



**Mansoura University
Faculty of Tourism and Hotels**

**THE IMPACT OF JUST-IN-TIME PRODUCTION SYSTEM ON THE
OPERATIONAL PERFORMANCE OF FINE CASUAL DINING
RESTAURANTS IN GREATER CAIRO**

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**RESEARCH JOURNAL OF THE FACULTY OF TOURISM AND HOTELS
MANSOURA UNIVERSITY
ISSUE NO. 17, JUNE. 2025**

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Abstract

This study aim to investigate the impact of just in time production system practices on improving operational performance on fine casual dining restaurants. A questionnaire form was developed to collect data required for this study. A total of 450 forms were randomly distributed to a sample of supervisors and employees who work in the investigated fine casual dining restaurants in Greater Cairo, only 409 forms by 90.9% were valid for Statistical analysis. The results show the JIT practices are highly implemented in some Fine casual dining restaurants. JIT purchasing has rated the highest, followed by JIT selling, and last JIT operation. The results of Operational Performance variables are also highly implemented in Fine casual dining restaurants. Flexibility has the highest implementation, followed by quality then cost and finally, speed of delivery. But there are some challenges and factors affecting restaurants from adopting and applying the Just-in-Time Production System Such as the high cost of implementing this system because it needs a strong and responsive supply chain and this poses a great challenge for some restaurants. Finally, the recommendation could be suggested Motivating service institutions representative of hotels and restaurants that apply the quality system to apply Total Just-in-Time Production system.

Key words: *fine casual dining restaurants, Just-in-Time Production System, Operational Performance.*

أثر نظام الإنتاج في الوقت المحدد على الأداء التشغيلي للمطاعم الكاجوال الراقية بالقاهرة الكبرى

الملخص

تهدف هذه الدراسة الى دراسة مدى تأثير نظام الإنتاج في الوقت المحدد على تحسين الأداء التشغيلي في المطاعم الكاجوال الراقية وتم تطوير إستبانة لجمع البيانات المطلوبة لهذه الدراسة ، تم توزيع ٤٥٠ إستمارة بشكل عشوائي على عينة من المشرفين والموظفين الذين يعملون في المطاعم الكاجوال الراقية في القاهرة الكبرى ، وكان ٤٠٩ إستمارة بنسبة ٩٠.٩٪ صالحة للتحليل الإحصائي ، وأشارت النتائج أن ممارسات الإنتاج في الوقت المحدد تؤثر على الأداء التشغيلي في المطاعم الكاجوال الراقية ويتم تطبيق هذه الممارسات بشكل كبير في بعض المطاعم الكاجوال الراقية ، حيث أن المتغير الأعلى تأثيراً هو المشتريات في الوقت المحدد ، يليه عمليات البيع في الوقت المحدد ، وأخيراً عمليات التشغيل في الوقت المحدد ، كما أظهرت النتائج أن أبعاد الأداء التشغيلي تنفذ بشكل كبير في المطاعم الكاجوال الراقية ، حيث أن المرونة لديها أعلى تنفيذ ، تليها الجودة ثم التكلفة وأخيراً سرعة التوصيل السريع، ولكن هناك بعض التحديات والعوامل التي تؤثر على المطاعم من اعتماد وتطبيق نظام الإنتاج في الوقت المحدد مثل إرتفاع تكلفة تطبيق هذا النظام لأنه يحتاج الى سلسلة توريد قوية وسريعة الإستجابة وهذا يشكل تحدياً كبيراً لبعض المطاعم ، وكانت أهم توصيات الدراسة تحفيز المؤسسات الخدمية مثل المطاعم والفنادق التي تطبق نظام الجودة على تطبيق نظام الإنتاج في الوقت المحدد.

الكلمات المفتاحية: المطاعم الكاجوال الراقية ، نظام الإنتاج في الوقت المحدد ، الأداء التشغيلي .

1. Introduction

In the recent period, the world is witnessing many rapid and successive developments in various fields, which resulted in the emergence of many challenges for all industrial, productive and service sectors, It is related to choosing a system that works to identify and reduce the cost of the product, which is one of the important strategic decisions in front of the management because of its impact on the continuity of the facility, In this context, perhaps one of the most important goals of any of the companies whether industrial, productive or service is to achieve a competitive

position compared to their counterparts from companies operating in the same field, and at the same time the optimal use of their human and financial resources and reduce the production time and the exit of the product with high quality, which leads to customer satisfaction, and in light of global developments and the use of information technology means and tools in all aspects of life, companies have the need to search for new methods of production management that enable companies of fulfilling its obligations to customers and allowing it to grow and expand (Alzuod, et al., 2024).

Al haraisa (2017) referred that Just- In-Time production system (JIT) is a huge revolution in inventory control of all three types (raw materials, semi-manufactured materials, fully manufactured product), which means adjusting the commitment to the specified time, reducing the time continuously or not having a time period between the date of issuance of purchase orders and the date of receipt of materials from the processors (pre-production) or the so-called processing period, or between reducing the time between the date of completion of production and the date of delivery of products Full to customers or the so-called delivery period in other words reduce or prevent waiting periods, which in turn leads to reduced costs, as well as the use of this system when completing the production process and once the production process is completed from the shipping and transportation of production Complete and sold to customers without the need for any processes that are not necessary to canceling waiting periods in pre- and post-production (Nugroho, et al., 2020).

According to Yousuf, et al., (2021), Operational Performances refer to an organization's ability to convert inputs into outputs. It can also be defined as the process of quantifying the efficiency and effectiveness of action. Operational Performances has been identified as a key management mechanism that is very effective in controlling and ensuring the organization's performance in accordance with the objectives set. Numerous studies have been conducted in this area, with the primary goal of improving the effectiveness of the performance appraisal process.

Keep in mind that operational performance is a component that has been accepted as a doctrine to ensure an organization's excellence.

2. Research's Aim

The research aims to investigate the impact of just in time production system practices on improving operational performance (quality, cost, speed of delivery and flexibility) on fine casual dining restaurants.

3. Research's problem

Fine Casual Dining restaurant industry market competes with traditional restaurants strongly in Egyptian market to serve customers by providing meals at the right time, competitive prices, high quality, in addition to the implementation of JIT production may be the primary focus of customer satisfaction in light of this competition in Fine Casual Dining restaurant industry. Many researchers recommend such as (Migdadi et al., 2017) stated that JIT practices have direct impact on operational performance and indicated that the use of JIT inventory will help to improve quality and increased flexibility. (Phan and Matsui, 2019) recommended Just in time should be focused on maximize the benefits of JIT implementation, the goal of this study was to see how JIT practices affected operational performance. Many studies have shown that using JIT principles improves service quality, cost, speed of delivery and flexibility.

Numerous studies discussed the topic of just in time (JIT) practices and confirmed on use JIT practices will improve quality of services, cost, delivery, and flexibility such as (Migdadi et al., 2017), (Iqbal et al., 2018) , (phan and Matsui,2019) and (Yang et al., 2021) , All these studies in different sectors such as manufacturing companies, Health care and Banks.

It is clear from the above that there is no study on just in time production system in the restaurants sector in Egypt. Here, the research gap lies in the absence of a study on the dimensions and variables of the current study. Also, no study examined the impact of just in time production system on improving operational performance and no study focused on using just in time practices , Hence the problem of the study is that

Egyptian restaurants need to implement the just in time production system.

Research problem lies in answering on the following questions:

- Question 1: To what extent of implementing just in time production system in the investigated restaurants?
- Question 2: Do just in time production system practices (JIT purchasing, JIT operation and JIT selling) have impact on improving operational performance on fine casual dining restaurants?
- Question 3: Is there a challenges and factor affecting implementation of the JIT production system?

4. Research Hypothesis

Based on the researcher's reading about the subject of just in time, it could be set some hypotheses. These hypotheses emanated from the objectives of the study and its importance. Hypotheses of the study were as follows:

H01: There is a statistically significant impact of The Just in time practices (JIT purchasing, JIT operation and JIT selling) on improving Operational Performance (Quality, Cost, Speed of delivery and flexibility) of fine casual dining restaurants, at $\alpha \leq 0.05$.

And this hypothesis includes the following sub-hypotheses:

H1.1: There is a statistically significant impact of The Just in time practices (JIT purchasing, JIT operation and JIT selling) on improving Quality of fine casual dining restaurants, at $\alpha \leq 0.05$.

H1.2: There is a statistically significant impact of The Just in time practices (JIT purchasing, JIT operation and JIT selling) on reducing Costs of fine casual dining restaurants, at $\alpha \leq 0.05$.

H1.3: There is a statistically significant impact of The Just in time practices (JIT purchasing, JIT operation and JIT selling) on improving the Speed of delivery of fine casual dining restaurants, at $\alpha \leq 0.05$.

H1.4: There is a statistically significant impact of The Just in time practices (JIT purchasing, JIT operation and JIT selling) on improving the flexibility of fine casual dining restaurants, at $\alpha \leq 0.05$.

5. Review of Literature

5.1 Fine casual dining restaurants

Creating a positive dining atmosphere is crucial for fine casual dining restaurant success, according to multiple studies. It was emphasized that for customer satisfaction, restaurants must have adequate dining space, comfortable seating, and cleanliness (Gikonyo, 2016). High-performing casual dining restaurants priorities ambiance, including warm lighting, pleasant music, and well-maintained facilities, which leads to repeat business and financial success (Lee et al., 2016). Thus, this study will recommend strategies for fine casual dining restaurants to embrace new technologies in response to rising demand for unique experiences and shifting market trends.

Fine Casual dining restaurants include full service, sit down restaurants that offer moderately priced food items and a fine casual dining atmosphere (Dziadkowiec & Rood, 2015). Fine casual dining restaurant is one which serves moderately priced food in casual atmosphere setting (Vimal et al., 2018). Fine casual dining restaurant is a type of restaurant which falls between fast food and fine-dining restaurants that serves reasonably priced food in a casual ambience. (THOUMY et al., 2021).

5.2 Historical Background of Just-in-time Production System

According to (Karim, 2019), Just-in-Time is a system or approach for production and management utilized by the Japanese between the 1960s and 1970s. Just in time system is the main contributor in the development of (JIT) system is the Japanese Engineer "Taiichi Ohno," who has

adopted and developed system in Toyota Motor company (TPC) to compete successfully in a competitive markets, which has been led by American auto products. In addition, many firms such as services and manufacturing companies have used just in time system to maximize efficiency and eliminate waste in order to achieve competitive advantage. (Taghipour, et al., 2020).

5.3 Just-in-time Production System concept

Aroca, et al., (2020) said that just in time is a production system that improve the relationship with supplier, reduce inventories, and reduce time. On the other hand stated that because of rapid changes and increased in competition, the service companies started to apply Just in time aims to minimize inventory level and improve delivery of goods to customer and noted that just in time an approach searches for perfection in production process and elimination of waste and mentioned that Just in time making what customer needs with right quantity using the minimum resources and people.

Chanda (2023) stated that the core of JIT operation and management is to remove waste during implementing business processes in order to bring up an efficient system. Such system stands on high quality products that fit the demands and needs of customers with lowest cost possible. Creating such results requires operations based on correct implementation of JIT. In this context, (Ganiyu, et al., 2019) mentioned that there are three key elements that play a massive role in making this concept works, which are correct attitude, continue improvement and employee involvement.

5.4 Just-in-Time Production System Elements

Asikhia and Osinowo (2021) analyzed six businesses that had implemented Just-in-time and identified the following primary advantages: “cycle time reduction, work-in -progress, batch size and set-up time, as well as increased efficiency, customer responsiveness, and communication. (Bhargava,2017) recognized that the benefits of Just-in-time are: “elimination of waste and non-value - adding operations,

reduction of costs and lead / throughput time, increase of efficiency, reliability productivity and customer responsiveness, integration of functional business areas, versatility of product mix and improvement of internal and external contact and participation of employees.” also argued that these advantages further enabled firms that implement JIT to succeed effectively in the global environment.

5.5 Just-in-Time Production System Practices

(Iqbal, et al., 2018) asserted that just-in-time practices positively influence food quality and production. (Gurahoo and Salisbur, 2018) explained that just-in-time practices facilitate communication and increase the quality of processes implementation and execution, customers’ service and products, And discovered that just-in-time scheduling and lot size reduction lead to an increase in production agility through the creation of shared infrastructures with customers and suppliers, especially in the services sector, Just-in-time operation system and purchasing increase volume flexibility, which lowers inventory costs and increases volume. Another interesting point brought by (Phan, et. al., 2019) that indicates JIT selling and purchasing can increase the efficacy of the supply chain and flexibility of the workforce, eventually, this increases the operational performance and level up the product quality.

5.6 Effectiveness of JIT Practices

Many researchers have addressed the effectiveness of JIT practices as a result of the progressive implementation of JIT practices, The success of JIT implementation is influenced by the support from organizations that promote the use of JIT practices in their research, such as (Bhushan et al., 2017) the results of research have revealed that four key elements influence the effectiveness of JIT practices; quality, education, communication and teamwork. According to (Meybodi, 2015) just in time production effectiveness may be assessed by the impact it has on performance and organizational core competencies. Furthermore, it provides evidence that external environmental conditions and Just-in-Time practices have an impact on the delivery and operational success of

the production cycle. As a result of the previous, it is apparent that JIT effectiveness is a variable that will be affected by different of factors. As a result, fine casual dining restaurant managers must assess such variables as whether they may have a good impact on quality by applying continuous improvement practices in the restaurant, or negatively when it is applied without control. Important to mention that the only way to see that aspect is by evaluating the performance and see the extent in which the quality of the performance matches the continues improvement expectations the restaurant has in order to reach minimum defects level.

5.7 Operational Performance

Abazeed (2017) defines operational performance as the set of specific outcomes for behavior, and thus negative performance represents the undesirable outcomes identified for behavior. On the other hand, positive performance determines the desired results for behavior, Performance is defined as carrying out job responsibilities and duties at the required rate at work. (Bagher, 2018).(Sutrisno,2019) noted that operational performance features significantly influence the results of the running process, such as enhancement of product quality, service quality, development in productivity, devaluation in defective costs, reduction in delivering time, efficiency of product delivery, and inventory performance.

Quality: Performing tasks properly, procuring goods and services without error and in accordance with the previously-determined goals. (Silva and Ferreira, 2017) noted that it is well-known for producing products that meet or exceed the needs, desires, and expectations of customers. There are multiple definitions of quality, the best to use from the customer's perspective, who determines and defines quality and decides what goods and services meet his needs and desires, and states that the quality of services or products is considered one of the most important factors that contribute to the success or failure of companies, and thus it seeks to provide high quality products and services through which it can achieve a

competitive advantage. That provides customer satisfaction while gaining the largest possible market share.

Delivery Speed: Performing tasks rapidly, minimizing the time between the customers' request for goods or services and the delivery, (Santos, et al., 2019) see that the delivery dimension is the primary rule for the competition between companies in the markets by focusing on presenting the products to customers with the lowest possible time, As there are three precedents for post-handover that deal with time (Osei and Kagnicioglu, 2018)

Dependability: Carrying out the work in a timely manner, abiding by the delivery commitments promised to the customers. (Dependability saves time-Dependability saves money - Dependability gives stability).

Flexibility: Changing what you do or the way the work is done, the ability to change or match operations activities in order to overcome unexpected circumstances or gain customers' unique behavior , or introducing new products or services. According to (Sáenz et al., 2018) Mix flexibility helps a company to produce items with the required features and according to customers' preferences, and also to offer a wide variety of products without delays. And noted volume flexibility allows companies to increase production in response to unexpected customer preferences and reduce waiting times when demand levels are volatile and enhance customer satisfaction with company performance.

Cost: Carrying out the work at a low cost, producing goods and rendering services at a cost that allows them to properly perform market pricing in such a way that the organization's revenue is also allowed for. (Şengül, et. al., 2024) see that operations management seeks to reduce production costs compared to competitors, and reach competitive prices that enhance the competitive advantage of products in the market.

Malun and Sulistyowati, (2019) noted that restaurants performance is ability to handle challenges, customer satisfaction, order fulfilment, product innovation, inventory costs, market penetration, product costs, quality costs, profitability, productivity, response to consumer demand,

and timely delivery are all indicators of restaurant performance. According to (Rogo et al., 2018) operational performance focuses on (1) quality, in which the outcomes of activities performed are close to perfect in the sense of adjusting several ideal ways or meeting the expected goals, (2) quantity, the amount produced in units, the number of activity cycles completed, (3) timeliness, the degree to which activities are completed on time, (4) coordination with output results and optimizing time for other activities (5) Effectiveness, the degree to which an organization's human resources are used to increase profits or reduce losses due to resource utilization.(6) independence, the level at which employees can perform their duties without seeking guidance from their supervisors or requesting that they intervene in order to avoid unexpected outcomes Companies that focus on their customers' needs can improve their customer satisfaction. Customer loyalty may benefit as a result of the after effects .Loyal consumers will contribute positively to restaurants performance. The main purpose of this study is to investigate the impact of just in time production system practices on improving operational performance quality, cost, speed of delivery and flexibility, on fine casual dining restaurants.

6. Research Methodology

According to Chamber of Tourism Establishments "CTE" (2023), there are (115) fine casual dining restaurants in Egypt. Only 50 restaurants from 93 fine casual dining restaurants in were selected as a random sample for the current study, which represent (54 %) of the population of the study of the fine casual dining restaurants in Greater Cairo to carry out the field study. The population of the research is unlimited due to the difficulty of determining a specific supervisors and employers who work in the investigated fine casual dining restaurants in Greater Cairo, so the random sample size is an ideal method to apply in this study. According to (Thompson, 2012), the lower limit of respondents, that suitable in this study are 384.

6.1 Quantitative Approach

The quantitative approach was used in the research methodology to be appropriate to numerical analysis through SPSS program version 26 as follows:

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Quantitative Method: is in survey questionnaire from directed to Supervisors and employees working in Fine Casual Dining Restaurants in Greater Cairo, In order to answer the paragraphs of the first section on personal data, there is a set of options from which the respondent chooses one option. As for the second and third section, the five-point Likert scale was relied upon, which is considered one of the most widely used scales because it gives the greatest degree of freedom in answering. The variable where the lowest level takes a value of (1), the second lowest level takes a value of (2), the middling level takes a value of (3), the second highest level takes a value of (4), and the highest level takes a value of (5). When we take the average, the average is considered as a variable where its type is continuous, and its level of measurement is ratio.

The section of Just in time production system was used to develop questions of the questionnaire. For instance, the section of Just in time production system is based on the work of (Migdadi, et. al. 2017) and (Phan, et. al. 2019) as references, the section of Operational Performance is based on the work of (Malun and Sulistyowati, 2019) & (Sutrisno, 2019) as references, and some statements were developed during questionnaire reviewing with supervisors.

The questionnaire divided into three main sections. Section one: the objective of collecting personal data for the respondents. This section included information about gender, age, Education Qualification, Experience Years in Current Position and Position.

Section Two: Explanatory Statements including a number of dimensions meant to measure the impact of the Just-in-Time Production System on improving the operational performance of fine casual dining restaurants. This section included 2 dimensions.

Section three personal view, bout challenges and factors affecting restaurants from adopting and applying the Just-in-Time Production System.

7. Questionnaire Reliability analysis

Table (1) correlation between outcome variables and their dimensions

Outcome variable	Dimension	Pearson's correlation	P-value	Statistical significance
Just in time practices	JIT Purchasing	.926**	0.000	Highly significant

	JIT Operation	.908**	0.000	Highly significant
	JIT Selling	.920**	0.000	Highly significant
Operational Performance	Quality	.828**	0.000	Highly significant
	Cost	.866**	0.000	Highly significant
	Speed of delivery	.898**	0.000	Highly significant
	Flexibility	.911**	0.000	Highly significant
Challenges	Challenges	.838**	0.000	Highly significant

*Significant at $P \leq 0.01$

Table (1) illustrates the correlations between the outcome variables and their dimensions where they are ranged between (0.828-0.926) with p-value 0.000 which is less than level of significance e.g. highly significant and satisfying the internal validity of the outcome variables.

8. Results and Discussion

The results involved three main stages. Descriptive analysis was used to discover participants' responses, variance analysis for respondents' answers and correlation analysis were conducted to examine the relationship between independent variables and dependent variable. The results obtained were computed and analyzed in the following tables.

8.1 Personal characteristics data of the respondents

Part one concerned with the personal characteristics data of the respondents; it consisted of the questions about the gender, age, academic level, job level, years of experience. The results are shown in the following tables and figures.

Table (2): Respondents' Gender			
		Frequency	Percent
Gender	Male	353	86.3
	Female	56	13.7
	Total	409	100.0

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Table (2) demonstrate the respondents' gender of the respondents where 86 % of the respondents were males. Meanwhile, 14% of the respondents were females. This result clarifies that the nature of work in investigated restaurants is suitable with the males more than the females. This is might back to hard nature of work in the restaurants industry.

Table (3): Respondents' Age			
		Frequency	Percent%
	From 20 to less than 35	48	11.7
	From 35 to 45	330	80.7
	More than 45	31	7.6
	Total	409	100.0

*N=409

Table (3) demonstrate the age of the respondents where 80.7% of respondents were from 30 from 35 to 45 years old. Meanwhile, 11.7% of the respondents were from 20 to less than 35 years old. Finally, 7.6% of the respondents were More than 45 years old, their answers can be interpreted that the majority of restaurants respondents were in youth category.

Table (4): Respondents' Academic level			
		Frequency	Percent
Academic level	Diploma/Secondary School	1	.2
	Institutional Degree	35	8.6
	University Degree	343	83.9
	Postgraduate Degree	30	7.3
	Total	409	100.0

*N=409

Table (4) demonstrates the academic level of the respondents where 83.9% of respondents were have a university degree. Meanwhile, 8.6% of the respondents were having an institutional degree. In addition, 7.3% of the respondents were having postgraduate degree. Finally, 0.2% of the respondents' answers were having a diploma/Secondary School. This result means the majority of the academic level of the respondents has a university degree.

Table (5): Respondents' Job level			
		Frequency	Percent
Job level	Supervisors	161	39.4
	Employees	248	60.6

	Total	409	100.0
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*N=409

Table (5) demonstrates the job level of the respondents where 86.3% of respondents were at employee's level. Meanwhile, 13.7% of the respondents were at the supervisor's level.

Table (6): Respondents' Years of experience in Job level			
Years of experience in Job level		Frequency	Percent
	Less than 5 years	48	11.7
	From 5 to 10 years	361	88.3
	More than 10 years	0	0
	Total	409	100.0

*N=409

Table (6) demonstrates the personal characteristics of the respondents where 88.3% of respondents have from 5 to less than 10 years of experience. Meanwhile, 11.7% of the respondents were have less than 5 years of experience.

8.2 The Dimensions of Independent Variable (practices of Just-in-Time Production System

Table (7): The application of Just-in-Time Production System in purchasing

Statements		5-Point Likert – Scale					Statistics		
		1	2	3	4	5	Mean	SD	R
The restaurant shall have a database of all suppliers	Freq.	2	6	11	98	292	4.64	.657	1
	%	0.5	1.5	2.7	24	71.4			
The restaurant shall rely on suitable suppliers	Freq.	1	5	55	237	111	4.11	.683	6
	%	0.2	1.2	13.4	57.9	27.1			
The restaurant shall share the expectations of its needs with the suppliers	Freq.	0	8	118	140	143	4.02	.847	7
	%	0	2	28.9	34.2	35			

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The restaurant shall be keen on building long-term relationships with the suppliers	Freq.	1	8	32	166	202	4.37	.733	2
	%	0.2	2	7.8	40.6	49.4			
The restaurant shall send its purchase orders to the suppliers based on prediction	Freq.	4	11	49	166	179	4.23	.836	5
	%	1	2.7	12	40.6	43.8			
The restaurant shall receive the purchases in the ordered quantities, at the right time, in the appropriate quality, and in batches as needed	Freq.	0	7	38	168	196	4.35	.720	3
	%	0	1.7	9.3	41.1	47.9			
The restaurant shall make the suppliers' payments on time	Freq.	1	9	38	163	198	4.34	.757	4
	%	0.2	2.2	9.3	39.9	48.4			
General Mean and Standard Deviation							4.29	.382	-

N.B: 1=" Strongly Disagree ", 2=" Disagree, 3=" Neutral ", 4=" Agree, 5= " Strongly Agree", SD, "Standard Deviation", R=Ranking", N=409

- The restaurant shall have a database of all suppliers (Mean=4.64). This result is in agreement with (Phogat and Gupta ,2018) see that JIT purchasing techniques, as you can see, are designed to be used in order to decrease inventory, boost confidence between buyers and suppliers in order to increase production levels, and decrease production waste.

- The restaurant shall be keen on building long-term relationships with the suppliers (Mean=4.37). This result is in agreement with (Pérez and Torres, 2019) whom define JIT Purchasing as a method that develops trust based coordination between the buyer and the suppliers for a long a term through improved quality and flexibility.

Table (8): The application of Just-in-Time Production System in operation

Statements		5-Point Likert - Scale					Statistics		
		1	2	3	4	5	Mean	SD	R
The restaurant shall hire appropriate employees	Freq .	0	7	20	382	0	3.92	.333	1
	%	0	1.7	4.9	93.4	0			
The restaurant shall provide specialized training programs for its employees	Freq .	3	9	27	370	0	3.87	.451	3
	%	0.7	2.2	6.6	90.5	0			
The restaurant shall design its kitchen in a way that facilitates the processes of operating	Freq .	0	7	77	325	0	3.78	.456	7
	%	0	1.7	18.8	79.5	0			
The restaurant shall prepare all required tools, devices and	Freq .	3	8	35	363	0	3.85	.457	6
	%	0.7	2	8.6	88.8	0			

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equipment, and shall make sure of their maintenance on daily basis in order to facilitate the processes of operating									
The processes of cooking shall be subject to strict supervision	Freq .	2	6	42	359	0	3.85	.429	5
	%	0.5	1.5	10.3	87.8	0			
The restaurant shall provide a space that is good enough for all customer services	Freq .	0	6	38	365	0	3.88	.370	2
	%	0	1.5	9.3	89.2	0			
The restaurant shall fulfill its daily production plan	Freq .	2	6	40	361	0	3.86	.425	4
	%	0.5	1.5	9.8	88.3	0			
General Mean and Standard Deviation							3.85	.277	-

N.B: 1=" Strongly Disagree ", 2=" Disagree, 3=" Neutral ", 4=" Agree, 5= " Strongly Agree", SD, "Standard Deviation", R=Ranking", N=409

- The restaurant shall hire appropriate employees (Mean=3.92). This result is in agreement with (Ganiyu, et al., 2019) who mentioned that the right attitude, ongoing improvement, and employee involvement are

three crucial factors that significantly contribute to the success of this concept. These factors work together to improve the company's performance, which has an impact on the change culture within the organization.

▪ The restaurant shall provide a space that is good enough for all customer services (Mean=3.88). This result is in agreement with (Chanda,2023) who referred that the core of JIT operation and management is to remove waste during implementing business processes in order to bring up an efficient system. Such a system is based on providing customers with high-quality goods at the lowest cost possible.

Table (9): The application of Just-in-Time Production System in selling

Statements		5-Point Likert - Scale					Statistics		
		1	2	3	4	5	Mean	SD	R
The restaurant shall update its database of customers	Freq.	0	6	41	362	0	3.87	.377	5
	%	0	1.5	10	88.5	0			
The restaurant shall build strong trust-based relationships with its customers	Freq.	1	7	28	373	0	3.89	.384	3
	%	0.2	1.7	6.8	91.2	0			
All customers shall be served neatly at the restaurant	Freq.	2	2	59	346	0	3.83	.424	7
	%	0.5	0.5	14.4	84.6	0			
The restaurant shall provide an atmosphere that is suitable for dining	Freq.	1	3	35	370	0	3.89	.354	1
	%	0.2	0.7	8.6	90.5	0			
The restaurant shall serve its food to the customers on	Freq.	0	5	38	366	0	3.88	.358	4
	%	0	1.2	9.3	89.5	0			

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time									
The restaurant shall be keen on offering new products to the customers	Freq.	0	5	37	367	0	3.89	.356	2
	%	0	1.2	9	89.7	0			
The restaurant shall provide its customers with various means of leisure and entertainment	Freq.	0	6	46	357	0	3.86	.389	6
	%	0	1.5	11.2	87.3	0			
General Mean and Standard Deviation							3.87	.233	-

N.B: 1=" Strongly Disagree ", 2=" Disagree, 3=" Neutral ", 4=" Agree, 5= " Strongly Agree", SD, "Standard Deviation", R=Ranking", N=409

- The restaurant shall provide an atmosphere that is suitable for dining" (Mean=3.89). This result is in agreement with (Bavarsad and Gorjizadeh, 2019) JIT selling goals revolve around delivering the right goods in the right quantities at the right times.
- The restaurant shall be keen on offering new products to the customers" (Mean=3.89). This result is in agreement with (C.Eugene and S.Rubha, 2017) Since production runs are so short, it is easier to halt production of one product type and switch to a different product to meet changes in customer demand.

8.3 The Dimensions of Dependent Variable (Operational Performance

Table (10): The quality of investigated restaurants

Statements		5-Point Likert - Scale					Statistics		
		1	2	3	4	5	Mean	SD	R
The restaurant shall apply the quality system in all of its branches	Freq.	1	7	32	369	0	3.88	.393	3
	%	0.2	1.7	7.8	90.2	0			
The quality of	Freq.	0	4	43	362	0	3.88	.359	1

all products offered to customers shall be improved	%	0	1	10.5	88.5	0			
The restaurant shall receive the required raw materials from accredited suppliers	Freq.	0	6	58	345	0	3.83	.414	6
	%	0	1.5	14.2	84.4	0			
The restaurant shall use tools and equipment of appropriate quality	Freq.	0	8	33	368	0	3.88	.381	4
	%	0	2	8.1	90	0			
The restaurant shall pay attention to the way of packing and packaging their products	Freq.	1	6	36	366	0	3.88	.392	2
	%	0.2	1.5	8.8	89.5	0			
The restaurant shall allow the suppliers to participate in the processes of quality control and products development	Freq.	3	13	35	358	0	3.83	.500	7
	%	0.7	3.2	8.6	87.5	0			
The restaurant shall hold specialized training courses about quality for its employees	Freq.	2	11	32	364	0	3.85	.457	5
	%	0.5	2.7	7.8	89	0			

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General Mean and Standard Deviation	3.86	.282	-
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N.B: 1=" Strongly Disagree ", 2=" Disagree, 3=" Neutral ", 4=" Agree, 5= " Strongly Agree", SD, "Standard Deviation", R=Ranking", N=409

- The restaurant shall apply the quality system in all of its branches (Mean=3.88). This result is in agreement with (Cakanyildirim and Luo, 2017) that JIT has been shown to help improve the quality of products, processes, and customer service. Researchers agree that JIT has a significant impact on organizational performance.
- The quality of all products offered to customers shall be improved (Mean=3.88) This result is in agreement with (Silva and Ferreira, 2017) noted that it is well-known for producing products that meet or exceed the needs, desires, and expectations of customers. There are multiple definitions of quality, the best to use from the customer's perspective, who determines and defines quality and decides what goods and services meet his needs and desires, and states that the quality of services or products is considered one of the most important factors that contribute to the success or failure of companies, and thus it seeks to provide high quality products and services through which it can achieve a competitive advantage

Table (11): The cost of investigated restaurants

Statements		5-Point Likert - Scale					Statistics		
		1	2	3	4	5	Mean	SD	R
The restaurant shall seek lower production costs and better profitability	Freq.	3	6	30	370	0	3.88	.428	3
	%	0.7	1.5	7.3	90.5	0			
The restaurant shall follow a specific plan for its inventory management, in order to achieve the Zero Inventory	Freq.	1	9	46	353	0	3.84	.443	5
	%	0.2	2.2	11.2	86.3	0			
The restaurant shall prepare meals upon	Freq.	1	4	62	342	0	3.82	.426	6
	%	0.2	1	15.2	83.6	0			

demand, in order to avoid any waste and to reduce the spoilage rate									
The restaurant shall select suppliers from nearby places	Freq.	1	5	44	359	0	3.86	.399	4
	%	0.2	1.2	10.8	87.8	0			
The restaurant shall receive orders in stages upon demand	Freq.	1	5	37	366	0	3.88	.383	2
	%	0.2	1.2	9	89.5	0			
The restaurant shall follow up the incurred costs on a periodic basis	Freq.	2	1	35	371	0	3.89	.359	1
	%	0.5	0.2	8.6	90.7	0			
General Mean and Standard Deviation							3.86	.273	-

N.B: 1=" Strongly Disagree ", 2=" Disagree, 3=" Neutral ", 4=" Agree, 5= " Strongly Agree", SD, "Standard Deviation", R=Ranking", N=409

- The restaurant shall follow up the incurred costs on a periodic basis (Mean=3.89). This result is in agreement with (Kindie, 2017) states that cost is one of the primary competitive priorities, although it can only be achieved through the adoption of one or more of the following strategies "Cost leadership that can be implemented at a low cost for competitors in a coherent and unified manner for volume-based cost-effective products, where the cost leadership strategy necessitates work oversight, strict cost control, frequent reporting, and the ability to respond".
- The restaurant shall seek lower production costs and better profitability" (Mean=3.88) This result is in agreement with (Bhargava,2017) recognized that the benefits of Just-in-time are: "elimination of waste and non-value - adding operations, reduction of costs and lead / throughput time, increase of efficiency, reliability productivity and customer responsiveness, integration of functional business areas, versatility of product mix and improvement of internal and external contact and participation of employees.

Table (12): The speed of delivery in investigated restaurants

Statements	5-Point Likert - Scale					Statistics		
	1	2	3	4	5	Mean	SD	R

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The restaurant shall pay attention to fast customer services on the right time	Freq.	2	6	23	378	0	3.90	.386	1
	%	0.5	1.5	5.6	92.4	0			
The restaurant shall deliver its food on time, in good condition and in good quality as demanded	Freq.	1	6	43	359	0	3.86	.408	3
	%	0.2	1.5	10.5	87.8	0			
The restaurant shall provide several types of meals	Freq.	1	5	52	351	0	3.84	.416	4
	%	0.2	1.2	12.7	85.8	0			
The restaurant shall provide the customers with a digital food menu	Freq.	4	9	35	361	0	3.84	.487	5
	%	1	2.2	8.6	88.3	0			
The restaurant shall provide the service of drive-through	Freq.	4	9	42	354	0	3.82	.498	6
	%	1	2.2	10.3	86.6	0			
The restaurant shall deal with reliable delivery companies	Freq.	0	5	40	364	0	3.88	.363	2
	%	0	1.2	9.8	89	0			
General Mean and Standard Deviation							3.85	.296	-

N.B: 1=" Strongly Disagree ", 2=" Disagree, 3=" Neutral ", 4=" Agree, 5= " Strongly Agree", SD, "Standard Deviation", R=Ranking", N=409

- The restaurant shall pay attention to fast customer services on the right time (Mean=3.90). This result is in agreement with (Santos, et al., 2019) see that Performing tasks rapidly, minimizing the time between the customers' request for goods or services and the delivery dimension is the primary rule for the competition between companies in the markets

by focusing on presenting the products to customers with the lowest possible time.

- The restaurant shall deal with reliable delivery companies (Mean=3.88) this result is in agreement with (Osei and Kagnicioglu, 2018) see that the delivery of customer orders on time to them by the company.

Table (13): The flexibility in investigated restaurants

Statements		5-Point Likert - Scale					Statistics		
		1	2	3	4	5	Mean	SD	R
The restaurant shall exhibit flexibility in adopting modern methods and ideas	Freq .	2	7	18	382	0	3.91	.385	3
	%	0.5	1.7	4.4	93.4	0			
The restaurant shall be capable of quick response towards any sudden changes in the customer needs	Freq .	3	5	16	385	0	3.91	.383	2
	%	0.7	1.2	3.9	94.1	0			
The restaurant shall pay attention to all customer complaints, in order to improve the operating processes	Freq .	2	6	18	383	0	3.91	.373	1
	%	0.5	1.5	4.4	93.6	0			
The	Freq	3	12	30	364	0	3.85	.483	5

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customers shall be allowed to participate in the process of products development	.						0		
	%								
		0.7	2.9	7.3	89				
The restaurant shall have enough number of points of sale, in order to serve all customers	Freq	6	5	21	377	0	3.88	.467	4
	%					0			
		1.5	1.2	5.1	92.2				
The restaurant shall rely on modern technology in serving its customers	Freq	6	8	27	368	0	3.85	.505	6
	%					0			
		1.5	2	6.6	90				
General Mean and Standard Deviation							3.88	.368	-

N.B: 1=" Strongly Disagree ", 2=" Disagree, 3=" Neutral ", 4=" Agree, 5= " Strongly Agree", SD, "Standard Deviation", R=Ranking", N=409

- The restaurant shall exhibit flexibility in adopting modern methods and ideas (Mean=3.91) this result is in agreement with (Osei and Kagnicioglu, 2018) noted that Flexibility is to Changing what you do or the way the work is done, the ability to change or match operations activities in order to overcome unexpected circumstances or gain customers' unique behavior, or introducing new products or services.
- The restaurant shall be capable of quick response towards any sudden changes in the customer needs (Mean=3.91) this result is in agreement with (Sáenz et al.,2018) said that Mix flexibility helps a company to produce items with the required features and according to customers' preferences, and also to offer a wide variety of products without delays. And noted volume flexibility allows companies to increase production in

response to unexpected customer preferences and reduce waiting times when demand levels are volatile and enhance customer satisfaction with company performance.

Table (14): T-test to study the effect of the independent variables on the dependent variable

Coefficients a					
Model		Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error	Beta	
1	(Constant)	.574	.152		3.785
	JIT purchasing	.151	.040	.212	3.778
	JIT operation	.304	.057	.309	5.314
	JIT selling	.378	.054	.323	7.067

* Significance at 0.01 or less

From the T-test as shown in Table (14), we find that the significant independent variables in the multi-linear model are (JIT purchasing $B=0.151$, JIT operation $B=0.304$ and JIT selling $B=0.378$) at a level of significance less than (0.05%), and then it is clear that the second sub-hypothesis (H1.2) of the main hypothesis is accepted that there is a statistically significant impact of The Just in time practices (JIT purchasing, JIT operation and JIT selling) on reducing Costs of fine casual dining restaurants, at $\alpha \leq 0.05$.

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Table (15): T-test to study the effect of the independent variables on the dependent variable

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.382	.164		2.331	.020
	purchasing	.201	.043	.259	4.646	.000
	operation	.342	.062	.320	5.529	.000
	Selling	.334	.058	.263	5.775	.000

* Significance at 0.01 or less

From the T-test as shown in Table (15), we find that the significant independent variables in the multi-linear model are ((JIT purchasing $B=0.201$, JIT operation $B=0.342$ and JIT selling $B=0.334$) at a level of significance less than (0.05%), and then it is clear that the third sub-hypothesis (H1.3) of the main hypothesis is accepted that there is a statistically significant impact of The Just in time practices (JIT purchasing, JIT operation and JIT selling) on improving the Speed of delivery of fine casual dining restaurants, at $\alpha \leq 0.05$.

Table (16): T-test to study the effect of the independent variables on the dependent variable

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.393	.202		-1.940	.053
	JIT purchasing	.223	.053	.231	4.174	.000
	JIT operation	.543	.076	.409	7.116	.000
	JIT selling	.317	.071	.200	4.435	.000

* Significance at 0.01 or less

From the T-test as shown in Table (16), we find that the significant independent variables in the multi-linear model are (JIT purchasing $B=0.223$, JIT operation $B=0.543$ and JIT selling $B=0.317$) at a level of significance less than (0.05%), and then it is clear that the fourth sub-hypothesis (H1.4) of the main hypothesis is accepted that there is a statistically significant impact of The Just in time practices (JIT purchasing, JIT operation and JIT selling) on improving the flexibility of fine casual dining restaurants, at $\alpha \leq 0.05$.

9. Conclusion and Recommendations

9.1 Conclusion

Restaurants in the recent times are seeking to prove their existence, by providing the best services they can, so that these services exceed the expectations and requirements of customers, providing the best is the key through which they enter to achieve progress and excellence over their competitors, In the face of rapid changes and enormous technological developments, all service and manufacturing companies are struggling to survive and maintain their competitive advantage by seeking best practices that lead to better performance. Which led Toyota Company to develop a strategy that led to the best performance through waste reduction, this strategy is Just, and it works by decreasing costs. The implementation of Just in Time has recently become a task that needs to be inspected in the course of its practices in order to get high quality of performance, decrease the time, and satisfy the customer, which leads to the high performance required to excel in this field. In this study we must ask whether Just in Time practices have a positive impact on operational performance or not.

Improving operational performance can be the key to achieving long-term financial, sales, customer satisfaction, and internal processes that add up to organizational performance and operational performance Characteristics have a significant impact on the outcomes of the running process, such as improving product quality, service quality, productivity, and decrease defective costs, reduction in delivery time, product delivery efficiency, and inventory performance. Therefore, this study aim to investigate the impact of just in time production system practices on improving operational performance quality, cost, speed of delivery and flexibility, on fine casual dining restaurants in Greater Cairo.

9.2 Recommendations

Based on both the literature reviewed and the field study findings, the following recommendations could be suggested:

1. Motivating service institutions representative of hotels and restaurants that apply the quality system to apply Total Just-in-Time

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Production system by the restaurants management and the Chamber of Tourism Establishments.

2. The necessity of educating all managers through restaurants management about the importance of applying the Just-in-Time Production system on improving restaurant performance.
3. There must constantly train, educate their employees by restaurants management in order to successfully implement the Just-in-Time Production.
4. There must follow up and implement the requirements of the Just-in-Time Production System in the restaurant in consistently by Allocating an independent department to follow up and implement the requirements of Just-in-Time Production System.
5. Allocating an independent department to follow up and implement the requirements of Just-in-Time Production System.
6. There must include in the main objectives of the restaurant the Just-in-Time Production System.
7. Restaurant management builds strong trusting relationships with its suppliers.
8. Further research could also identify the role of applying the Just-in-Time Production system in achieving the dimensions of sustainable development plan 2030.

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