đa dạng đang tìm kiếm cách thức tối ưu hóa quy trình hoạt động.

Từ khoá: just in time, McDonald's, Việt Nam, quản lý chuỗi cung ứng

THE APPLICATION OF JUST IN TIME MODEL IN SUPPLY CHAIN MANAGEMENT: A CASE STUDY OF MCDONALD'S

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Abstract

This research explores the implementation and impact of the Just-In-Time (JIT) model in the context of supply chain management, with a specific focus on its application within the renowned fast-food industry, exemplified by McDonald's. The study delves into the theoretical foundations of JIT, examining its principles and methodologies, and subsequently investigates how McDonald's, as a global leader in the fast-food sector, has embraced and adapted the JIT model to enhance its supply chain efficiency. The case study analyzes various aspects of McDonald's supply chain, such as inventory management, production processes, and supplier relationships, shedding light on the challenges faced and the benefits accrued from JIT implementation. Through an in-depth examination of McDonald's practices, this research aims to contribute valuable insights to the broader discourse on the successful application of JIT principles in supply chain management, offering lessons and recommendations for Vietnamese industries seeking to optimize their operational processes.

Keywords: just in time, McDonald's, Vietnam, supply chain management

1. Introduction

Supply chain management (SCM) involves strategically managing material, information, and service flows from source to customer to optimize performance. The just-in-time (JIT) model, a pivotal SCM strategy, aligns raw-material orders directly with production schedules to eliminate waste and enhance efficiency. JIT faces challenges, requiring precise demand forecasting, reliable suppliers, and adaptable production systems, with varying effectiveness across industries.

The fast-food industry, characterized by high demand, low product differentiation, and short product life cycles, exemplifies successful JIT adoption, with McDonald's as a notable case. McDonald's, with a complex global supply chain, leverages long-term supplier relationships, technology, and data analytics for JIT implementation. Despite achieving cost reduction, product quality improvement, and operational efficiency, challenges persist, including regional demand variations and sustainability concerns.

This paper analyzes the application of the JIT model in McDonald's supply chain management, evaluating its merits and limitations. Additionally, it offers recommendations for the Vietnam food industry, a potential market for the fast-food sector. The subsequent sections present the theoretical framework, the case study of McDonald's JIT implementation, the evaluation of its JIT model, and recommendations for the Vietnam food industry, concluding with directions for future research.

2. Theoretical framework

2.1. Definition of JIT model

The Just-In-Time (JIT) model, introduced by Taiichi Ohno at Toyota in the early 1970s, represents a profound shift in production thinking. "It is a management strategy that aligns raw-material orders from suppliers directly with production schedules. Companies employ this

inventory strategy to increase efficiency and decrease waste by receiving goods only as they need them for the production process, which reduces inventory costs." (Investopedia, 2024)

JIT has been described in various terms – as a technique, a new production perspective, a method, a thought, a philosophy, or even a strategy. However, the common thread is the recognition of incomplete understanding. JIT encompasses all organizational units, transcending the management of goods and materials, aiming to eradicate inefficiencies and prevent material waste in every activity.

At its core, JIT seeks more than zero inventory; it strives for continuous quality and increased productivity by eliminating inefficient and unsafe production elements. Emphasizing timely receipt of goods during production, JIT reduces waste and enhances efficiency. Successful JIT adoption requires factors like upper-level management support, addressing core production issues, employee participation, and implementing efficient production flow and inventory systems simultaneously. JIT aims to provide swift customer service while minimizing inventory, anchored in waste elimination through simplified processes, reduced preparation time, controlled material flow, and preventive maintenance to optimize stock utilization and minimize excess inventories.

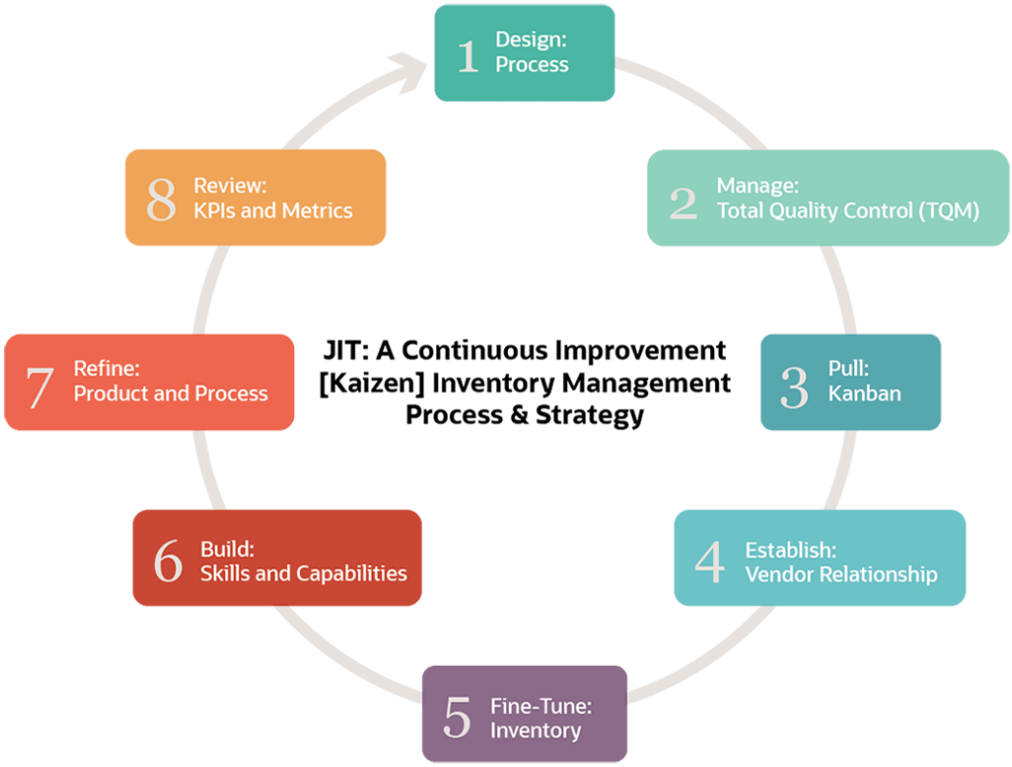


Figure 1: The Just-In-Time (JIT) model

Source: NetSuite

The continuous improvement cycle for JIT Inventory involves initiating the process by evaluating key manufacturing elements and formulating strategic plans for waste reduction and flexibility. Management oversight ensures continuous improvement, defining worker roles and implementing quality control. The pull phase involves educating the team on efficient production methods and reducing lot sizes. Establishing robust vendor relationships, fine-tuning inventory controls, and building team skills are crucial steps. The process is refined by streamlining production steps and reducing parts. A comprehensive review emphasizes quality measures, root cause analyses, and ongoing tracking to enhance all aspects of JIT.

2.2. JIT's role in supply chain management

JIT significantly influences supply chain management by emphasizing efficiency, cost reduction, and heightened responsiveness. It promotes a lean inventory system, minimizing holding costs and synchronizing production with real-time demand to enhance agility. JIT encourages strong collaboration with suppliers, fostering seamless material flow and reducing the risk of disruptions.

Quality control is paramount within JIT, driven by the commitment to producing goods in response to actual demand. The model also targets waste reduction across the supply chain, optimizing processes and minimizing inefficiencies. With its adaptive nature, JIT enables quick responses to changes in customer demand, contributing to enhanced customer satisfaction.

2.3. Application of JIT model in supply chain management

The application of the JIT model in supply chain management is a comprehensive approach that transforms various aspects of the production and distribution process to enhance efficiency, minimize waste, and improve overall responsiveness.

2.3.1 JIT Implementation in Demand Forecasting

JIT revolutionizes demand forecasting by prioritizing real-time data and customer feedback over traditional approaches reliant on historical data. Businesses adopting JIT respond dynamically to actual demand signals, ensuring that production closely aligns with market needs. For example, a forward-thinking fashion retailer employing JIT continually monitors real-time sales data and customer preferences, allowing swift adjustments to production plans. This responsive approach minimizes overproduction risks, optimizes inventory levels, and enhances overall supply chain efficiency.

2.3.2. JIT Implementation in Purchasing Management

JIT implementation involves close collaboration with suppliers and a focus on just-in-time delivery of raw materials. By maintaining strong relationships with suppliers, organizations can ensure the timely arrival of materials as needed for production. This approach minimizes the need for large inventories and fosters a more efficient and cost-effective supply chain. For instance, an automobile manufacturer, through JIT principles, collaborates closely with suppliers for timely component delivery, minimizing raw material inventories. This streamlined approach reduces

costs, enhances agility for rapid responses to customer demands, showcasing how JIT transforms supplier relationships for overall supply chain efficiency.

2.3.3. JIT Implementation in Inventory Management

Instead of maintaining large stockpiles of goods, JIT encourages businesses to keep minimal inventory levels. This approach helps reduce carrying costs, minimize the risk of obsolescence, and ensures that products are produced or restocked only when there is a genuine demand. Real-time communication and synchronization between different stages of the supply chain are crucial components of successful JIT inventory management.

2.3.4. JIT Implementation in Warehousing and Distribution

Warehouses, under JIT principles, transform into integral components of a lean supply chain, prioritizing swift and efficient order fulfillment. The core focus lies in reducing excess stock within warehouses, thereby lowering holding costs and creating a more responsive distribution process. Embracing JIT principles prompts a shift towards efficient logistics and timely deliveries, aligning perfectly with the primary objective of meeting customer demand with precision. This approach not only improves overall supply chain efficiency but also ensures that resources are utilized optimally to meet the dynamic demands of the market.

2.3.5. JIT Implementation in food industry

JIT implementation in the food industry focuses on optimizing production, inventory management, and overall operational efficiency. This tailored approach emphasizes strong supplier relationships to ensure the timely delivery of fresh ingredients, reducing waste and holding costs. JIT principles in the food sector prioritize freshness and shelf life, guiding inventory control for perishable goods. Accurate demand forecasting, incorporating real-time data analysis, helps align production precisely with consumer needs, minimizing excess inventory and food waste. Efficient production processes, including reduced setup times and lean manufacturing, enhance responsiveness to consumer demands while maintaining product quality. JIT in the food industry also places emphasis on traceability and compliance, ensuring adherence to rigorous food safety regulations. This comprehensive strategy aims to create a more agile and competitive supply chain, enabling food manufacturers to deliver fresh, high-quality products efficiently.

3. The application of JIT model in supply chain management: A case study of McDonald's

3.1. Overview of McDonald's

3.1.1. The history development of McDonald's

McDonald's Corporation is a famous multinational fast food outlet based in America. Established in 1940 by the McDonald brothers, it had a relatively humble start as a small operating drive-in restaurant at San Bernardino, California with car hop service and a diverse menu of burger, soft drinks, milk, coffee, and potato chips. The success period of McDonald's only started until 1954 when a multimixer salesman named Ray Kroc visited the store and was fascinated by its operation. After knowing that the brothers were aiming at expanding their business all over the

nation, Ray Kroc decided himself to be their first franchise agent, and as a result, in 1955, the first McDonald's in Illinois, USA was open with the iconic Golden Arches blending with the red and white tiled building. After a decade of adjusting menus and expanding the market, McDonald's started to enter international markets with Canada and Puerto Rico as the first destinations and even until today, the growth of this brand has never ceased.

After more than 80 years of failing, adapting, and thriving, McDonald's restaurants now appear in more than 100 nations. With regards to the number of restaurant locations, McDonald's tops the list with 40,100 stores in total in 2021 (Statistics & Data, 2021). Likewise, McDonald's holds the first place with $48,734 million of US systemwide sales, doubling that of second-rank company, which is Starbucks (QSR, 2022).

Ranking	Name	Number of locations	Chart Location	Company
1	McDonald's	40,100		United States
2	Subway	36,800		United States
3	Starbucks	33,833		United States
4	KFC	25,000		United States
5	Burger King	19,247		United States
6	Domino's	18,848		United States
7	Pizza Hut	17,639		United States
8	Dunkin'	11,300		United States
9	Hunt Brothers Pizza	8,000		United States
10	Taco Bell	7,791		United States

1 / 11

Figure 2: The biggest fast food chains worldwide depending on the number of locations in 2021

Source: Statistics and Data

3.1.2. The business model and growth strategy of McDonald's

Business model

McDonald's operations largely depend on its huge number of franchisees. Ray Kroc, founder of McDonald's once asserted that "Donald's can't be successful unless our franchisees are successful." This statement is actually true because more than half of McDonald's revenue in 2022 comes from franchised restaurants, and the number of franchised restaurants is surging over the years, now nearly 20 times as much as that of company-owned stores (FourWeekMBA, 2022). This feature of franchising is believed to support hugely in the management of supply chain which allows the brand to capitalize on both the branding value of franchisors and the knowledge of franchisees in specific regions so that the channel resources can be greatly utilized for expanding business and increasing market share (Chen et al., 2018). In simpler words, franchised models can help the brand to cooperate with its franchisees in various supply chain activities, such as

forecasting a more accurate customer demand, minimizing the inventory, and delivering a huge amount of food to a larger number of customers.

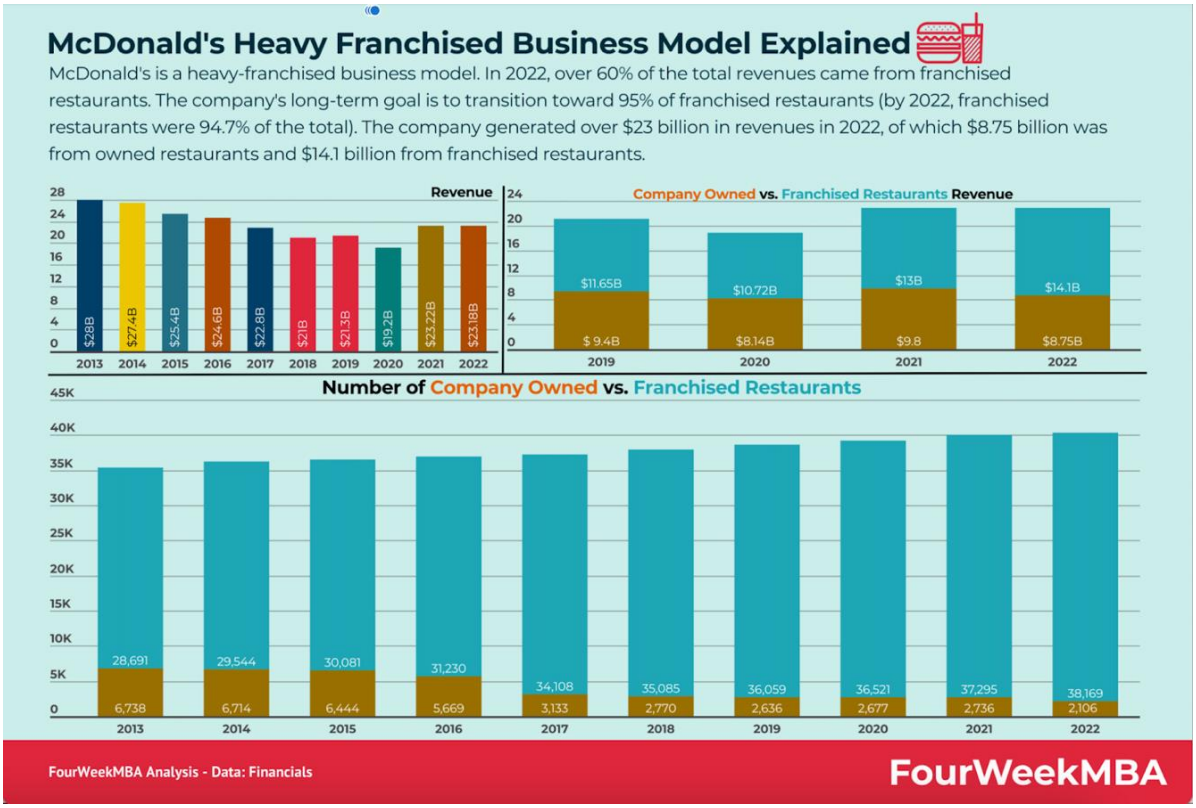


Figure 3: McDonald's Heavy Franchised Business Model

Source: FourWeekMBA

Growth strategy

McDonald's growth strategy is also of significant consideration, with the primary focus on customers, as the corporation believes that being able to satisfy customer's needs is synonymous with creating value for all other stakeholders. Its strategy is; therefore, summarized in three words: retain, regain, and convert. Specifically, "retain" means making every endeavor to keep the current customers, "regain" means improving food quality, boosting convenience, and fostering strong values in order to win the heart of the lost customers again, and "convert" means making the regular customers more committed to the brand with added choices of food and beverages. With this strategy that places heavy emphasis on customers, it is highly imperative for the brands to concentrate on enhancing its supply chain management since the ultimate goal of this management is to fulfill customers' requests.

3.2. JIT implementation in McDonald's supply chain

One of the key factors that drive McDonald's's success is its effective supply chain management that allows the corporation to operate in more than 100 countries and serve millions of customers every day. With the tactics of promoting a strong relationship with suppliers through the three-leg stool strategy where the success of one stakeholder is heavily contingent on the others

and the vertical integration which allows McDonald's to take strict control of the ingredients and distribution channels, the JIT model that this fast-food outlet is implementing is considerably reinforced.

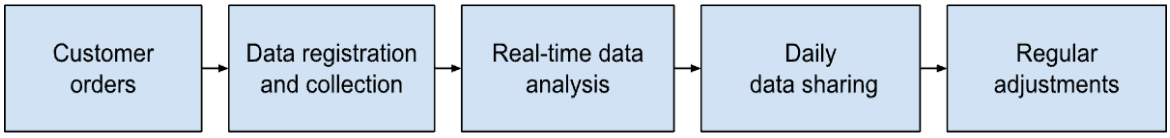
3.2.1. Reasons why McDonald chooses to follow JIT method

According to Claire Babrowski (2001), who was executive vice president of World-Wide Restaurant Systems, prior to implementing Just-In-Time (JIT), McDonald's employed a pull approach, which was forecasting customer demand based on past experience and preparing all food items in advance. Even though this strategy had formed McDonald's success for the first forty years of operation, in the 1980s, changes in consumer preferences and eating patterns, which was spanning all the day instead of at specific business hours, rendered the previous structure outdated.

In response to these difficulties, McDonald's introduced the JIT process with the "Made For You" kitchen where sandwiches are made only after customers place their orders. This reduced waste and guaranteed ingredient freshness. Also, modern technological innovations like toasters with fast toasting speeds and universal holding cabinets reinforced the effectiveness of this new strategy, said Bob Marshall (2001), Assistant Vice President of US operations in McDonald at that time.

3.2.2. JIT implementation of McDonald's in demand forecasting

Unlike conventional demand forecasting technique which utilizes historical data as an indicator to future demand of customers, McDonald's JIT system adopts real-time data combined with state-of-the-art technology to monitor the behaviors of its customers on a regular basis, forecast their demands with the ultimate goal of making timely adjustments to the real-time situation to satisfy current demand (Nuha, 2023). This activity includes: predicting customer traffic, predicting customer preferences and adjusting to the background information and in general, illustrated as below:



Source: Self-compiled

Predicting customer traffic

This application has been used by McDonald's since its very first day of JIT method. As soon as the orders are registered into the computer system at the kiosks, either via digital screening or via staff, customer data is collected (Bob Marshal, 2001). Then, it is the computer system's task to analyze daily customer traffic by counting the number of orders at each hour and determining when the peak time normally is during a day, the information of which is then delivered to restaurants and distribution points every day to ensure the updated data.

This fosters a better preparation for inventory so that it can serve the most correct number of customers at each hour without an undesirably excessive shortage of supplies or waste of food. Simultaneously, that helps McDonald's to control staff numbers at certain times of the day to steer

clear of the scenario that there may be too many employees at low hours, which causes an unnecessarily redundant labors, while during peak hours, a shortage may occur, leading to a failure in delivering food quickly and satisfying customers.

Predicting customer preferences

With a similar mechanism, the data of customer tastes and preferences during a day is also meticulously scrutinized. The computer system would detect which items in the menu are most chosen by customers during the real time and then the outlets would make suitable changes to their menu to fit in with what the customers are desiring for. For instance, if during one day, Chicken Nuggets, which may be normally the most favorite and chosen options, suddenly drops in the demand recently, then McDonald's would consider removing that from the menu temporarily and offering more potentially preferred options.

In recent years, this application has further been promoted by McDonald's introduction of digital menus which are operated by AI machine learning technique, showing the most currently popular choices on the screen. This piece of information, more noticeably, is updated throughout the day as the customer data is increasingly registered. Even though it is more relevant to enhancing customer experience in ordering rather than demand forecasting, it is still a good implication of McDonald's wonderful focus on understanding customers' behavior and demand predicting system.

Adjusting to the background information

One more significant feature of the new digital menu board is it can change the options available based on the weather data that it has. For example, during freezing days, there would appear options of comfort, warm and hot food and drinks which, via customer data, are shown to be popular in that type of weather pattern, whereas during hot weather, some other items such as refreshing beverages appear more on the screen. (Bernard, 2018).

3.2.3. JIT implementation of McDonald in purchasing management

McDonald's employs the JIT method in its purchasing management by establishing long-term partnerships, maintaining strict quality control of raw materials, and reducing lead times.

Fostering long-lasting relationships with suppliers

McDonald's has actively cultivated strong partnerships with its suppliers throughout the years. For instance, The Martin-Brower Company, initially a provider of paper napkins to McDonald's Des Plaines, Illinois branch in 1956, has evolved into one of the company's primary distributors, supplying goods to nearly all 15,000 McDonald's establishments across North America (Emilia Ashton, 2022). And this approach helps nurture a sense of mutual trust and ensure reliable supply chains, as both parties possess a deep understanding of and fulfill each other's requirements. In addition, McDonald's enforces stringent quality standards for its suppliers, ensuring that ingredients and raw materials meet the prescribed quality criteria. Suppliers are also required to conduct audits on their own providers of ingredients and raw materials, making sure that these

upstream producers also adhere to the company's rigorous standards for food safety and quality (Sarah Fister Gale, 2006).

Strict quality control

McDonald's keeps a strict policy of quality control for all of their raw materials and ingredients. To be more specific, according to the information provided on the McDonald's website, the vegetables are frequently checked for freshness, for levels of bacteria and only treated with a moderate amount of pesticides. As for livestock, the farms are maintained with meticulous attention to cleanliness, adequate lighting, proper ventilation, and controlled temperature. All tasks, from raising the animals to their transportation, are exclusively performed by trained personnel. This quality-focused approach is essential to provide a uniform and standardized product at every location.

Reducing lead time

McDonald's uses the Just-In-Time (JIT) technique to decrease delays in its supply chain (Vanessa Nicole Setiawan, 2023). This involves minimizing interruptions and facilitating a seamless and efficient flow of supplies directly from suppliers to individual restaurants, thereby reducing the reliance on extensive warehousing. McDonald's can minimize excess inventory waste by acquiring fresh ingredients precisely when needed for production. This aligns with the Just-In-Time (JIT) principle, emphasizing the production of only what is necessary, precisely when it is needed.

3.2.4. JIT implementation of McDonald's in inventory management

With the JIT system, the McDonald's inventory management strives to maintain low inventory levels while guaranteeing a seamless and effective production process.

Minimizing inventory levels

McDonald's follows a systematic approach to receive daily shipments of fresh items and ingredients. They place a strong emphasis on the freshness of their products. And so many of the ingredients used in McDonald's food, like fresh produce and meat, expire quickly. But by using the JIT system, McDonald's can minimize the storage time of these perishable items, ensuring that they are used before their expiration date. And this strategy also helps minimize holding costs and the potential for product obsolescence, as it enables the company to keep low inventory levels at each of its locations (DFREIGHT, 2023).

Demand-driven production

McDonald's uses a Point-of-Sale (POS) system to gather real-time sales data from each restaurant. This visibility is essential for managing inventory levels efficiently. Using real-time sales data to grasp existing demand trends, the company has managed to achieve efficient adjustments to production schedules and inventory management, as well as manufacture items in response to actual customer demand rather than relying on predictions (Maverick, 2023). Furthermore, it grants them the capability to modify their orders in response to shifting demand.

This adaptability is crucial for accommodating changes in customer preferences and preventing the accumulation of excess inventory.

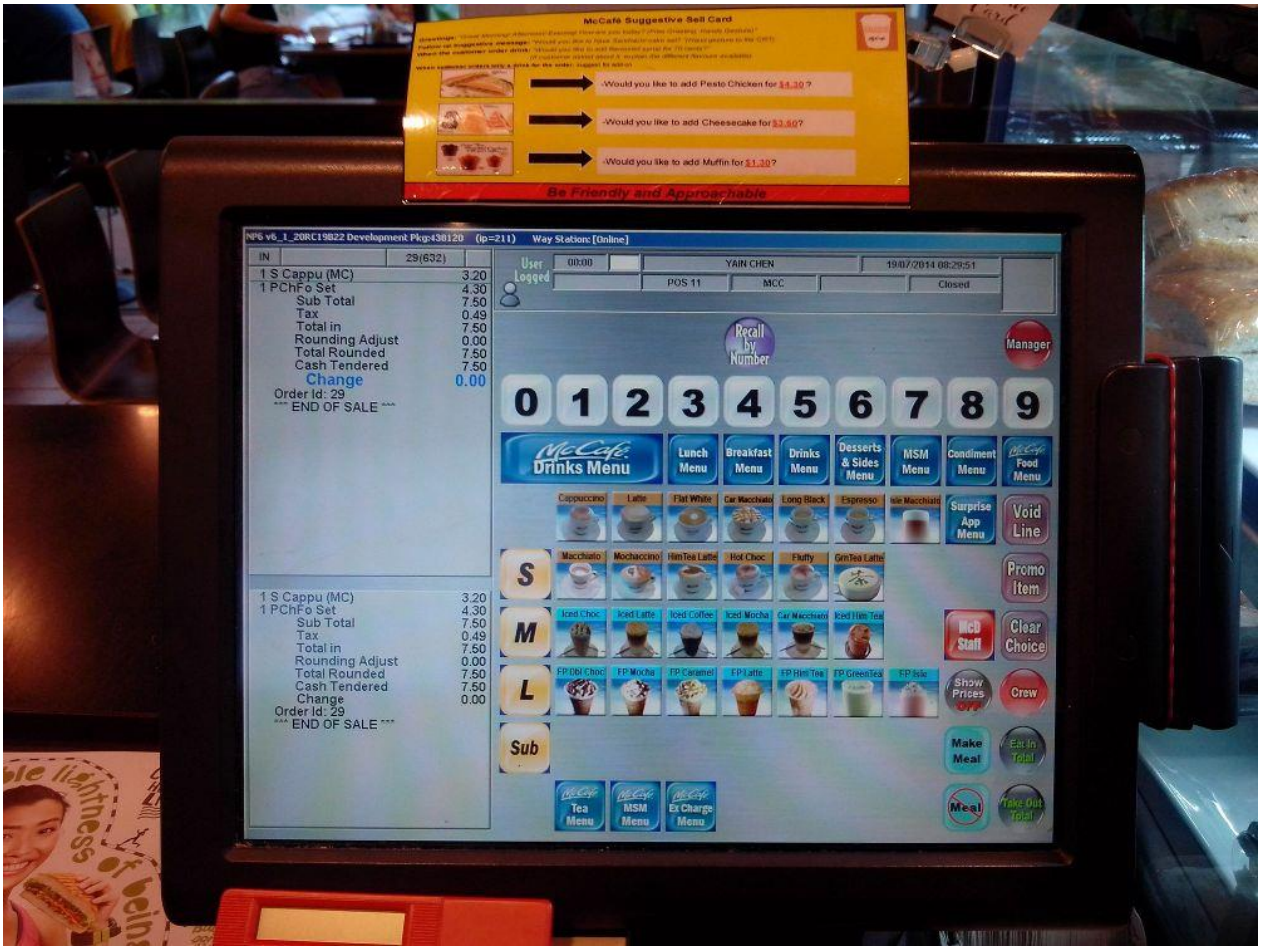


Image 1: McDonald's Point-of-Sale System

Source: Glassdoor

3.2.5. JIT implementation of McDonald's in warehousing and distribution

McDonald's warehousing and distribution in its JIT system emphasize direct delivery, centralized coordination, and efficient distribution networks.

Direct delivery to restaurants

McDonald's Just-In-Time (JIT) system typically eliminates the necessity for large central warehouses. Instead, products are directly delivered from suppliers to individual restaurants (Vanessa Nicole Setiawan, 2023). This approach reduces lead times and lowers transportation costs that would be associated with centralized distribution centers. Also, direct delivery plays a crucial role in preserving the freshness of ingredients, as they arrive at restaurants shortly before they are required for production. This is especially significant for perishable items, aligning with McDonald's commitment to serving fresh food.

Efficient distribution network

McDonald's aims to optimize delivery routes, ensuring both timely and cost-effective transportation. This strategy not only minimizes transportation costs but also contributes to a reduction in the environmental impact associated with the transportation process (DFREIGHT, 2023). The incorporation of technology in distribution enables real-time tracking of deliveries. This visibility is essential for closely monitoring the movement of goods and promptly addressing any potential issues that may arise during transportation.

Centralized coordination

While individual restaurants may have some autonomy in managing orders based on local demand, the overall coordination of McDonald's is often centralized. This centralized approach enables efficient planning, seamless coordination with suppliers, and optimal scheduling for distribution. Through centralized coordination, McDonald's can leverage demand forecasting data to anticipate the specific needs of individual restaurants. This facilitates the optimization of distribution schedules, ensuring that each location receives the appropriate quantity of products.

4. Evaluation of the application of McDonald's JIT model and recommendation for Vietnam food industry

4.1. The benefits of McDonald's JIT model

Cost Reduction

Inventory Costs: At McDonald's, the JIT model minimizes inventory holding costs by precisely ordering and utilizing raw materials only when needed. This reduction in excess inventory aligns with McDonald's commitment to efficiency, resulting in lower storage costs and less wastage of perishable items, ultimately contributing to overall cost reduction.

Labor Efficiency: McDonald's employs the JIT system to optimize labor efficiency, aligning staffing levels with real-time customer demand. This ensures that staff members are engaged in production activities based on incoming orders, reducing idle time and enhancing overall labor productivity within McDonald's outlets.

Efficiency in Production and Operations

Order Processing and Customer Satisfaction: JIT's application at McDonald's focuses on preparing meals only upon customer orders, streamlining the order processing system. This not only reduces lead time in serving customers but also guarantees that food items are freshly made, crucial for higher customer satisfaction and loyalty specific to McDonald's standards.

Quality Control: The JIT model at McDonald's minimizes the time between production and consumption, ensuring consistent product quality. This emphasis on freshness and quality aligns with McDonald's dedication to meeting customer expectations and maintaining the taste standards unique to McDonald's iconic menu.

Revenue Growth

Financial Performance: Since the implementation of the JIT model in the late 1990s, McDonald's has consistently experienced steady revenue growth, with only a slight decline in 2020 and 2021 attributed to the impact of the COVID-19 pandemic. McDonald's reported a revenue of $25.01 billion as of September 30, 2023, with a year-over-year growth of 7.52%. The JIT model likely played a pivotal role in achieving operational efficiency, timely production, and meeting customer demands, contributing to the overall positive financial performance.

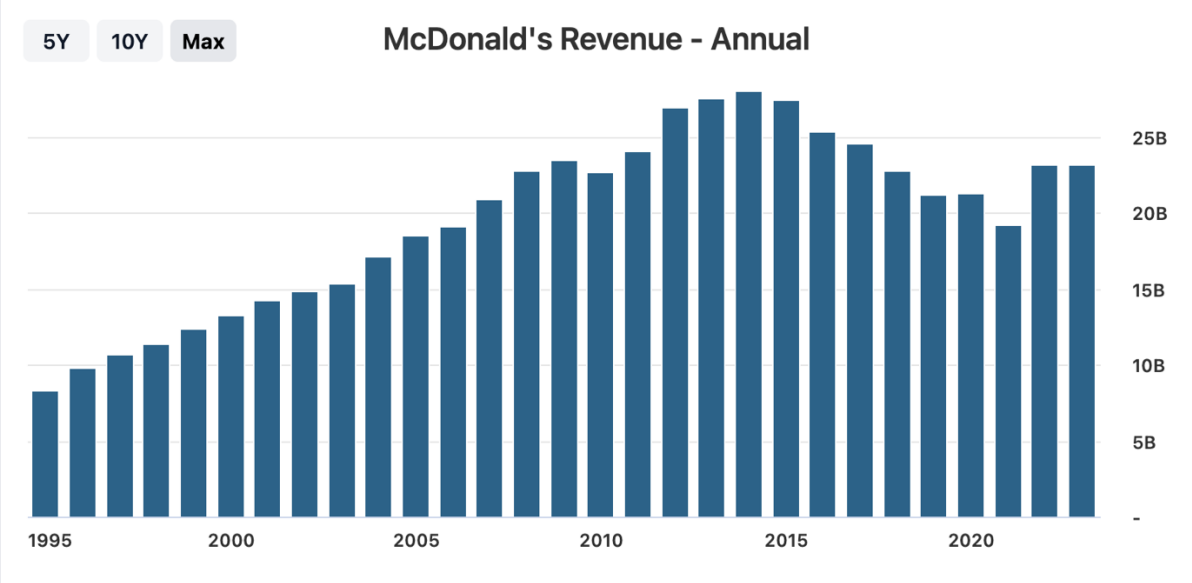


Figure 4: McDonald's Annual Revenue

Source: StockAnalysis

4.2. The drawbacks of McDonald's JIT model

Supply Chain Vulnerability

Dependency on Suppliers: McDonald's, dependent on a JIT system, relies heavily on timely deliveries from suppliers. Any disruptions in the supply chain, such as transportation delays or unforeseen events, can lead to production delays and potential stockouts, posing challenges to the seamless operations of McDonald's outlets.

Risk of Stockouts: While minimizing inventory is a key JIT principle at McDonald's, maintaining minimal levels can leave little buffer for unexpected increases in demand. If not managed carefully, this could result in stockouts, negatively impacting customer satisfaction and sales specifically within McDonald's fast-paced service environment.

Limited Flexibility and Adaptability

Market Fluctuations: McDonald's JIT systems may face challenges adapting to sudden changes in market demand or supply chain dynamics. The model's rigidity can limit the ability to respond quickly to unforeseen events, potentially impacting production schedules and the adaptable nature required for McDonald's dynamic menu offerings.

Last-Minute Changes: While JIT accommodates last-minute changes to orders at McDonald's, sudden fluctuations may strain the system. Precision is required to maintain the delicate balance between supply and demand, a crucial aspect of McDonald's ability to swiftly adjust to customer preferences.

Risk of Stockouts and Customer Dissatisfaction

Inventory Levels: Maintaining minimal inventory levels increases the risk of stockouts during unexpected surges in demand or supply chain disruptions at McDonald's. The fast-food giant may face challenges meeting customer expectations in terms of product availability, potentially affecting customer satisfaction specific to McDonald's offerings.

Customer Perception: Stockouts and delays in order fulfillment can lead to customer dissatisfaction and negatively impact the McDonald's brand image. In the highly competitive fast-food industry, managing customer perceptions is crucial for McDonald's to uphold its positive brand reputation and distinguish itself in the market.

4.3 Recommendation for Vietnam food industry

4.3.1 Background of supply chain landscape in Vietnamese food industry

The food industry is a pillar of the Vietnamese economy, contributing to 15.3% of the GDP and employing 28 million workers. The export value of food products reached a record high of 48.6 billion USD in 2021, with 10 groups of products exceeding 1 billion USD each, of which 6 items have a turnover of over 3 billion USD. Vietnam is also a leading exporter of rice, coffee, and seafood.

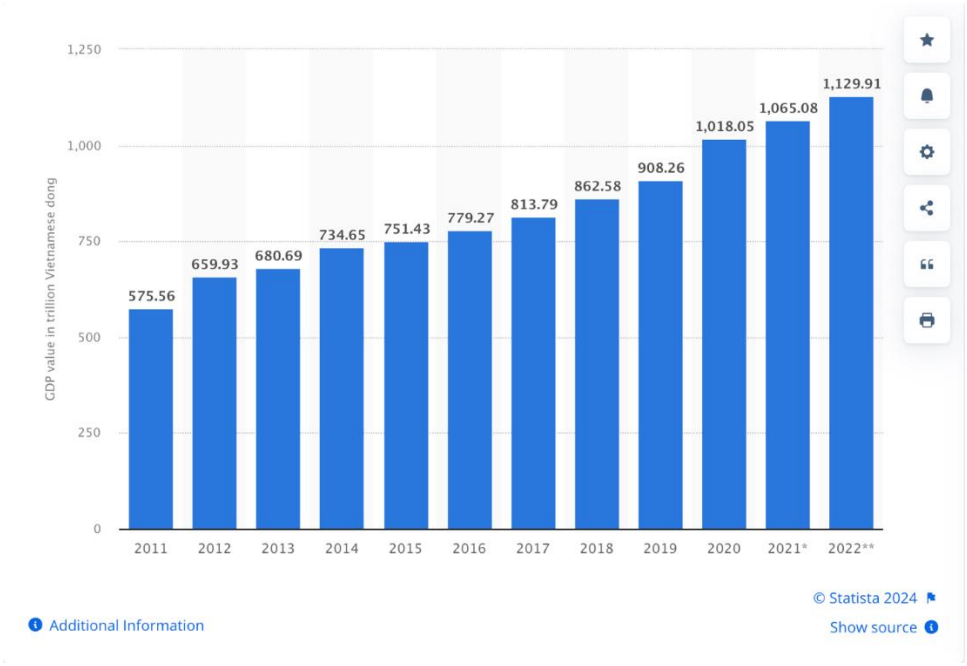


Figure 5: GDP value of the agriculture, forestry and fishing sector in Vietnam from 2011 to 2022 (in trillion Vietnamese dong)

Source: Statista

However, the logistics challenges in Vietnam's food industry are multifaceted. Notably, an article by Vietcetera stated that there's a constrained supply of key items like fresh produce, meat, and imported ingredients, coupled with a lack of well-established quality standards and traceability. Transportation costs are significant, and occasional disruptions occur during the process. Additionally, rising prices of ingredients and food products pose challenges for both producers and consumers. The issue of food waste further complicates the scenario, impacting the environment and local communities. Addressing these challenges can help to reduce waste and enhance overall efficiency in the preparation of food for consumption in Vietnam.

4.3.2 Opportunities of adopting the JIT model for Vietnam food industry

Implementing a Just-in-Time (JIT) system in Vietnam's food industry, inspired by McDonald's JIT approach, presents an array of compelling opportunities tailored to the unique dynamics of food businesses. In the realm of Vietnamese culinary enterprises, embracing a JIT model, mirroring McDonald's operational methodology, holds the promise of substantial advantages. The adaptable supply chain inherent in the JIT system, as exemplified by McDonald's, is particularly pivotal for the operational fluidity of Vietnamese food businesses. By closely monitoring culinary trends, order patterns, and demand fluctuations, integrated into the JIT planning strategy, businesses can tailor production plans adeptly, responding promptly to shifts such as those experienced during the pandemic.

This heightened flexibility is especially valuable for agile adjustments to evolving governmental regulations, a crucial consideration within the context of a developing regulatory framework. Furthermore, the augmentation of safety stock in inventory planning, a strategy to mitigate the risk of supply chain disruptions, aligns seamlessly with the food industry's reliance on a diverse array of ingredients, addressing vulnerabilities exposed during global disruptions like the COVID-19 pandemic. Additionally, the core principles of JIT, translated into food industry parlance, encompass streamlined ingredient procurement, waste reduction, and efficient production scheduling, all contributing to increased resilience against potential supply chain disruptions.

Moreover, the JIT system, taking cues from McDonald's but applied to the food landscape, is poised to elevate product quality and workforce efficiency. The emphasis on a "zero-touch" policy, incorporation of sensors, and new tracking systems translates into meticulous quality control, ensuring the production of high-quality food products that resonate with discerning consumers. In the context of Vietnam's push toward a digitalized food economy, leveraging the digital landscape for culinary staff training, communication, and safety guarantees promises streamlined kitchen operations. This approach not only aligns with potential lockdown scenarios that may disrupt food workflows but also directly addresses a persistent challenge in the Vietnamese food industry – the need for skilled workers.

4.3.3 Challenges of adopting the JIT model for Vietnam food industry

While there are numerous opportunities that may arise from implementing changes to systems, not all of McDonald's model can be seamlessly replicated by Vietnamese food businesses. In fact,

some of these modifications might even have adverse effects on the overall condition of certain businesses in Vietnam.

Supply chain disruption: The JIT model relies on a smooth and reliable supply chain, which can be affected by various factors such as weather, traffic, customs, and COVID-19. Any delay or shortage in the supply of raw materials, ingredients, or packaging can disrupt the production and delivery of food products. This can result in customer dissatisfaction, lost sales, and increased costs.

Quality and safety issues: The JIT model requires strict quality and safety standards and controls throughout the production process, from farm to fork. However, the Vietnam food industry faces some challenges in ensuring the quality and safety of food products, such as lack of traceability, certification, and testing systems, as well as poor post-harvest handling, storage, and transportation practices. These can lead to food loss, waste, spoilage, and contamination, which can harm the health of consumers and the reputation of food businesses.

Demand uncertainty: The JIT model depends on accurate forecasting and planning of customer demand, which can be difficult to achieve in the food industry. Customer demand can vary depending on factors such as seasonality, preferences, trends, income, and promotions. Moreover, the food industry is undergoing a nutrition transition, with changing consumption patterns and dietary habits. These can create challenges for food businesses to adjust their production and inventory levels to meet the fluctuating and diverse demand of customers.

Lack of collaboration: The JIT model requires a high level of collaboration and coordination among the different actors in the food supply chain, such as farmers, processors, distributors, retailers, and consumers. However, the Vietnam food industry is characterized by a fragmented and informal structure, with many small and medium-sized enterprises, low levels of trust and transparency, and weak linkages and communication. These can hinder the effective implementation of the JIT model and the sharing of information, resources, and risks.

4.3.4. Recommendations

In the pursuit of implementing a Just-in-Time (JIT) model influenced by McDonald's operational strategies, Vietnamese food businesses can glean valuable insights to enhance their overall efficiency. First and foremost, the integration of sophisticated technology is paramount. McDonald's, as an industry leader, sets an exemplary standard with its utilization of innovative technologies, such as a record-breaking bun toaster and a computerized order and inventory monitoring system. Vietnamese food businesses can consider investing in cutting-edge kitchen equipment and adopting advanced software solutions to streamline their production processes and improve delivery efficiency. This technological integration not only accelerates production but also enhances overall operational effectiveness.

Ensuring stringent quality and safety standards throughout the production process is another crucial aspect drawn from McDonald's practices. By implementing robust controls, Vietnamese food businesses can emulate McDonald's commitment to consumer safety and product quality. Establishing a traceability system, akin to McDonald's, can be particularly beneficial. Such a system enables businesses to track the origin and movement of raw materials, ensuring

transparency and accountability in the supply chain. Regular audits and inspections play a pivotal role in verifying supplier compliance with these standards, thereby instilling consumer trust and confidence.

Accurate demand forecasting is an integral component that Vietnamese food businesses can learn from McDonald's successful approach. By harnessing data analysis and market research, businesses can predict sales patterns more effectively and adjust production accordingly. Furthermore, adapting menus to local preferences and trends is essential for staying responsive to the ever-changing demands of the Vietnamese consumer market. This adaptability ensures that businesses can optimize production levels based on accurate predictions, minimizing waste and maximizing operational efficiency.

Collaboration within the food supply chain is a key element that McDonald's has mastered. For Vietnamese food businesses, establishing long-term partnerships with farmers, processors, distributors, retailers, and consumers is paramount. Providing training and support to suppliers can enhance their performance and quality, fostering a mutually beneficial relationship. This collaborative approach ensures a seamless flow of goods, minimizes disruptions, and cultivates a sense of shared responsibility throughout the supply chain. In the context of Vietnam, where close relationships and networks are often integral to business success, such collaborative practices can significantly contribute to the success of a JIT model.

5. Conclusion

This study comprehensively examines the application of the Just-In-Time (JIT) model in the supply chain management of McDonald’s, a prominent global fast-food chain. It outlines the specific implementations of JIT across various facets of McDonald’s supply chain, encompassing demand forecasting, purchasing management, inventory control, and warehousing and distribution.

The analysis reveals that McDonald’s JIT implementation has yielded substantial benefits, including reduced inventory costs, enhanced product quality, and increased operational efficiency. This success is attributed to McDonald’s establishment of enduring relationships with suppliers, facilitating a high degree of coordination and synchronization in its supply chain. Advanced technology and data analytics further contribute to accurate demand forecasting and optimized inventory levels, ensuring timely delivery of the right products.

However, challenges and risks accompany McDonald’s JIT model, notably in dealing with demand uncertainty, ensuring product consistency, and addressing environmental sustainability concerns. Variability and unpredictability in customer demand, safety and quality maintenance across a vast restaurant network, and the environmental impact of JIT practices present ongoing challenges for McDonald’s.

Drawing insights from McDonald’s JIT model, the paper extends recommendations for the Vietnam food industry, emphasizing potential opportunities like increasing fast-food product demand, utilizing local suppliers, and fostering technological innovation. Concurrently, it highlights challenges such as infrastructure limitations, trust deficits among supply chain partners,

and cultural/regulatory disparities that need consideration during JIT adoption in the Vietnamese market.

In conclusion, while the JIT model proves advantageous for supply chain management, meticulous planning, implementation, and ongoing evaluation are imperative. The study suggests future research directions, including comparative analyses with alternative supply chain models, exploration of the COVID-19 pandemic's impact on JIT practices, and investigation into the ethical and social implications associated with JIT implementation.

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