

**The Effect of Total Just in Time on Competitive  
Advantage on International Fast Food  
Restaurants in Jordan**

أثر الإنتاج الكلي الآني على الميزة التنافسية في مطاعم الوجبات  
السريعة العالمية في الاردن

**Prepared by:**

**Abdallah Hussain Darwish**

**Supervised by:**

**Dr. Abdel-Aziz Ahmad Sharabati**

**Thesis Submitted in Partial Fulfillment of the Requirements  
of Master Degree in MBA.**

**Management Department**

**Business Faculty**

**Middle East University**

**January 2018**

## Authorization

I hereby grant Middle East University the authorization and the right to provide copies of my thesis and/or distribute it worldwide, in whole or in part, and/or my abstract, in whole or in part, to Libraries, Institutions and other entities requesting it.

**Name:** Abdallah Hussain Darwish.

**Signature:**






**Date:** 17 /01/2018.

## Examination Committee's Decision

This thesis of the student Abdallah Hussain Darwish, which study "The Effect of Total Just in Time on Competitive Advantage on International Fast Food Restaurants in Jordan" has been defined, accepted and approved on 17/01/2018.

### Committee Members:

No.	Name	Title	Signature
1	Dr. Abdel-Aziz Ahmad Sharabati	Supervisor and Member	
2	Dr. Amjad Etwaiqat	Internal Member	
3	Professor Mohammad Khair	External Member	

## **Acknowledgement**

First, I would like to thank ALLAH. This work could not have been finished without his help. I ask him to bless all people who supported me to complete this work.

I am sincerely grateful to my supervisor, Dr. Abdel-Aziz Ahmad Sharabati, whose recommendations, devotion, advocacy, patience, encouragement, and support have led me to achieve this work.

In fact, it would not be possible to complete this work without the kind support and help of many individuals and organizations. Therefore, I would like to extend my sincere thanks to all of them.

Finally, thanks for the examination committee for devoting much of their valuable time reviewing and discussing the material of the study.

Abdallah Hussain Darwish

## **Dedication**

This thesis is dedicated to my precious family; my wife Rola, my daughters, Daniah, Deema, and Zaina. My sister Aisha, and lovely friends who helped me, and believe in me for their endless support throughout my life to reach this stage.

Really, I cannot express my gratitude and thanks by words to my lovely family and friends; I extend my deepest appreciation to them.

Abdallah Hussain Darwish

## Table of Contents

Authorization .....	II
Examination Committee's Decision .....	III
Acknowledgement.....	IV
Dedication .....	V
Table of Contents .....	VI
List of Tables .....	VIII
List of Models .....	IX
List of Figures .....	X
List of Appendices .....	XI
Abstract.....	XII
الملخص .....	XIII
<b>Chapter One: Background of the Study</b>	
Introduction: .....	1
Study Purpose and Objectives: .....	3
Study Significance and Importance: .....	3
Study Problem Statement: .....	4
Study Hypotheses: .....	5
Study Model: .....	6
Conceptual and Operational Definitions of Terms: .....	7
Study Limitations and Delimitations: .....	8
<b>Chapter Two: Theoretical and Conceptual Framework and Previous Studies</b>	
Theoretical and Conceptual Framework: .....	9
Definitions of Independent Variable (Total Just in Time): .....	9
JIT Purchasing: .....	11
JIT Operation: .....	12
JIT Selling: .....	13
Definitions of Dependent Variable (Competitive Advantage): .....	14
Relationships between Variables: .....	20
Previous Models: .....	22
Previous Studies: .....	28
What Differentiate the Current Study from Previous Studies? .....	41
<b>Chapter Three: Study Methodology (Methods and Procedures):</b>	

Study Design:.....	43
Study Population, Sample and Unit of Analysis:.....	43
Data Collection Methods (Tools):.....	44
Data Analysis Methods:.....	45
<b>Chapter Four: Data Analysis</b>	
Introduction:.....	53
Relationships between Variables: .....	61
Hypothesis Analysis: .....	62
<b>Chapter Five: Results' Discussion, Conclusion and Recommendations</b>	
Results' Discussion:.....	68
Conclusion:.....	69
Recommendations: .....	70
References:.....	72
Appendices:.....	87

## List of Tables

Table (3.1) Principal Component Factor Analysis for Just in Time Purchasing: .....	46
Table (3.2) Principal Component Factor Analysis for Just in Time Operations: .....	46
Table (3.3) Principal Component Factor Analysis for Just in Time Selling: .....	47
Table (3.4) Principal Component Factor Analysis for Total Just in Time: .....	47
Table (3.5) Principal Component Factor Analysis for Cost: .....	47
Table (3.6) Principal Component Factor Analysis for Quality:.....	48
Table (3.7) Principal Component Factor Analysis for Speed:.....	48
Table (3.8) Principal Component Factor Analysis for Reliability: .....	49
Table (3.9) Principal Component Factor Analysis for Innovation:.....	49
Table (3.10) Principal Component Factor Analysis for Competitive Advantages: .....	49
Table (3.11): Reliability Test (Cronbach's Alpha) for all Variables. ....	50
Table (3.12): Company Name.....	51
Table (3.13): Gender Description. ....	51
Table (3.14): Age Distribution.....	51
Table (3.15): Respondents Education.....	52
Table (3.16): Respondents Department.....	52
Table (3.17): Respondent Experience. ....	52
Table (4.1): Mean, Standard Deviation, t-Value, Ranking and Importance for Total JIT ...	54
Table (4.2); Mean, Standard Deviation, t-Value, Ranking and Importance for JIT Purchasing.....	54
Table (4.3): Mean, Standard Deviation, t-Value, Ranking and Importance for JIT Operations.....	55
Table (4.4): Mean, Standard Deviation, t-Value, Ranking and Importance for JIT Selling.....	56
Table (4.5): Mean, Standard Deviation, t-Value, Ranking and Importance for Competitive Advantages.....	57
Table (4.6): Mean, Standard Deviation, t-Value, Ranking and Importance for Cost .....	58
Table (4.7): Mean, Standard Deviation, t-Value, Ranking and Importance for Quality ..	58
Table (4.8): Mean, Standard Deviation, t-Value, Ranking and Importance for Speed ...	59
Table (4.9): Mean, Standard Deviation, t-Value, Ranking and Importance for Reliability ..	60
Table (4.10): Mean, Standard deviation, t-Value, Ranking and Importance for Innovation ..	61
Table (4.11): Bivariate Pearson Correlation (r) Matrix between Independent and Dependent Variables .....	62
Table (4.12): Multi-collinearity and Durbin-Watson Tests.....	65
Table (4.13): Results of Multiple Regressions Analysis (ANOVA <sup>a</sup> ): Regressing Total JIT Sub-Variables against Competitive Advantages.....	65
Table (4.14): Results of Multiple Regressions for the Effect of each Total JIT sub-variable on Dependent Variable.....	66



## List of Models

Model (1.1): Study Model .....	6
Model (2.1): Claycomb, et. al. (1999) Model.....	22
Model (2.2): Kannan and Tan (2002) Model.....	23
Model (2.3): Christiansen, et. al. (2003) Model.....	23
Model (2.4): Ahmad, et. al. (2004) Model .....	24
Model (2.5): Christensen, et. al. (2005) Model.....	24
Model (2.6): Abdallah and Matsui (2007) Model.....	25
Model (2.7): Chen and Shang (2008) Model.....	26
Model (2.8): Inman, et. al. (2011) Model.....	26
Model (2.9): Singh and Ahuja (2012) Model .....	27
Model (2.10): Bortolotti, et. al. (2013) Model.....	27

## List of Figures

Figure 4.1: Normality Test .....	63
Figure 4.2: Linearity Test .....	63
Figure 4.3: Scatter Plot .....	64

## **List of Appendices**

Appendix (1): Panel of Referees Committee.....	87
Appendix (2): Letter and Questionnaire of Respondents .....	88
Appendix (3): Participants Letter (Arabic Version).....	92
Appendix (4): Population: 250 managers.....	97
Appendix (5): Original Data Analysis Report: .....	98

# **The Effect of Total Just in Time on Competitive Advantage on International Fast Food Restaurants in Jordan**

**Prepared by:**

**Abdallah Hussain Darwish**

**Supervised by:**

**Dr. Abdel-Aziz Ahmad Sharabati**

## **Abstract**

The purpose of the current study is to investigate the effect of Total JIT on Competitive advantage in Fast Food International Restaurants in Jordan. The study covered all five companies working in this field. Data collected by questionnaire from 186 out of 250 manager. After confirming normality, validity, reliability and relationships between variables, multiple regressions conducted to test hypothesis.

Results show that the Total Just in Time sub-variables are highly implemented, JIT operation has rated the highest, followed by JIT selling and finally, JIT purchasing. Competitive Advantage dimensions are also highly implemented, while quality has highest implementation, followed by speed, then reliability, cost and innovation, respectively. In addition there is relationships among total JIT sub-variables are strong, and the relationships among competitive advantage dimensions are strong. The relationships between total JIT sub-variables and competitive advantage dimensions are strong. Finally, the relationship between total JIT and total competitive advantage is very strong. Results show that all Total JIT sub-variables have effect on Competitive Advantage at International Fast Foods Restaurants Companies in Jordan. The JIT Selling was holding the highest effect, followed by JIT Operation variable, then JIT Purchasing. The study recommends adopting Total JIT in all industries, because it affects competitive advantage.

**Key Words: Total JIT, Competitive Advantages, International Fast Food Companies in Jordan.**

## أثر الإنتاج الكلي الآني على الميزة التنافسية على مطاعم الوجبات السريعة العالمية في الاردن

إعداد:

عبد الله حسين درويش

إشراف:

الدكتور عبد العزيز الشرباتي

الملخص

الهدف من الدراسة الحالية هو قياس أثر الانتاج الكلي الآني على الميزة التنافسية في مطاعم الوجبات السريعة العالمية في الاردن، شملت هذه الدراسة جميع المطاعم الخمسة التي تعمل في هذا المجال.

تم جمع البيانات باستخدام الاستبانة من 186 من أصل 250 مدير، بعد التأكد من الدقة والموثوقية والعلاقات بين المتغيرات، والانحدارات المتعددة التي اجريت لاختبار الفرضيات.

اظهرت النتائج ان متغيرات الانتاج الكلي الآني يتم تنفيذها بشكل كبير، حيث ان المتغير الاعلى هو الانتاج الكلي الآني التشغيل، تليها الانتاج الكلي الآني المبيعات، واخيراً الانتاج الكلي الآني المشتريات. وتظهر النتيجة ايضا ان أبعاد الميزة التنافسية تتفد بشكل كبير، في حين ان الجودة لديها اعلى التنفيذ' تليها السرعة، ثم الموثوقية والتكلفة والابتكار، على التوالي. وتظهر النتائج ان العلاقات بين المتغيرات الفرعية للإنتاج الكلي الآني قوية، والعلاقات بين المتغيرات الفرعية للميزة التنافسية قوية. كما اظهرت النتائج ان العلاقة بين مجموع المتغيرات الفرعية للإنتاج الكلي الآني وعناصر الميزة التنافسية قوية. واخيراً، فان العلاقة بين مجموع متغيرات الانتاج الكلي الآني ومجموع عناصر الميزة التنافسية قوية. اظهرت النتائج ان جميع المتغيرات الفرعية للإنتاج الكلي الآني تؤثر على جميع عناصر الميزة التنافسية في شركات مطاعم الوجبات السريعة العالمية في الاردن. وكان الانتاج الآني المبيعات الاعلى تأثير، تليها الانتاج الآني التشغيل، ثم الانتاج الآني المشتريات.

اوصت الدراسة باعتماد تطبيق الانتاج الكلي الآني في جميع الصناعات، لأنه يؤثر على الميزة التنافسية.

الكلمات المفتاحية: الانتاج الكلي الآني، الميزة التنافسية، شركات مطاعم الوجبات السريعة في الاردن.

## **Chapter One: Background of the Study**

### **Introduction:**

Rapid development of technology and speed of communication advancement result to high international and local market competition, this forces organization to develop competitive advantage, which distinguishes it from competitors. The key concept of the business development is to be open to new ideas that may be used as a source of advantage. The best competition is to know how to be aware and constantly stay on the cutting edge. Company, which is looking to be pioneer in its industry, should continue seeking for new business ideas and new business systems that result in high quality products, with suitable prices, at right place and in right time to be matching with customers' needs and wants. The competition in Jordan market is now fierce due to the increasing number of local and international restaurants as well as the weakness of purchasing power; therefore, the survival and continuity in the market will be for those who have a competitive advantage over others. The fast food restaurants are characterized by having suitable environment for implementing JIT philosophy and principles, because international fast food restaurants apply the highest standards of international quality. Fast food industry pay high attention to accuracy and quality. It uses appropriate equipment, does preventive maintenance continuously, and provides an appropriate working environment. It also does continuous training for all employees, encourages teamwork, and works closely with suppliers. In terms of operation inside the restaurant, it pays high attention to the design of the restaurant (kitchen, dining area), make to order only, and use modern equipment, which lead to serve customer on the right time, high quality, good price, and reliability.

For producing such product, it is necessary to eliminate non-value-added activities, to reduce inventories and defects, and ensure on time delivery service, which can be achieved through implementing Just in Time (JIT) system. JIT system is a Japanese management concept and philosophy, first time implemented in Toyota Company, which was the pioneer in applying this system. In summary, JIT is buying and manufacturing materials in specified quantity, with good quality, when needed, where required, at suitable price. In the contrary, Just in Case has opposite meaning to JIT system, where the goods are manufactured or bought based on forecast (push system). Recently, many companies are implementing the JIT system throughout its all functions JIT purchasing, JIT operation and JIT selling to be more competitive.

Hitt, et. al. (1998) said that the revolution of technology and globalization increase present major challenges to firms' ability to preserve their competitiveness. Brox and Fader (2002) mentioned that JIT firms do appear to be different from the non-JIT group, not only that but also will lead to reduce its cost, quality and grant them competitive advantage. White, et. al. (2010) said that total JIT could be used for completion, which reduces purchasing, operating, and selling time through Kanban system to enhance quality, delivery, reliability, flexibility, and cost. Hijuzaman and Naibaho (2014) stated that to be able to continue in business companies must have a competitive advantage in terms of both price and quality. Patel, et. al. (2016) stated that Just-In-Time is launched to meet the customers' requirements in time, so the company will be able to survive and sustain for longer time. Hatani (2017) said that internal and external integration could be achieved

through supply chain processes by integrating activities with suppliers, operation and consumer.

Finally, implementing total JIT: JIT purchasing, JIT operation, and JIT selling can create competitive advantages in cost, quality, speed, reliability, and innovation. Therefore, this study is dedicated to investigate the effect of Total JIT on achieving competitive advantages.

### **Study Purpose and Objectives:**

This study aims to:

- Investigate the effect of Total JIT on Competitive Advantages.
- Explore the implementation of Total JIT and competitive advantages items in international fast food restaurant.
- Show how industry implements the Total JIT items.
- Provide recommendations to the studied industry, other industries, and decision makers who concern about Total JIT and competitive advantages.
- Add a study related to Total JIT research stream and open a discussion related to implementation of total JIT in other industries in Jordan.

### **Study Significance and Importance:**

This study can be considered as the first study that investigates the effect of Total JIT on competitive advantages in fast food industry in Jordan. The current study seeks to highlight the importance of Total (JIT) as one of the most modern production systems, which will pave the way for fast food companies in Jordan to gain access and compete in Jordan market through reducing inventory, improving quality, and reducing production time. The importance of this study is to explore how total JIT implementation can create competitive advantage to fast food restaurants in Jordan. In addition,



it may help other industries to evaluate the use of JIT system to gain competitive advantages. Moreover, it may help Jordanian decision makers to encourage companies to use JIT system and encourage governmental institutions to apply it when and where it is possible. Finally, the current study may add a valuable literature to libraries to be used as secondary data, as well as it may help scholars and practitioners to open the debate about the usefulness of JIT in different industries.

### **Study Problem Statement:**

Fast-food restaurant industry market competes with traditional restaurants strongly in Jordanian market to serve customers by providing meals at the right time, competitive prices, high quality, and accuracy. From my experience as a supply chain manager, I realized that implementing total JIT could be the core of the competition in fast food industry. Many previous studies recommend such as Gupta, et. al. (2000) recommended JIT to minimize manufacturing costs by producing lead-time and inventories. Dong, et. al. (2001) stated JIT reduces costs for buyers and logistics costs for suppliers. Yang and Pan (2004) indicated that JIT philosophy could improve the operational performance of organizations. Chen and Tan (2014) identified that JIT is eliminate non-value adding activities to improve quality, reduce cost, and speed delivery. Furthermore, Modi and Thakkar (2014) defined JIT is a methodology for identifying and removing the damage through continuous monitoring and product flow in the customer's withdrawal. While, Jadhov, et. al. (2015) mentioned that global organizations are selecting or willing to adopt just-in-time (JIT) production to enhance the competitiveness. In addition, Khaireddin, et. al. (2015) measured the execution of JIT manufacturing in terms of timely delivery,

equipment planning, reduce the operating time of equipment, preventive maintenance commitment, and quality of suppliers. Finally, Al haraisa (2017) to improve and gain the operational privilege and attain competitive feature, Industrial firms in Jordan should assured basically and at most on their just in time process contained of (Pull production, set time decrease, suppliers quality, and equipment layout).

Therefore, this study is going to investigate the effect of Total Just in Time on achieving competitive advantage in fast food Industry in Jordan by answering the following main question:

1. Do Total Just in Time elements (JIT Purchasing, JIT Operation and JIT Selling) affect competitive advantage at International fast food restaurants in Jordan?

Based on Total JIT elements the main question can be divided into the following three sub-questions:

1.1. Does JIT Purchasing affect competitive advantage of fast food restaurants?

1.2. Does JIT Operation affect competitive advantage of fast food restaurants?

1.3. Does JIT Selling affect competitive advantage of fast food restaurants?

### **Study Hypotheses:**

The mentioned above questions can be answered via the testing of the following hypothesis:

### **Main hypothesis:**

**H<sub>0</sub>**: Total Just in Time elements (JIT Purchasing, JIT Operation and JIT Selling) do not affect competitive advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

Based on Total JIT elements the main hypothesis can be divided into the following three sub-hypotheses:

**H<sub>0.1.1</sub>**: JIT Purchasing does not affect Competitive Advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

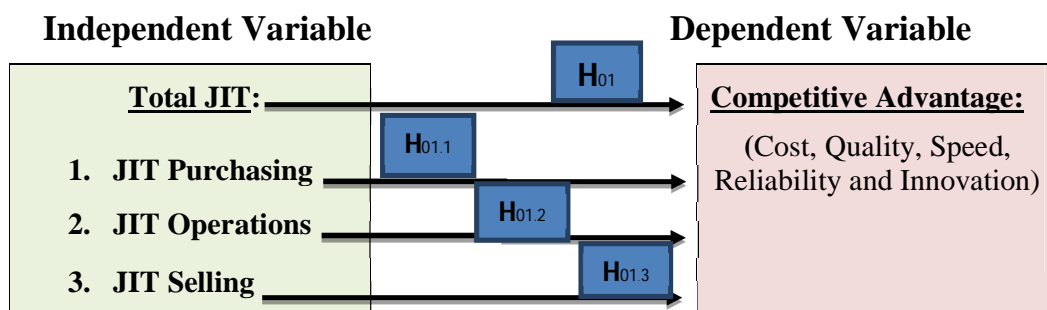
**H<sub>0.1.2</sub>**: JIT Operation does not affect Competitive Advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

**H<sub>0.1.3</sub>**: JIT Selling does not affect Competitive Advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

### Study Model:

This model was developed for implementing independent variables (Total JIT (JIT purchasing, JIT operation, and JIT selling)) and dependent variables (competitive advantage (cost, quality, reliability, speed, and innovation)) according to the previous models, previous studies, problem statement, and research hypothesis.

**Model (1.1): Study Model**



**Sources:** The model is developed based on the following previous studies: for independent variable: (Claycomb, et. al. 1999; Kannan and Tan 2002; Green, et. al. 2011; Singh and Ahuja 2012; Bortolotti, et. al. 2013; Al Maani (2016). For dependent variable: (Awwad, et. al. 2010; Hinterhuber, 2013; Patel, et. al. 2016).

## **Conceptual and Operational Definitions of Terms:**

**Just in Time (JIT):** is a system that improves all processes purchasing, operations, and selling to satisfy customers' requirements in terms of cost, quality, speed, reliability, and innovation.

**JIT Purchasing:** is procuring materials from right supplier on right price, right time, right quantity, and right quality as per customer variable needs; 10 items measure this sub-variable.

**JIT Operation:** is to remove all nonvalue added activities associated with the production process; 10 items measure this sub-variable.

**JIT Selling:** is a response to customer's growing needs and wants in a timely manner with zero complaint; 10 items measure this sub-variable.

**Competitive Advantage:** is what distinguishes a company from others by conducting the appropriate strategy.

**Cost:** is an amount of money that should be expended on product or service to reach the customer, which all companies seek to minimize, as much as possible, to increase their profits and ensure their competitiveness, this sub-variable is measured by seven items.

**Quality:** is continuous improvement in all company activities starting from selecting the right supplier and ending with serving/producing more than customer expectation, this sub-variable is measured by seven items.

**Speed:** is quick response to meet customers' demand that does not affect quality of service/product and ensures the continuity of the company success; this sub-variable is measured by seven items.

**Reliability:** is providing product/service to customer accurately and constantly while maintaining the quality, this sub-variable is measured by seven items.

**Innovation:** is the company ability to be pioneer in launching new product/service to the customer so that it is hard for competitors to catch up with; this sub-variable is measured by seven items.

### **Study Limitations and Delimitations:**

#### **Limitations:**

**Human Limitation:** This study will be carried on managers working at Fast Food Restaurants.

**Place Limitation:** This study will be carried on International Fast Food Restaurants in Jordan.

**Time Limitation:** This study will be carried within the period between summer semester and 1<sup>st</sup> semester of academic year 2016/2017.

**Study Delimitation:** This study is conducted on International fast food industry in Jordan. Generalizing results of this study to other industries and/or countries, many be questionable. Gathering data through the questionnaires, limits the results to the ability of questionnaire to cover all needed data, and to that period.

## **Chapter Two: Theoretical and Conceptual Framework and Previous Studies**

### **Theoretical and Conceptual Framework:**

This chapter includes four main themes: the theoretical and Conceptual framework; the relationships between JIT and competitive advantage; previous models; previous studies; and what differentiate this study from other studies.

### **Definitions of Independent Variable (Total Just in Time):**

It seems that there is an agreement about Total JIT definitions, and there is consensus about its components: JIT purchasing, JIT operation, and JIT selling.

Both scholars and practitioners agree on the definition of Total JIT, but everyone defined it according to his/her perspective, experience and profession., such as Schonberger (1982) defined just in time as “hand- to-mouth” can result to less defect and superior quality. Claycomb, et. al. (1999) mentioned Total JIT is oppositely related to weeks of inventory (inbound, in progress, outbound); oppositely related to the number of stratum in different workable areas; and linked positively to three different index of financial performance (ROI, profits, and ROS). Hopp and Spearman (2000) stated that Total JIT is the main contributor in the development of (JIT) system is the Japanese Engineer "Taiichi Ohno", who has adopted this system in Toyota Motors Company in order to take place in the competitive market, which has been led by the American auto products. Aghazadeh (2004) explained that JIT depends on two principles, which are mitigating of waste and full utilization of capabilities of people. Strach and Everett (2006)

pronounced that JIT is a system has been launched in Japan through applying it in Toyota Motors company and other Japanese firms, where the related literature have considered JIT production System as a Japanese culture. Matsui (2007) explained that the link between JIT elements is an important and fundamental factor as it directly affects competitive performance and other manufacturing practices and policies. White, et. al. (2010) stated that the implementation of JIT is using the theory of competitive progress and the four JOT packages (quality practices, relays related to reliability, delivery and flexibility, and low cost practices). Inman, et.al. (2011) mentioned that main elements of JIT, which are JIT Production, JIT-Purchasing linked to gracefulness. Milovanovic, et. al. (2011) explained that nowadays, global economy de facto organizations are connected by information technologies to achieve different competitive advantages, however just in time system of production is a form where a company implement an inventory strategy leads to increase return profit of a business by decreasing in process inventory and related carrying costs. Aribjorn and Freytag (2013) pronounced the system JIT is considered a revolution or coup against the principles of scientific management. Chen and Tan (2014) Identify that JIT is removing all non-value adding activities to improve quality, reduce cost, and speed delivery. Green, et. al. (2014) mentioned that integrated supply chain strategy embracing previously defined elements of JIT-production, JIT-purchasing, JIT-selling, with the addition of an important new element, JIT-information.

In summary, Total JIT is a system that improves all processes purchasing, operations, and selling to satisfy customers' requirements in terms of cost, quality, speed, reliability, and innovation.

### **JIT Purchasing:**

There is no consensus on one definition for JIT Purchasing, but the main common opinion between the Authors is to order from right supplier on the right quantity, right price, right time, as per customer need, as Gunasekaran (1999) defined JIT Purchasing is an approach to develop and operate the procurement function. Roy and Guin (1999) mentioned that JIT Purchasing is ordering materials in small pieces frequently from the best local suppliers, whose products are characterized by high quality and delivery in the right time and quantity. De Toni and Nassimbeni (2000) stated that JIT Purchasing is a distinct interaction between three factors namely the quality link, the marketing link, and the design link. Dong, et. al. (2001) explained the use of JIT-Purchasing contributes in reducing costs of logistics for both suppliers in direct and buyers direct. Yang and Pan (2004) defined JIT Purchasing is reducing the total of the ordering system cost, cost of stock, quality enhancement, and breaking cost by optimizing the lead time, order quantity, number of deliveries, and procedure of quality. Petroni and Bigliardi (2005) said that JIT Purchasing is the delivery of shipments arrived in align with the production planning so that each component reaches the production line at the time of processing. Isa and Tay (2008) mentioned JIT Purchasing is Materials bought in little quantities from little reliable suppliers and shipped only before they are required by operation. Monden (2011) pronounced JIT Purchasing is securing the quantity of raw materials needed to produce the quantity required by the customer. Chen and Tan (2014) mentioned that removing non-value adding activities would reduce the cost. Kulkarni, et. al. (2014) stated that cost is to Deliver material on due dates, at optimal cost 100 per cent continuously.



In summary, JIT purchasing is procuring materials from right supplier on right price, right time, right quantity, and right quality as per customer variable needs.

### **JIT Operation:**

It seems that there is no agree upon one definition for JIT operation such as, Sugimori, et. al. (1977) defined JIT Operation is to produce the necessary parts at the necessary time and have only the least stock important to hold the process together which leads to reduce the production lead time. Hill and Vollmann (1986) mentioned that a key feature of operational JIT system is the reliability of frequent supply from local suppliers and minimize supply errors. Hopp and Spearman (2000) stated the goal of JIT production is to achieve seven zeros (zero defects, zero excess, zero setups, zero breakdowns, zero handling, zero lead-time, and zero surging. Aghazadeh (2004) JIT Operation includes three basic parts, which are System, Plants, and Employee Involvement. Kotabea and Murray (2004) said that necessity working close with suppliers and massive amount of accountability on procurement managers. Matsui (2007) defined JIT Operation is producing the required items in the required quantities at the right time, and discard all resources of waste in operation. Isa and Tay (2008) pronounced that producing should take place only when orders are received from customers and as per actual quantity, in other words it is called a demand –pull system. Bozdogan (2010) stated that JIT Operation is a set of concepts and practices designed to define the next industrial model behind lean project ideas and flexible production systems. Milovanovic, et. al. (2011) explained JIT operation is an implementation of inventory strategy, which leads to increase return profit of a business. Kulkarni, et. al. (2014) defined JIT operation as a

system of processes to improve and run a manufacturing system. Al-Ali, and Abdallah (2015) said JIT operation is to remove all defects combined with storage space, workers. Jadhov, et. al. (2015) mentioned that global organizations are selecting or willing to adopt just-in-time (JIT) production to enhance the competitiveness.

In brief, JIT operation is removing all nonvalue added activities associated with the production process.

### **JIT Selling:**

There are different definitions for JIT selling by many researchers is for example, Claycomb, et.al. (1999) defined JIT Selling is in reverse linked to the number of layers in several practical areas. Hopp and Spearman (2000) mentioned applying JIT practices like, set time reduction, batch size reduction, uniform workload, good relationships with reputable suppliers, would increase the ability to meet customer's expectations, which means increase sales. Amasaka (2007a) said that JIT Selling is developing and designing products that meet customer needs through the application of established goals and modern scientific methods, which help to determine their desires and tastes very fast. Lai and Cheng (2009) mentioned JIT Selling is running across the rising demands of customers. Green, et. al. (2011) stated JIT Selling is the ability to show the value seller in all stages of the sales process in order to obtain distinguished results in terms of zero damaged and delisting on time, minimize total waste, and zero variance quantity. Singh and Ahuja (2012) mentioned that JIT selling is the successful linkage between seller and buyer. Bavarsad and Gorjizadeh (2013) stated that JIT selling is to produce commodity Just-in –Time for sale. Alcaraz, et. al. (2014) defined JIT selling is to concentrate on rising client satisfaction

and gaining competitive advantage in the market. Kairu (2015) mentioned that JIT selling is only making what is drawn by the client just-in-time and demarche for completeness by regularly eliminate sequent layers of waste. Kartika and Wijaya (2015) explained manufacturers who conduct JIT-selling should expect changes in their organization structure. Marhamati, et. al. (2017) said that to get the benefit from JIT-selling of removal waste and use of resources all activities should be integrated.

In this study, JIT selling can be defined as response to customer's growing needs and wants in a timely manner with zero complaint.

### **Definitions of Dependent Variable (Competitive Advantage):**

Many researchers defined Competitive Advantage, as the company should have strategy different from other competitors, as Barney (1991) defined competitive advantage is carrying out a value strategy not at the same time and not executed by any current or potential competitors. Jap (2000) mentioned that competitive advantage is the resources, capabilities and competencies owned by a company that distinguish from other competitors, which enable the company to compete strongly and continuously to maintain its survival without tumble. Ma (2000) defined Competitive Advantage is the ability to meet customer needs more effectively than other organizations. Lockwood (2007) mentioned that Competitive Advantage is the ability of the company to write and apply strategies that place it in a favorable position over the companies in the same domain. Heizer, et. al. (2013) introduced Competitive Advantage is creating a system that has a unique advantage over other competitors. The concept is to inspire client value in an effective and sustainable manner. Hinterhuber (2013) said that Competitive advantage defined as a set of unique characteristics of a company and its products that

are perceived by the target market as significant and superior to the competition. Ghosh, et. al. (2016) said that Competitive Advantage is putting the company in an appropriate position to enable it to add more value to its customers than of competitors. Migdadi (2016) defined Competitive Advantage is the results of the organization's strategic action. Tatuev, et. al. (2016) pronounced Competitive Advantage is the purpose of the management and the aim of the company activities, but also an element of venture potential, representing its unique material and non-material resources.

In summary, Competitive Advantage is what distinguishes a company from others by conducting the appropriate strategy.

### **Cost:**

Apparently researchers agree upon the definition of cost, as De Toni and Nassimbeni (2000) defined Cost is procure supply routes that tool up continuous outflow of desired materials at a rational cost. Gillen and Lall (2004) stated the competitive advantage of a company increases when the company can reduce its production costs. Yang and Pan (2004) mentioned that incorporated inventory model is to decrease the total of the ordering/install cost, crashing cost, and holding cost. Kannan and Tan (2005) said that the driver of reductions in materials costs is effective management of supply chain. Awwad, et. al. (2010) mentioned that cost is providing product in lower cost than competitors, Mazanai (2012) mentioned that efficient inventory management systems leads to significant operational cost cuts. Monden (2011) said the main philosophy of this system is based on no inventory and warehouse production concepts, which result to decrease the cost. El Dabee, et. al. (2013) stated In respect of ensure optimal demand

strategy for the purchase of raw materials using multiple external suppliers and local backup supplier to decrease the aggregate cost of products, while reducing the risk associated with JIT supply within production system. Nandini (2014) pronounced that focusing on enduring cost reduction by effective operations and continuous fostering of customer's experience. Ramezani and Razmeh (2014) said that the main process of just-in-time producing system is decreasing of product cost by removing defects. Kinyua (2015) mentioned that decreasing carrying cost would lead to enhance returns on investments.

In brief, cost is an amount of money that should be spend on product or service to reach the customer. All companies seek to minimize it, as much as possible, to increase their profits and ensure their competitiveness. Seven items measure this sub-variable.

### **Quality:**

In discussion of the definitions of quality I found that, Flynn (1994) defined Quality is a prerequisite to other strategic headways. Nakamura, et. al. (1998) mentioned that to attain and maintain high quality production, centering on maintenance, ongoing enhancement of operations and prevention of waste at all levels and in all functions of the firm, should meet or exceed customer expectations. Ma (2000) pronounced that Quality is the ability to meet the diverse needs of customers through the provision of quality products and services that could penetrate international markets. Fullerton and Watters (2000) mentioned that the company could reduce the number of inspections once it commits to JIT and 6- quality practices. Hopp and Spearman (2000) said that adopting JIT results improvement of the products quality. Ulu soy and Yegenoglu (2007) mentioned to meet and

exceed the customer requirements and expectations is the primary purpose of quality management. Awwad, et. al. (2010) mentioned that quality leads to competitive advantage by supplying products that meet or exceed customer needs and expectations. Kumar (2010) stated that Set up on quality management together philosophy and directing a group of rules that merge gist management techniques, present optimization efforts, technical tools. Talib, et. al. (2010) said that quality is Customer's focus and satisfaction, employee involvement, quality assurance, zero defects, human resource management, quality information and performance measurement, top management commitment, teamwork, and process management. Gupta (2011) mentioned that Quality is the difference or gap between the expected and perceived service. Teeravaraprug, et. al. (2011) stated that Quality is continuous improvement, employee involvement, and customer satisfaction. Chen and Tan (2014) identify quality is removing all non-value adding activities to improve quality.

In brief, Quality is continuous improvement in all company activities starting from selecting the right supplier and ending with serving/producing more than customer expectation.

### **Speed:**

It seems that, there is no agreement among researchers and practitioners related to speed definition, therefore, Cho, et. al. (2002) defined Speed is the fast progress in technology influence business in many ways, from taken decisions to marketing to procurement. Yang and Pan (2004) stated that Speed is Technology sharing, reduction of lead-time, and decrease of inventory cost are echo of inventory integrated between suppliers and buyers. Abdallah and Matsui (2007) mentioned that Speed help a company

to bring down response time to market. Awwad, et. al. (2010) defined speed how quickly a product or service is delivered to a customer. Mackelprang and Nair (2010) pronounced that Speed Linked with speedy deliveries, reduce cycle time and manufacturing cost. Ozalp, et. al. (2010) said that speed is raising delivery speed of goods to clients, fixing of waste origin, enhancement of processes by arranging business needs and work force outlines for logistics, and raising regularity between suppliers and customers. Bortolotti, et. al. (2011) mentioned that speed is short cycle time, exceeds machine flexibility, minimize setup time, and decrease overproduction defect. Inman, et. al. (2011) stated that speed is quickly respond to variations in client demand. Chen and Tan (2014) identify speed is removing all non-value adding activities to speed delivery. Marhamati, et. al. (2017) said the incorporated processes to decrease inventory levels and excess productivity would lead in one or more of next fields: speed backup, responsiveness, dependency, and elasticity.

In summary, Speed is quick response to meet customers' demand that does not affect quality of service/product provided and ensures the continuity of the company.

### **Reliability:**

Researchers have different opinions about the definitions of reliability, so Schonberger (1982) stated that decrease inventory lead to further reacting customer service, further rigorous forecasts, little missions, and communications troubles, and decreased needs for production supervision staff. Gunasekaran and Lyu (1997) defined Reliability to have whole cycle of business production without obstruction and none value-added time costs. Canel, et. al. (2000) mentioned that Reliability is the steady

and enduring workout of processes whether they are in manufacturing or in services. Hopp and Spearman (2000) said implementing JIT would lead to increase the accuracy of market forecast. Ahmad, et. al. (2003) explained improve delivery reliability, agile and reacting of the plant is result of pull type connection between suppliers and customers. Eker and Pala (2008) mentioned JIT environment is characterized by reliability and consistency, so variation does not exist or slightly exists and results to less use of analysis of variation. Meybodi (2009) defined Reliability is product reliability, delivery reliability, and new product development speed. Awwad, et. al. (2010) stated how to deliver and bring products to the market in reliability. Singh and Ahuja (2012) said that reliability is motion of material at the necessary place and time. Kulkarni, et. al. (2014) said reliability is providing the material in best quality delivered on time leads to a successful operation. Bevilacqua, et. al. (2016) pronounced that reliability is the flexibility of combining companies to satisfy customer demands by producing the accurate count of products orders. Marhamati, et. al. (2017) mentioned the incorporated processes to decrease inventory levels and excess productivity would lead in one or more of next fields: speed backup, responsiveness, dependency, and flexibility.

In Brief, Reliability is providing product/service to customer accurately and constantly while maintaining the quality.

### **Innovation:**

Innovation has different definitions such as, Flynn (1994) defined Innovation is launching new products and adjusting to existing products create a competitive advantage. Nijssen, et. al. (2006) said that fierce competition among companies, has forced companies to establish modern



programs to improve productivity and change traditional management schemes. Amasaka (2007b) stated that innovation is supply the updated customer oriented products, reliable, by employment of speedy developing management technology. Maiga and Jacobs (2008) defined innovation is to takeover innovation in the short run like JIT, or TQM can make operational and financial over works, however in the long run can increase productivity and decrease costs. Grawe, et. al. (2009) mentioned that innovation plays a ticklish function in the raising competitive business environment in which companies run. Awwad, et. al. (2010) mentioned that innovation is obtained from different sources of innovation: new technologies; the adjustment of demand or growth of new demand; new segment; changes in cost. Modi and Mabert (2010) stated that innovation is a firm concentrates on reconnaissance or a balance of reconnaissance and utilization point out innovation output. Bevilacqua, et. al. (2016) defined innovation is enhance procedures, regulations and technologies to meet the continuous variations in the markets. Ezema, et. al. (2016) pronounced that innovation is transfer the knowledge of technology from the customer to the supplier to manufacturing.

In summary, innovation is the company ability to be pioneer in launching new products/services to the customer, so that it is hard for competitors to catch up with new updates.

### **Relationships between Variables:**

Some researchers examined the relationship between one of JIT elements (JIT Purchasing, JIT Operation, JIT Selling) with Competitive Advantage, However few researchers studied the relationship between Total JIT and Competitive Advantage, for example. Brox and Fader (2002)

mentioned that carrying out JIT technologies successfully provides a cost-competitive advantage to companies. Wright, et. al. (2005) concluded that the cause effect model could explain the link between Total JIT and competitive advantage. Sokovic, et. al. (2005) stated that the causes and effects matrix can explain the result of independent variable on dependent variable. Matsui (2007) explained that the link between JIT elements is an important and fundamental factor as it directly affects competitive performance and other manufacturing practices and policies. El-Dabee, et. al. (2013) stated in respect of ensuring optimal demand strategy for the purchase of raw materials using multiple external suppliers and local backup supplier to decrease the aggregate cost of products, and reducing the risk associated with JIT supply within production system. Heizer, et. al. (2013) said that operational management is a group of activities that produce value in the shape of goods and services by converting inputs into outputs. Jadhov, et. al. (2015) mentioned that global organizations are selecting or willing to adopt just-in-time (JIT) production to enhance the competitiveness, one of the most important tasks of top management is to determine and understand the relationship between the handicaps to JIT production to mitigate its bad effects. Cecevic and Antic (2016) stated that to achieve and preserve competitive advantage, it is convenient consider and implement the fundamentals of lean business and create value stream which is the basis for making value for the customers.

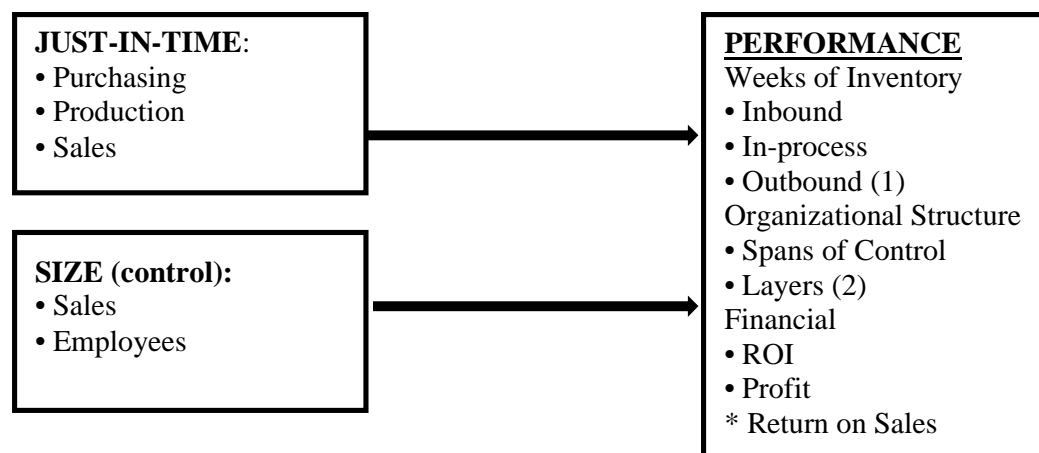
All the studies above found a positive relationship between implementing JIT and achieving Competitive Advantages. So that the current study examines the effect of Total JIT on achieving Competitive Advantages in International Fast Foods Restaurants in Jordan.

### Previous Models:

After screening hundreds of studies, only related models were selected such as:

**Claycomb, et. al. (1999) Model:** aimed to analyze the relationship between JIT and different performance findings, they debate that JIT is backward combined to inventory and the number of scale levels, and having a plus effect on total financial performance and spreads control of management. Moreover, they debate that size has effects on company performance, so should be stripped when testing the JIT performance relationships.

#### Model (2.1): Claycomb, et. al. (1999) Model

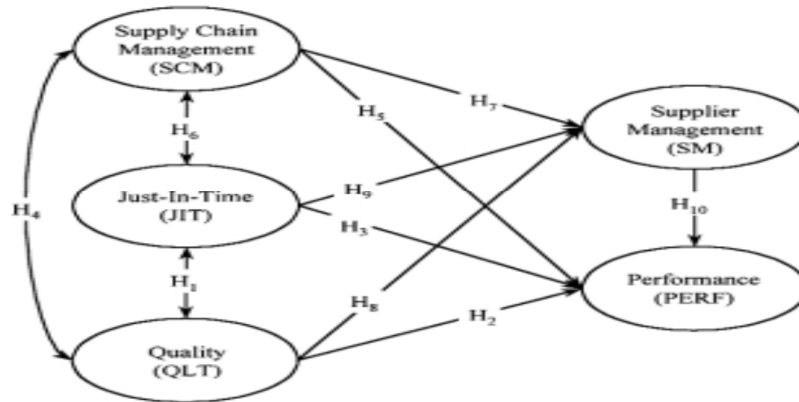


This model (2.1) was quoted to study the effect of an independent variable Total JIT on company performance.

**Kannan and Tan (2002) Model:** Tried to find the relationship between three independent variables (Quality Management, JIT, and Supply Chain Management) with their impact on business performance, taking into

consideration the importance and impact of the volume of sales and Employees in that effect.

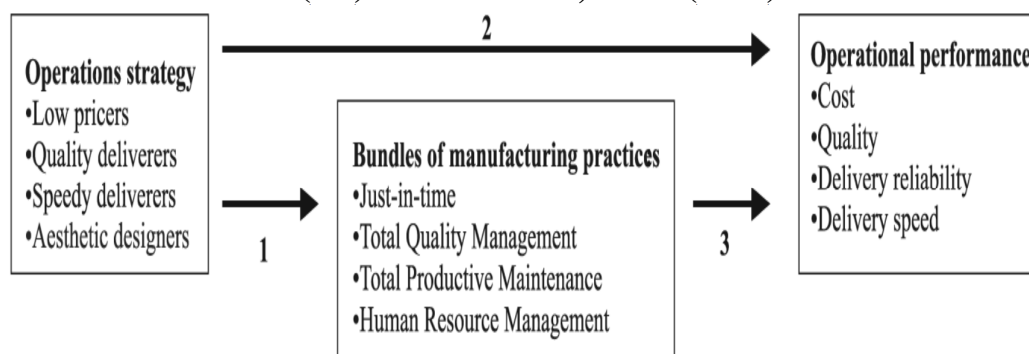
### Model (2.2): Kannan and Tan (2002) Model



The model (2.2) was added to the study because it examines the effect and relationship of JIT variable on the performance of the company.

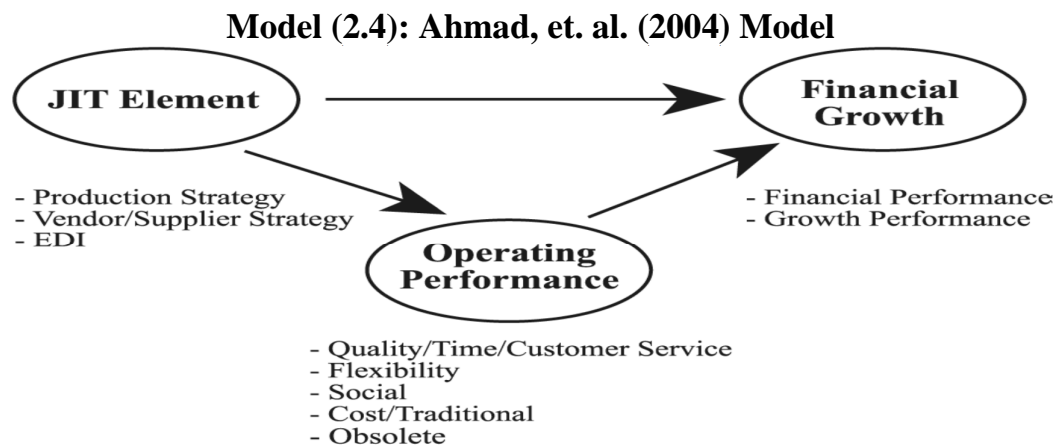
**Christiansen, et. al. (2003) Model:** in their research model, they tried to explore three relationships. First, the relationship between strategic groups and the grade of practice of group of manufacturing implementations (arrow 1). Second, relationships between strategic groups and performance of operation (arrow 2). Third Companies need to practice all groups of manufacturing implementation in order to gain a satisfactory level of operational performance (arrow 3).

### Model (2.3): Christiansen, et. al. (2003) Model



These models (2.3) study the effect of JIT on operational performance (cost, quality, delivery reliability, and delivery speed).

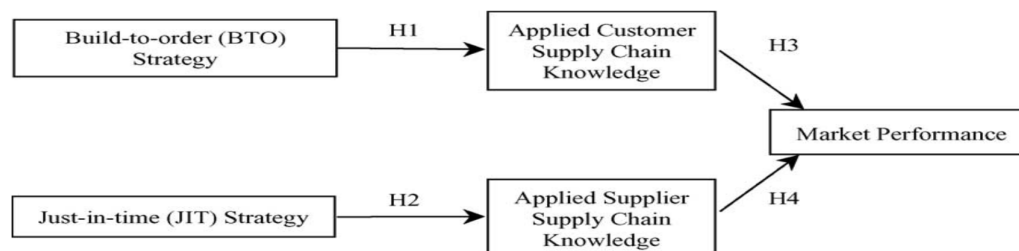
**Ahmad, et. al. (2004) Model:** this model examined the effect of JIT elements (production strategy, vendor/supplier strategy, and EDI) on operating performance (quality, flexibility, social, cost, and obsolete) and financial growth (financial performance and growth performance).



This model (2.4) is added because it investigated the effect of JIT on operational performance (quality, flexibility, social, cost, and obsolete).

**Christensen, et. al. (2005) Model:** this study analyses the relationship of Build-to-Order strategy with the implementation of supply chain knowledge concerning to customers and the relationship of JIT strategy with the implementation of supply chain knowledge related to suppliers.

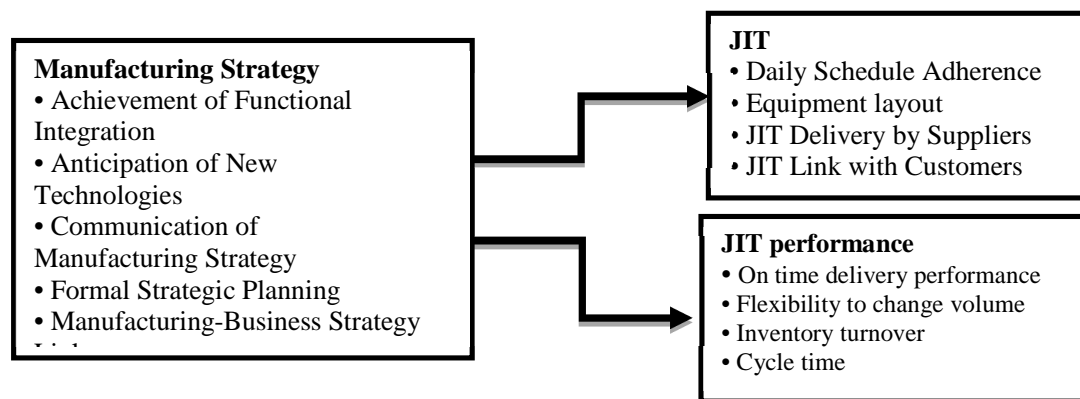
**Model (2.5): Christensen, et. al. (2005) Model**



This model (2.5) studied the effect of JIT strategy on Market performance.

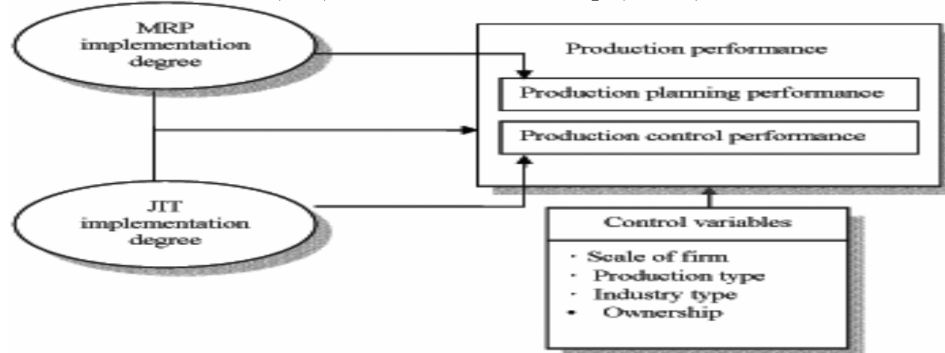
**Abdallah and Matsui (2007) Model:** aimed to investigate the effect on manufacturing strategy by JIT and JIT performance in three different countries Japan, USA, and Italy, and in different industries (machinery, electrical, electronics and automobile).

#### **Model (2.6): Abdallah and Matsui (2007) Model**

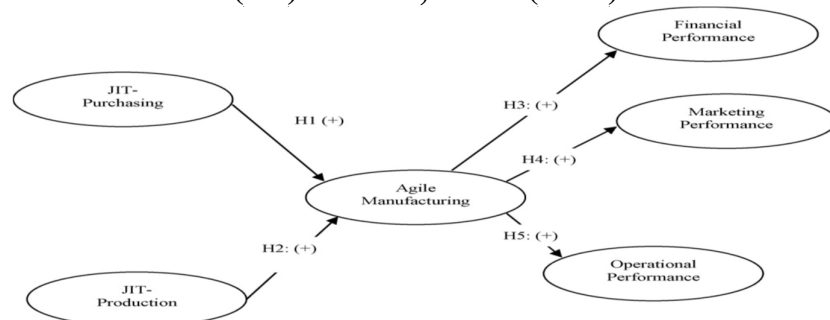


This model (2.1) was quoted to study the relationship between manufacturing strategy and JIT.

**Chen and Shang (2008) Model:** In this paper, Chen and Shang has investigated the relationship between MRP implementation degree and JIT implementation degree on the performance of production (control and planning) in China, However, control variables are (scale of firm, production type, industry type, and ownership). It is very clear that there are several variables that have a significant impact when studying the effect of implementing MRP degree and JIT implementation degree on the performance of production.

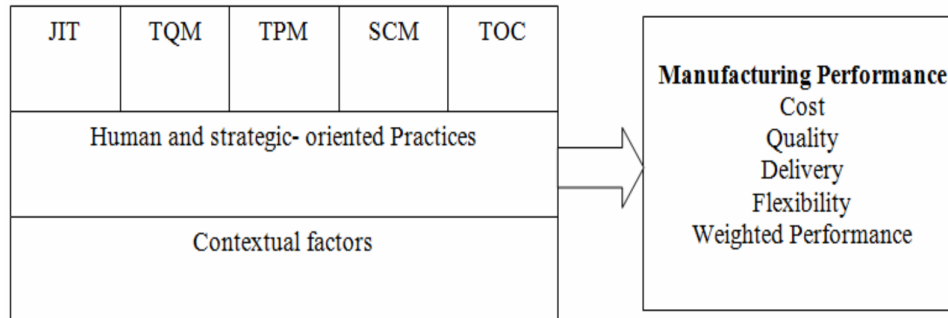
**Model (2.7): Chen and Shang (2008) Model**

**Inman, et. al. (2011) Model:** Aimed to analyze the relationship between JIT Strategies (JIT Purchasing, JIT Production) and agile manufacturing, across limited relationship between the two will be corroborated, in addition to the relationship between manufacturing agile with three performance dimensions( Financial, Marketing, and Operation).

**Model (2.8): Inman, et. al. (2011) Model**

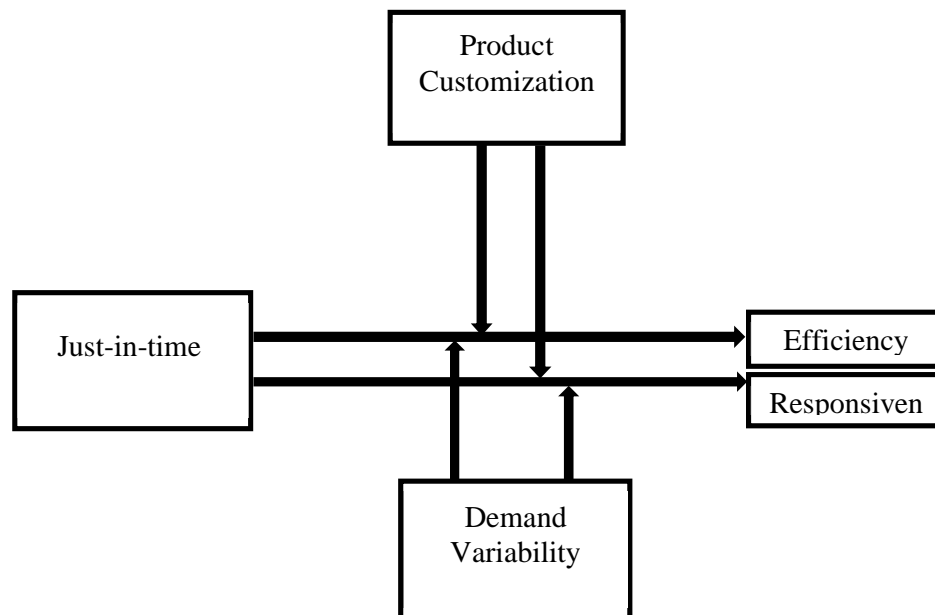
**Singh and Ahuja (2012) Model:** Singh and Ahuja (2012) showed in there model that there are a number of independent variables, “JIT, TQM, TPM, SCM, TOC, Human and strategic –oriented practices, and Contextual factors” that were tested by the thesis, which affected the dependent variables “manufacturing performance” (Cost, Quality, Delivery, Flexibility, and Weighted Performance).

**Model (2.9): Singh and Ahuja (2012) Model**



**Bortolotti, et. al. (2013) Model:** this study concentrated on two features, which are efficiency and responsiveness; whereas product customization and demand variability can effect JIT implementation on performance of operation positively.

**Model (2.10): Bortolotti, et. al. (2013) Model**





## Previous Studies:

In this section, the previous studies are presented from oldest to newest.

Wafa and Yasin (1995) study titled: “**The relationship between JIT and situational constraints: an Empirical study**”, aimed to explore the effect of conditional performance driving elements on employees performance in a Just in time ambience of US producers. The methodology of this study was a field research of 15 companies pursued by an experimental research of 130 US producers companies. The results of this research are argued in the case of determination and removal of conditional performance restrictions in JIT production.

Claycomb, et. al. (1999) study titled: “**Total system JIT outcomes: inventory, organization and financial effects**”, aimed to investigate the relationship between Total JIT (JIT purchasing, JIT production, and JIT selling) and financial performance (ROI, ROS, and Profits). The research methodology is a mail survey of 200 logistics executives. Results of this research were that Total JIT was found to be in backward to weeks of inventory (inbound logistics, in operation, and outbound logistics); and the number of categories in different practical areas; but it was positively to the three indicators of financial performance (Profit, ROI, and ROS).

Cuaa, et. al. (2001) study titled: “**Relationships between implementation of TQM, JIT, and TPM and manufacturing performance**” purpose was to define, if or not execution of manufacturing exercises and mechanism along with JIT, TPM, and TQM explore variations in performance between manufacturing sites. The methodology of this study

uses descriptive discriminant analysis to discover main variation between sets of highest and lowest performers and not to foresee group membership of producing sites. This study uses descriptive discriminant analysis to reveal major differences among the groups of high and low performers and not to predict group. The results of this study present the significance of applying the exercises and mechanisms concerning to all three, however our findings propose that applying old manufacturing exercises can veil the impact of conditional factors on performance, next researches must explore the potential interaction belongings of conditional elements and producing executions on performance.

Dong, et. al. (2001) study titled: **“JIT purchasing and performance: an exploratory analysis of buyer and supplier perspectives”**, stated that JIT purchasing can indirectly lead to lower costs for suppliers, if suppliers implement JIT manufacturing concurrence with a JIT purchasing program. Results showed that integrating operations between buyers and suppliers was positively associated with JIT purchasing for both buyers and suppliers. However, the study pointed out no significant direct paths between supply chain integration and cost reduction in either of the models. Results also indicated that supply chain integration is best implemented as part of a wider program, such as JIT purchasing, in order to produce significant logistics cost reductions. In summary, this research suggests that buyers can directly benefit from JIT purchasing while suppliers may need to adjust their manufacturing practices to benefit as well.

Brox and Fader (2002) study titled: **“the set of just-in-time management strategies: an assessment of their impact on plant-level productivity and input-factor substitutability using variable cost**

**function estimates**”, aimed to provide practical evidence on the hypothesis that companies who implement JIT management strategies do in fact behave differently from other firms in the same industry. The methodology used was the estimation of the CES-TL cost system in its variable cost form. The result is that the JIT firms do appear to be different from the non-JIT group, not only that but also will lead to reduce its cost, quality and grant them competitive advantage.

Kannan and Tan (2002) study titled: **“Quality Management, Supply Chain management, and just in Time: A Model of their Impact on Business Performance”**, stated to examine a constitutional balance model that tests relationships between JIT, Supply chain management, supplier management, and quality management, and their effect on performance of the business. The findings present that these practices are based on the basics of JIT, SCM, and Quality management, but quality management exercises are the most likely motive for business performance. The implementation of JIT or SC exercises can be applied to run mutual support, but quality management practices are the most important driver of business performance. The use of JIT or SCM practices can be used to focus on quality, whether the execution of the segregation drive is clear or not.

Kinney and Wempe (2002) study titled: **“Further Evidence on the Extent and Origins of JIT’s Profitability Effects”**, aimed to provide evidence that just-in-time (JIT) adopters outperform their non-adopting industry peers. Using a sample of 201 JIT adopters and matched non-adopters, it examined the relation between financial performance and JIT. The sample-wide results indicate that JIT adopters improve financial Performance when compared to non-adopters.

Ahmad, et. al. (2003) study titled: **“The role of infrastructure practices in the effectiveness of JIT practices: implications for plant competitiveness”**, aimed to inspect the function of infrastructure practices in the performance of JIT exercises from three sights- global, emergency, and arrangement. The research methodology was a study sample from 110 factories, working on three different industrial fields (Electronics, transportation, and machinery) and located in three countries (Japan, Italy, and USA). The results show that according to testing based on the configurational point of view the harmony between JIT implementations and infrastructure executions requirements invested to gain superior competitiveness for the factory.

Kannan and Tan (2005) study titled: **“Just in time, total quality management, and supply chain management: understanding their linkages and impact on business performance”**, aimed to examine the extent to which just in time, supply chain management, and quality management are correlated, and how they impact business performance. Results demonstrate that at both strategic and operational levels, linkages exist between just in time, total quality management, and supply chain management are viewed by organizations as part of their operations strategy. The research methodology by questionnaire, the target population for the study was senior operations and materials managers in North America and Europe. Results also indicate that a commitment to quality and an understanding of supply chain dynamics have the greatest effect on performance.

Eker and Pala (2008) study titled: **“The Effect of Competition, JIT and TQM”**, aimed to examine the impact of rivalry, Total quality

management, and Just in Time manufacturing on utilize of many Performance gauges. The methodology of this research is experimental study as data collected from 122 manufacturing companies from 500 top Turkish companies in 2005. The outcomes of this study present that there is a linear relationship between utilizing several dimensions performance gauges process and the companies that have top drive positions utilizing JIT and TQM more than others.

Meybodi (2009) study titled: **“Benchmarking performance measures in traditional and just-in-time companies”**, aimed to present if there are variance between conventional and just-in-time (JIT) firms in selecting standard performance gauge at different grades of company. The methodology of this research is a questionnaire sent via email to explore (5) questions on the variances between conventional and JIT firms. The target population for the research was manufacturing companies in Midwestern USA. The sample includes firms in different industries (communication, automotive, toots, chemicals, fabricated metal, rubber, electronics, and paper products. 84 surveys were used from 91. Outputs of this study find that JIT firms are more harmonious in selecting standard performance gauges that are involved with firm strategy.

Mackelprang and Nair (2010) study titled: **“Relationship between just-in-time manufacturing practices and performance: a Meta analytic investigation”**, examined the relationship between JIT manufacturing practices and performance outcomes by means of meta-analysis of correlations approach. According to deep analysis of literature, extend from 1992 to 2008. Results in-depth analysis and meta-analytic investigation showed a significant relationship between JIT manufacturing

implementations and overall performance. However, the findings suggested that not all JIT elements related to all performance measures.

Salehi, et. al. (2010) study titled: **“Impact of JIT on Firms ‘Financial Performance Some Iranian Evidence”**, aimed to show spread practices of JIT will impact on performance of finance. The methodology of this research survey by using questionnaire, which were distributed randomly among 130 managers of manufacturing. The findings of this research presented that in Iran as in other countries, the implementation of JIT exceeds the financial performance of firms. With reference to the researchers, this process is one of the best processes for reducing the cost and boosting the competence of the firm.

White, et. al. (2010) study titled: **“A competitive progression perspective of JIT systems: evidence from early US implementations”**, aimed to find the value of JIT for constructing cumulative abilities by applying the JIT producing pursuits. The samples were collected from US production firms. The sample contains all kinds of manufacturing procedures, duties, and industries that have implemented JIT management executions to different degrees. The methodology of this study was survey of 2640 mailed to member of AME; 1165 completed questionnaires were returned for an overall answer rate of 44.1%. The outputs of this research propose that those pursuits introduced across the end of the JIT applying system to support ongoing development of cumulative abilities.

Green, et. al. (2011) study titled: **“Impact of JIT-selling strategy on organizational structure Purpose”**, aimed to assess the impact of a JIT-selling strategy on organizational structure. Data was drawn from manufacturing executives with marketing responsibilities. A structural

equation modeling approach was used to assess the impact of JIT-selling on the organizational structure. Study found that JIT-selling impacts performance control and specialization, and there was relationship between JIT-selling and integration. The findings generally support the proposition that adoption of a JIT-selling strategy will result in changes in organizational structure.

Gupta (2011) study titled: “**A Conceptual JIT Model of Service Quality**”, aimed to boost goodness of services based on JIT concepts and Continuation that prove benefit in manufacturing companies. The questionnaire sample was used to collect JIT data, the data was collected based on SERVQUAL model for service quality, and the model is used to predict the effect of JIT efficient on the quality of service. The conclusion is that the effectiveness of JIT on the implementation of service firms is estimated.

Mazanai (2012) study titled: “**Impact of just-in-time (JIT) inventory system on efficiency, quality and flexibility among manufacturing sector, small and medium enterprise (SMEs) in South Africa**”, aimed to explore the effect of implementation of JIT inventory management system in the SMEs producing metals, non-metals, wood and furniture, and other industries. Experimental research method supported by questionnaire were used to actualize this study. Questionnaires were distributed to a sample of manufacturing sector SMEs in the food, Wood and furniture, metals, non-metals and other industries. The study results discovered that most of SMEs in producing section were not implementing the JIT inventory management basics in the production section of SMEs. It also showed significant statistical connections between the implementation of JIT inventory

management, quality, flexibility, and cost efficiency. Study recommends using JIT in manufacturing section SMEs to enhance quality of products, raise cuts of cost of operation and increase flexibility.

Singh and Singh (2013) study titled: **“Working with JIT requires a Flexible Approach”**, aimed to find how operational and organizational flexibilities are ticklish for JIT and to what range the effect its practices. Results of this study: JIT is flexibility-based method to stay always connected. It teach people how to fix issues, take advantage of opportunity, how to make that best and best moreover, and can do the impossible as it can put the company on the world map. JIT can make prodigious outcomes, if executed heartily and rightly.

Zaferullah and Kumar (2013) study titled: **“Manufacturing Excellence through JIT Approach”**, aimed to examine in depth the practices of JIT manufacturing, through defining the reader with the notion of JIT comprehensively, and the important elements for its execution. Research methodology of this study was structured questionnaires were distributed to firms to show if they are executing the technique or not. Researcher also extracted data on nature of JITPS executed by firms as well as the advantages obtained from implementing the method. Results of this research: implementation of JIT in companies procures to share across the growth of economy in the country. To offer a new age of JIT implementations in the manufacturing company of India for gaining manufacturing prevalence.

Alcaraz, et. al. (2014) study titled: **“a systemic review/review for JIT implementation: Mexican maquiladors as case study”**, aimed to find the interrelationships between different industries which implement JIT in



Mexico. It used a survey and structural equations model (SEM), the result was once there is a commitment from top management and employees educated well this lead to success in JIT implementation, and this success can be measured by inventory, quality and cost.

Chen and Tan (2014) study titled: **“The perceived impact of JIT implementation on operations Performance”**, aimed to explore the understood effect of just-in-time practice on performance of operation, distinguish the relationship between factors of JIT (incorporated and particular) and performance measures, and based on outputs, show some useful proposes for enhancing JIT practice in producing industry. Research methodology: a questionnaire was improved to collect data from mainland in China; in total, 224 answers were gained, after that analysis statistic was executed to examine the hypothesis. Results: present that, regardless what type of industry or volume of sale of the company, execution of total elements of JIT can enhance performance of operation. Practically, the results of this research can be useful for companies in enhancing practice of JIT in implementation, particularly for those companies, which are in developed countries.

Nandini (2014) study titled: **“McDonald’s Success Story in India”**, aimed to show a deep insight into the launching story of McDonalds in India, in addition to the company pricing policies along with its effective supply Chain and operating processes. The study concluded that the reasons behind the success of India MacDonald’s are: Impressing westernization in Indian food practices; Changing mind set of Indian customer by making him believe that MacDonald’s offers cheap and valuable products ; localization strategy which enabled MacDonald’s to succeed across the globe; Introducing

especial products to Indian Customers. MacDonald's Operation, which is based on Lean Principles and JIT, helped them to serve customers on time and provide them fresh products.

Chien and Lin (2015) study titled: **"The Effects of the Service Environment on Perceived Waiting Time and Emotions"**, aimed to test customer's mood and define which environmental factor may provide the most support in decreasing the sense of waiting time and the passionate response. Data were targeting 410 customers who favored burger restaurants during traffic hour. Only 326 questionnaires were completed, resulting in a 79.5 % response rate. The result indicated that understanding the rush during traffic hours helped the company to understand waiting time path and reduce the waiting time.

Khairuddin, et. al. (2015) study titled: **"Just-in-Time Manufacturing practices and Strategic Performance"** aimed to measure the level of implementation of JIT manufacturing in terms of timely delivery, equipment planning, reduce the operating time of equipment, preventive maintenance commitment, and quality of suppliers and their effect on strategic performance of Jordanian pharmaceutical companies. A questionnaire was distributed on a simple random sample of 140 managers and supervisors involved in the production process. The result of the study found there was a relationship and effect to application of delivery time, equipment planning, and reducing the operating time, but there was no effect to application of preventive maintenance and the quality of the suppliers.

Poojary and Kumar (2015) study titled: **"Just in Time (JIT): A Tool to Decrease Cost and to Improve Profitability"**, aimed to perceive the function of JIT in Pharma industry, know performance of JIT, consider the

relationship between JIT and earning, and the JIT implementations used in the industry of Pharma. The results of this research: conditions of JIT practices the industry of pharma looks like to be backward behind other industries, the average scale of JIT implementation is (57%) which is the lowest result between all four main divisions.

Abuzaid, et. al. (2016) study titled: “**An empirical examination of total just-in-time impact on operational performance: insights from a developing country**”, aimed to survey the effect of Total JIT (purchasing, production, and selling) along with supply chain on the performance of operation from the firm ability opinion. The methodology of this research was questionnaire, which collected from 166 industrial companies in Jordan. Structural equation model was used to test the study hypotheses. The findings of this research show that JIT production affects directly both; JIT purchasing and JIT selling. The outputs also show that JIT selling directly impact the performance of operation, Where JIT production impacts indirectly the performance of operation out of JIT selling.

Al Maani (2016) study titled: “**JIT in the Jordanian Industrial Companies**”, aimed to identify the implementation of JIT in the Jordanian public industrial companies. Descriptive-analytical approach was adopted. To accomplish the study objectives the researcher designed a questionnaire and distributed to a sample of 55 out of 76 industrial companies that represent the population. The result of study set Jordanian public industrial companies don't implement JIT production system, in addition to some barriers prohibit that the applying of JIT production system in these companies performed by lack of experience, and awareness of top management. The study recommended extends more efforts to increase the

knowledge and importance of JIT at top management of Jordan companies, in addition to gain the experiences, training courses.

Patel, et. al. (2016) study titled: **“Implementation of Just-In-Time in an Enterprise”**, aimed to investigate the objectives of JIT System, which is, to satisfy customer needs, produce good quality, decrease waste. These operations speed the services, improve quality, with fair price. Furthermore, they reduce waste and cost. Result showed that JIT could be useful for enhancing the efficiency of these newly developed industries.

Al haraisa (2017) study titled: **“Just-In-Time System and Its Impact on Operational Excellence: An Empirical Study on Jordanian Industrial Companies”**, aimed to explore the effect of Just in Time process on privilege of operation from the point of view of managers. The methodology of this research is implementing the descriptive and analysis scope. The population of this research (14) industrial firms working at Al-Hussain bin Abdullah II (QIZ) in Al-Karak Province. The survey sample contained all the study people. The taking unit and analysis contained(168) manager and head of departments at the operation and logistics sections and chosen intentionally based on their work particular in the Just in Time process aspect during the purpose firms. The findings of this research set up the just in time model included (Pull production, set up time decrease, suppliers quality, and equipment layout) have a plus effect on the operational privilege in industrial firm in Jordan. Based on these findings the research advise that industrial firms in Jordan should assure basically on their just in time process containing of (pull production, set time decrease, suppliers quality, and equipment layout) to improve and gain the operational privilege and attain competitive feature.

Barkhordari and Denavi (2017) study titled: **“Just-In-Time (JIT) Manufacturing and its Effect on the Competence of Supply Chain and Organizational Performance in the Tile and Ceramic Industry in Yazd Province”**, aimed to find the relation between the strategy of the company for supply chain and its performance. The methodology of this research was sample from 219 managers, and an expert who has extensive experience in tile and ceramic industry. The findings of this research present that success of supply chain needs supply chain capabilities, and supply chain strategies. Moreover, it was found that total JIT is a suitable strategy for supply chain management. The results show that supply chain management strategy has positive impact on JIT producing, qualifications of supply chain management and demanded organizational performances.

From the literature reviews above, it can be accomplished that all organizations can be benefited from using Total JIT, as Claycomb, et. al. (1999), Kinney and Wempe (2002), Salehi et. al. (2010), and Poojary and Kumar (2015) in their studies showed that extend implementation of JIT will impact of performance of finance indifferent industries and different countries outside Arab region, while this study will explore the effect of Total JIT on competitive advantage in international fast foods in Jordan. Cuuaa, et. al. (2001), Dong, et. al. (2001), Brox and Fader (2002), Kannan and Tan (2002), Kannan and Tan (2005), and Mackelprang and Nair (2010) in their studies showed the relationship between JIT manufacturing practices and performance outcomes which took one element from JIT, however this study investigate the effect of total JIT on competitive advantage by taking three elements of JIT . Al Maani (2016) examined if Jordanian public industries companies implement JIT or not, which didn't study effect of JIT

on performance of operation, however this study investigate the effect of Total JIT on competitive advantage , which take many variables and dimensions. Finally, Al haraisa (2017) explored the impact of JIT on operational excellence on Jordanian companies in Al-Karak Province, which take only one element of JIT (JIT operation) and dedicated to companies at Al-Karak Province (QIZ), where this study explore the effect of Total JIT ,which take three elements of JIT.

Therefore, the current study will explore the effect of Total JIT on Competitive advantage at International fast foods restaurants in Jordan.

### **What Differentiate the Current Study from Previous Studies?**

This study might be considered as the first study to research the effect of total Just in Time (JIT) on achieving competitive advantage at international fast food restaurants in Jordan.

1. Total JIT concept: The current study expects that it will raise consciousness about the role function of total JIT on achieving competitive advantage in International Fast Foods Restaurants.

2. Purpose: Most of the previous studies were undertaken to measure and manage total JIT from the financial point of view, and to boost the company's JIT indexes exposure. Few studies were executed to study the effect of total JIT dimensions (JIT purchasing, JIT operation, and JIT selling) on achieving competitive advantages (Cost, Quality, Speed, Reliability, and Innovation).

3. Environment: Most previous studies have been implemented in various countries outside the Arab region. The current study will be executed in Jordan, as one of the Arab region countries.

4. Industry: Few studies pertaining Total JIT carried out on fast food industry. The current study is dedicated to fast food industry only.

5. Methodology: Most previous researches were found in annual reports of various companies and industries. The current one is based on perception.

6. Variables: Most of previous studies and researchers take one element of Total JIT, but in this research three elements were taken; ( JIT purchasing, JIT operation, and JIT selling).

7- Population: Most previous researches took samples from population, but in this research population of the study are the five fast food restaurants international companies in Jordan, all these companies are targeted, therefore there is no need for sampling.

8- Comparison: The current research will contrast the outcomes of this study with the outcomes of previous researches mentioned earlier to highlight similarities and differences that probably might be there.

## **Chapter Three: Study Methodology (Methods and Procedures):**

### **Study Design:**

The current study is considered descriptive, as well as, cause/effect study. It aims to study the effect of Total Just in Time (JIT selling, JIT operation, JIT purchasing) on achieving competitive advantage (cost, quality, speed, reliability, innovation) at Jordanian fast food restaurants. This study begins with literature review and expert's interviews to develop model and measurement tool. The data is collected by questionnaire, which is developed for this study. Then after checking the collected questionnaires, they have been coded against SPSS. Normality, validity and reliability were tested, then the correlation between variables was checked and multiple regressions used to test the hypothesis.

### **Study Population, Sample and Unit of Analysis:**

**Population and Sample:** population of this study consists of the five fast food restaurants international companies in Jordan. They are Touristic Projects and International Restaurants Company (Americana), Jordanian Restaurants For Fast Food Company (Pizzahut), Armoush Touristic Company (MacDonald's), American Arabic Food Company (Burger King, Papa John's), and Arabic Food Company (Popeyes). All these companies were targeted; therefore, there is no need for sampling.

**Unit of Analysis:** The survey unit of analysis is managers who work in these companies in Jordan.



### **Data Collection Methods (Tools):**

For the purpose of this study, data collected from two sources: secondary and primary sources. Secondary data collected from International Fast Foods Restaurants in Jordan, articles, thesis, working papers, books, journals, researchers, and Websites. Primary data collected via questionnaire, which based on literature review and expert interviews, and developed based on referee committee.

### **The Questionnaire:**

The questionnaire designed to match with the purpose of the study, then validated through expert interviews and referees committee (panel of judge), as shown in appendix (1).

### **Questionnaire Variables:**

The questionnaire includes three parts as follows:

**Demographic Dimensions:** Company, gender, age, education, position, department, experience, and nationality.

**Independent Variable (Total JIT):** Independent variable total JIT includes three sub-variables: JIT purchasing, JIT operation, and JIT selling. Each sub-variable measured by ten questions.

**Dependent Variable (Competitive Advantage):** Dependent variables competitive advantage includes five dimensions: Cost, quality, speed, reliability, and innovation, every dimension measured by seven questions. Five-point Likert-type scale used to measure all variables items ranging from value 1 (strongly disagree) to value 5 (strongly agree) to rate the perceptions of the respondent on implementation of each question.

### **Data Analysis Methods:**

To actualize this study, all the five fast food international restaurants companies were targeted; this negates the need for sampling. All managers (250) working in these restaurants were targeted, and 200 questionnaires were distributed, and only 195 questionnaires returned. After checking all questionnaires, nine questionnaires were excluded due to incompleteness and biasness. The remaining 186 questionnaires were coded against SPSS for further analysis.

**Validity Test:** two methods used to confirm validity of the study tool: content validity and face validity. For content validity, multiple sources of literatures have been used: books, journals, articles, thesis, dissertations, and worldwide websites. While, for face validity the panel of judge used to referee the questionnaire.

### **Construct Validity (Factor Analysis):**

Principal Component Factor Analysis was used to test construct validity, if factor loading for each item within its group is more than 40%, then construct validity is assumed. While, Kaiser-Meyer-Olkin (KMO) is used to measure sampling adequacy and Bartlett's Test of Sphericity of samples used as indicator for samples items harmony, explained variance is also added to verify explanation value of each sub-variable.

Table (3.1) shows that factor loading of each item within JIT Purchasing group rated more than 40%, except for one item (question no. 4 in JIT purchasing), therefore the construct validity was assumed. KMO has rated 83%, and the test produced explanatory value of 40.812, which explains 40.81% of the variance.

**Table (3.1) Principal Component Factor Analysis for Just in Time Purchasing:**

Item	Factor1	KMO	Chi-Square	Bartlett's Test	Explained Variance	Sig.
JITP1	0.806	0.830	606.171	45	40.812	0.000
JITP2	0.740					
JITP3	0.704					
JITP4	0.333					
JITP5	0.638					
JITP6	0.562					
JITP7	0.659					
JITP8	0.619					
JITP9	0.593					
JITP10	0.620					

Table (3.2) shows that factor loading of each JIT operation sub-variable item within its group rated more than 40%, therefore the construct validity is assumed. Moreover, KMO has rated 88.7%, and the test produced explanatory value of 45.585, which all JIT Operation items explain 45.59% of the variance.

**Table (3.2) Principal Component Factor Analysis for Just in Time Operations:**

Item	Factor1	KMO	Chi-Square	Bartlett's Test	Explained Variance	Sig.
JITO1	0.757	0.887	656.299	45	45.585	0.000
JITO2	0.766					
JITO3	0.666					
JITO4	0.469					
JITO5	0.570					
JITO6	0.574					
JITO7	0.745					
JITO8	0.763					
JITO9	0.683					
JITO10	0.691					

Table (3.3) shows that factor loading of each JIT Selling sub-variable item within its group rated more than 40%, therefore the construct validity is assumed. Moreover, KMO has rated 84.7%, and the test produced explanatory value of 42.835, which all JIT Selling items explains 42.84% of the variance.

**Table (3.3) Principal Component Factor Analysis for Just in Time Selling:**

Item	Factor1	KMO	Chi-Square	Bartlett's Test	Explained Variance	Sig.
JITS1	0.625	0.847	585.777	45	42.835	0.000
JITS2	0.633					
JITS3	0.602					
JITS4	0.737					
JITS5	0.744					
JITS6	0.649					
JITS7	0.641					
JITS8	0.645					
JITS9	0.599					
JITS10	0.653					

Table (3.4) shows that factor loading of Total JIT group rated more than 40%, therefore the construct validity was assumed. KMO has rated 74.7%, and the test produced explanatory value of 84.441, which explains 84.44% of the variance.

**Table (3.4) Principal Component Factor Analysis for Total Just in Time:**

Item	Factor1	KMO	Chi-Square	Bartlett's Test	Explained Variance	Sig.
JITP	0.898	0.747	371.379	3	84.441	0.000
JITO	0.928					
JITS	0.931					

Table (3.5) shows that factor loading of each item within Cost group rated more than 40%, therefore the construct validity was assumed. KMO has rated 81.1%, and the test produced explanatory value of 46.482, which explains 46.48% of the variance.

**Table (3.5) Principal Component Factor Analysis for Cost:**

Item	Factor1	KMO	Chi-Square	Bartlett's Test	Explained Variance	Sig.
Co1	0.687	0.811	358.187	21	46.482	0.000
Co2	0.782					
Co3	0.682					
Co4	0.710					
Co5	0.608					
Co6	0.630					
Co7	0.659					

Table (3.6) shows that factor loading of each item within Quality group rated more than 40%, therefore the construct validity was assumed. KMO has rated 85.8%, and the test produced explanatory value of 56.994, which explains 56.99% of the variance.

**Table (3.6) Principal Component Factor Analysis for Quality:**

Item	Factor1	KMO	Chi-Square	Bartlett's Test	Explained Variance	Sig.
Qu1	0.783	0.858	568.560	21	56.994	0.000
Qu2	0.822					
Qu3	0.742					
Qu4	0.656					
Qu5	0.788					
Qu6	0.730					
Qu7	0.753					

Table (3.7) shows that factor loading of each item within Speed group rated more than 40%, therefore the construct validity was assumed. KMO has rated 84.5%, and the test produced explanatory value of 55.636, which explains 55.64% of the variance.

**Table (3.7) Principal Component Factor Analysis for Speed:**

Item	Factor1	KMO	Chi-Square	Bartlett's Test	Explained Variance	Sig.
Sp1	0.775	0.845	565.322	21	55.636	0.000
Sp2	0.831					
Sp3	0.755					
Sp4	0.719					
Sp5	0.724					
Sp6	0.703					
Sp7	0.706					

Table (3.8) shows that factor loading of each item within Reliability group rated more than 40%, therefore the construct validity was assumed. KMO has rated 88.4%, and the test produced explanatory value of 54.850, which explains 54.85% of the variance.

**Table (3.8) Principal Component Factor Analysis for Reliability:**

Item	Factor1	KMO	Chi-Square	Bartlett's Test	Explained Variance	Sig.
Re1	0.799	0.884	494.524	21	54.850	0.000
Re2	0.771					
Re3	0.705					
Re4	0.734					
Re5	0.755					
Re6	0.758					
Re7	0.653					

Table (3.9) shows that factor loading of each item within Innovation group rated more than 40%, therefore the construct validity was assumed. KMO has rated 82.80%, and the test produced explanatory value of 51.537, which explains 51.54% of the variance.

**Table (3.9) Principal Component Factor Analysis for Innovation:**

Item	Factor1	KMO	Chi-Square	Bartlett's Test	Explained Variance	Sig.
Inv1	0.781	0.828	477.299	21	51.537	0.000
Inv2	0.792					
Inv3	0.620					
Inv4	0.756					
Inv5	0.715					
Inv6	0.736					
Inv7	0.601					

Table (3.10) shows that factor loading of Competitive Advantage group rated more than 40%, therefore the construct validity was assumed. KMO has rated 88.1%, and the test produced explanatory value of 75.090, which explains 75.09% of the variance.

**Table (3.10) Principal Component Factor Analysis for Competitive Advantages:**

Item	Factor1	KMO	Chi-Square	Bartlett's Test	Explained Variance	Sig.
CO	0.840	0.881	630.985	10	75.090	0.000
QU	0.863					
SP	0.877					
RE	0.881					
INV	0.871					

**Reliability Test:** (Cronbach's Alpha): Reliability test (Cronbach's Alpha coefficients of internal consistency) is used to test the consistency and suitability of the measuring tools.

**Table (3.11): Reliability Test (Cronbach's Alpha) for all Variables.**

No.	Item	No. of Items	Cronbach's Alpha
	JIT Purchasing	10	0.825
	JIT Operations	10	0.863
	JIT Selling	10	0.847
	<b>Total JIT</b>	<b>3 Sub-variables</b>	<b>0.908</b>
	Cost	7	0.801
	Quality	7	0.869
	Speed	7	0.862
	Reliability	7	0.857
	Innovation	7	0.836
	<b>Competitive Advantages</b>	<b>5 Dimensions</b>	<b>0.917</b>

Table (3.11) shows that the value of Cronbach's Alpha coefficient for independent sub-variables are ranging between 0.825 and 0.863, and for dependent dimensions ranges between 0.801 to 0.869. According to Sekran (2003) if the value of Cronbach's Alpha coefficient is more than 70%, then the reliability is accepted.

**Demographic Analysis:** the following section describes the respondents' characteristics i.e. frequency and percentage of participants includes company, gender, age, education, experience, and department.

**Company:** Table (3.12) shows that the majority of respondents from Americana company 88 (47.3%), followed by MacDonald and Pizzahut both are 33 (17.7%), then Burger King 19 (10.2%), and finally Popeyes 13 (7.0%). Americana has the highest in percentage of respondents (47.3%) because it has the largest number of employees of international fast foods restaurants in Jordan.

**Table (3.12): Company Name.**

		Frequency	Percent
<b>Company</b>	Americana	88	47.3
	Pizzahut	33	17.7
	Popeyes	13	7.0
	Burger King	19	10.2
	MacDonald	33	17.7
	<b>Total</b>	<b>186</b>	<b>100.0</b>

**Gender:** Table (3.13) shows that most respondents are male 124 (66.7%) and female only 62 (33.3%), Males represent the highest proportion of females because females prefer to work in certain areas only in restaurants, for example, customer relations agents or cashier.

**Table (3.13): Gender Description.**

		Frequency	Percent
<b>Gender</b>	Male	124	66.7
	Female	62	33.3
	<b>Total</b>	<b>186</b>	<b>100.0</b>

**Age:** Table (3.14) shows that the majority respondents age are between 25-35 years 94 (50.5%), followed by less than 25 years 59 (31.7%), then that between 36-45 years 24 (12.9%), and finally above 45 years only 9 (4.8%). Working in restaurants attracts the younger age group of less than 25 years old, because working as crewmember does not require a high school certificate or a university degree.

**Table (3.14): Age Distribution.**

		Frequency	Percent
<b>Age</b>	Less than 25	59	31.7
	Bet. 25-35	94	50.5
	Bet. 36-45	24	12.9
	Above 45	9	4.8
	<b>Total</b>	<b>186</b>	<b>100.0</b>

**Education:** Table (3.15) shows that most respondents are Bachelor holders 63 (33.9%), followed by High school graduates 59 (31.7%), then Diploma holders 51 (27.4%), finally Master holders only 13 (7.0%).



**Table (3.15): Respondents Education.**

		Frequency	Percent
<b>Education</b>	High school	59	31.7
	Diploma	51	27.4
	Bachelor	63	33.9
	Master	13	7.0
	<b>Total</b>	<b>186</b>	<b>100.0</b>

**Department:** Table (3.16) shows that the majority respondents are from operation department 128 (68.8%), followed by from marketing department 26 (14.0%), then from supply chain department 17 (9.1%), finally from quality department 15 (8.1%). Operation represents the highest among others because this function is the main pillar that the company relies on in restaurant management.

**Table (3.16): Respondents Department.**

		Frequency	Percent
<b>Department</b>	Operation	128	68.8
	Quality	15	8.1
	Marketing	26	14.0
	Supply chain	17	9.1
	<b>Total</b>	<b>186</b>	<b>100.0</b>

**Experience:** Table (3.17) shows that most respondents are less than 5 years' experience 80 (43.0%), followed by between 5-10 years' experience 66 (35.5%), then between 11-15 years' experience 24 (12.9%), and finally above 15 years' experience only 16 (8.6%).

**Table (3.17): Respondent Experience.**

		Frequency	Percent
<b>Experience</b>	Less than 5	80	43.0
	Bet. 5-10	66	35.5
	Bet. 11-15	24	12.9
	Above 15	16	8.6
	<b>Total</b>	<b>186</b>	<b>100.0</b>

## **Chapter Four: Data Analysis**

### **Introduction:**

This chapter contains descriptive statistical analysis of responses, Pearson correlation matrix to show the relationships among independent variables with each other, among dependent dimensions with each other, and between independent variable and sub-variables with dependent variable. Finally, it includes hypothesis testing, which tests the effect of Total JIT on Competitive Advantages.

### **Descriptive Statistical Analysis:**

For describing the respondents' perception about the implementations of each variable, dimension and items, means, standard deviations, t-values, ranking and importance. Importance will be assigned according to the following equation:

$5 - 1/3 = 1.33$ , Low importance: 1-2.33, Medium Importance: 2.34-3.66

High Importance: 3.67-5

### **Independent Variable (Total Just in Time):**

Table (4.1) shows that the means of total just in time sub-variables ranges between 3.96 to 4.10 and the standard deviation ranges between 0.659 and 0.660. This indicates that the respondents agree on high importance of total JIT sub-variables. Average mean for all total JIT sub-variables is 4.02 with standard deviation of 0.606. This means that the total JIT is very important for fast food international restaurant companies, where  $t=23.017 > 1.960$ . The JIT operation rated highest mean, followed by JIT selling and finally, JIT purchasing.

**Table (4.1): Mean, Standard Deviation, t-Value, Ranking and Importance for Total JIT.**

No.	Sub-Variable	Mean	S.D.	t-Value	Sig	Ranking	Importance
1	JIT Purchasing	3.96	0.660	19.781	0.000	3	High
2	JIT Operations	4.10	0.659	22.843	0.000	1	High
3	JIT Selling	4.01	0.660	20.824	0.000	2	high
	<b>Total JIT</b>	<b>4.02</b>	<b>0.606</b>	<b>23.017</b>	<b>0.000</b>		<b>High</b>

t-tabulated=1.960

### **JIT Purchasing:**

Table (4.2) shows that the means of JIT purchasing items ranges between 3.61 to 4.24 with standard deviation ranges from 0.906 to 1.317. This indicates that the respondents semi agree on medium to high importance of JIT purchasing items.

**Table (4.2); Mean, Standard Deviation, t-Value, Ranking and Importance for JIT Purchasing**

No.	Item	Mean	S.D.	t-Value	Sig	Ranking	Importance
1	The company develops full database about suppliers.	3.67	1.317	38.019	0.000	7	High
2	The company selects the right suppliers.	3.92	1.011	52.964	0.000	5	High
3	The company shares forecasting with suppliers.	3.84	0.993	52.787	0.000	6	High
4	The company places orders based on forecasting.	3.61	1.283	38.359	0.000	8	Medium
5	The company receives materials at the right time.	4.04	0.985	55.953	0.000	4	High
6	The company receives requested materials on the right quantity.	4.16	0.971	58.363	0.000	2	High
7	The company receives the materials on right quality.	4.24	0.923	62.602	0.000	1	High
8	The company develops suitable space to store materials.	4.08	0.997	55.835	0.000	3	High
9	The company receives orders in many lots according to demand.	4.08	0.906	61.440	0.000	3	High
10	The company settles accounts to the suppliers on time.	3.92	1.108	48.327	0.000	5	High
	<b>JIT Purchasing</b>	<b>3.96</b>	<b>0.660</b>	<b>81.792</b>	<b>0.000</b>		<b>High</b>

t-tabulated value=1.960

The average mean for total JIT is 3.96 with standard deviation of 0.660. This means that the fast food international restaurant companies consider JIT purchasing of high importance, where  $t\text{-value}=81.792 > 1.960$ . The JIT operation rated higher than JIT selling and finally, JIT purchasing.

### **JIT Operation:**

Table (4.3) shows that the means of JIT operations items ranges between 3.87 to 4.26 with standard deviation ranges from 0.845 to 1.206. This indicates that the respondents agree on high importance of JIT operations items.

**Table (4.3): Mean, Standard Deviation, t-Value, Ranking and Importance for JIT Operations**

No.	Item	Mean	S.D.	t-Value	Sig	Ranking	Importance
1	The company kitchen layout facilitates operation.	3.87	1.206	43.789	0.000	8	High
2	The company arranges the equipment to facilitate operation.	4.17	0.859	66.242	0.000	2	High
3	The company controls cooking time well.	4.26	0.845	68.812	0.000	1	High
4	The company meets the production schedule of every day.	4.15	0.900	62.909	0.000	3	High
5	The company devotes appropriate space to serve customers.	4.15	0.927	60.964	0.000	3	High
6	The company selects appropriate staff to serve customers.	4.08	0.950	58.507	0.000	6	High
7	The company trains staff to serve customers well.	4.10	1.025	54.525	0.000	4	High
8	The company chooses appropriate materials to serve customers.	4.07	0.998	55.643	0.000	7	High
9	The company serves customers on the right time.	4.10	1.006	55.637	0.000	4	High
10	The company provides comfortable seats.	4.09	1.067	52.226	0.000	5	High
	<b>JIT Operations</b>	<b>4.10</b>	<b>0.659</b>	<b>84.962</b>	<b>0.000</b>		<b>High</b>

**t-tabulated value=1.960**

The average mean for total JIT is 4.10 with standard deviation of 0.659. This means that the fast food international restaurant companies consider JIT operations of high importance, where  $t\text{-value}=84.962>1.960$ .

### **JIT Selling:**

Table (4.4) shows that the means of JIT selling items ranges between 3.50 to 4.21 with standard deviation ranges from 0.902 to 1.240. This indicates that the respondents semi agree on medium to high importance of JIT selling items.

**Table (4.4): Mean, Standard Deviation, t-Value, Ranking and Importance for JIT Selling**

No.	Item	Mean	S.D.	t-Value	Sig	Ranking	Importance
1	The company develops full database about customers.	3.50	1.240	38.492	0.000	9	Medium
2	The company provides car parking for customers.	3.96	0.941	57.377	0.000	6	High
3	The company's staff welcome customers with smile.	4.21	0.921	62.357	0.000	1	High
4	The company serves the customers accurately.	4.08	0.961	57.819	0.000	5	High
5	The company serves customers on right time.	4.19	0.902	63.347	0.000	2	High
6	The company develops simple menu for customer selection.	4.10	1.037	53.934	0.000	4	High
7	The company serves tasty products.	4.19	0.921	62.077	0.000	2	High
8	The company provides appropriate public utility (Internet, A/C,...etc.).	3.93	1.120	47.854	0.000	7	High
9	The company assures appropriate number of seats to serve customers.	4.12	0.965	58.299	0.000	3	High
10	The company provides entertainment for customers (play area, music).	3.80	1.109	46.733	0.000	8	High
	<b>JIT Selling</b>	<b>4.01</b>	<b>.660</b>	<b>82.796</b>	<b>0.000</b>		<b>High</b>

**t-tabulated value=1.960**

The average mean for total JIT is 4.01 with standard deviation of 0.660. This means that the fast food international restaurant companies consider JIT selling of high importance, where  $t\text{-value}=82.796>1.960$ .

**Dependent Variable (Competitive Advantages):**

Table (4.5) shows that the means of Competitive Advantages dimensions ranges between 3.98 to 4.10 and the standard deviation ranges between 0.659 and 0.772. This indicates that the respondents agree on high importance of Competitive Advantages. Average mean for all Competitive Advantages dimensions is 4.05 with standard deviation of 0.638. This means that the Competitive Advantages is very important for fast food international restaurant companies, where  $t=86.434>1.960$ . Table also shows that quality has highest mean, followed by speed, then reliability, cost and innovation, respectively.

**Table (4.5): Mean, Standard Deviation, t-Value, Ranking and Importance for Competitive Advantages**

No.	Dimension	Mean	S.D.	t-Value	Sig	Ranking	Importance
1	Cost	3.98	0.659	82.256	0.000	4	High
2	Quality	4.10	0.772	72.291	0.000	1	High
3	Speed	4.09	0.754	74.002	0.000	2	High
4	Reliability	4.08	0.740	75.255	0.000	3	High
5	Innovation	3.98	0.754	71.929	0.000	4	High
	<b>Competitive Advantages</b>	<b>4.05</b>	<b>0.638</b>	<b>86.434</b>	<b>0.000</b>		<b>High</b>

$t\text{-tabulated value}=1.960$

**Cost:**

Table (4.6) shows that the means of cost items ranges between 3.87 to 4.06 with standard deviation ranges from 0.851 to 1.176. This indicates that the respondents agree on high importance of cost items. The average mean for cost items is 3.98 with standard deviation of 0.659. This means that the fast food international restaurant companies consider cost of high importance, where  $t\text{-value}=82.256>1.960$ .

**Table (4.6): Mean, Standard Deviation, t-Value, Ranking and Importance for Cost**

No.	Item	Mean	S.D.	t-Value	Sig	Ranking	Importance
1	The company has inventory management plan.	3.87	1.176	44.848	0.000	6	High
2	The company has reduced lead-time.	4.00	0.851	64.099	0.000	3	High
3	The company employees are well trained on multi tasks.	4.06	0.993	55.760	0.000	1	High
4	The company has long-term relationship with suppliers.	4.06	0.859	64.484	0.000	1	High
5	The company selects nearby suppliers.	3.90	0.945	56.279	0.000	5	High
6	The company uses integrated supply system with their suppliers.	3.94	0.925	58.093	0.000	4	High
7	The company receives orders on frequent deliveries.	4.01	1.045	52.350	0.000	2	High
	<b>Cost</b>	<b>3.98</b>	<b>0.659</b>	<b>82.256</b>	<b>0.000</b>		<b>High</b>

t-tabulated value=1.960

### Quality:

Table (4.7) shows that the means of quality items ranges between 3.88 to 4.27 with standard deviation ranges from 0.891 to 1.224. This indicates that the respondents agree on high importance of quality items.

**Table (4.7): Mean, Standard Deviation, t-Value, Ranking and Importance for Quality**

No.	Item	Mean	S.D.	t-Value	Sig	Ranking	Importance
1	The company's top management is committed to quality	4.01	1.224	44.643	0.000	6	High
2	The company applies quality systems throughout institution.	4.18	0.935	61.001	0.000	3	High
3	The company follows franchise owners standards.	4.27	0.891	65.390	0.000	1	High
4	The company conducts quality-training courses.	3.88	1.120	47.193	0.000	7	High
5	The company uses appropriate quality tools.	4.07	0.981	56.572	0.000	4	High
6	The company receives products from approved suppliers.	4.22	0.940	61.168	0.000	2	High
7	The company builds a partnership with suppliers.	4.05	1.092	50.566	0.000	5	High
	<b>Quality</b>	<b>4.10</b>	<b>0.773</b>	<b>72.291</b>	<b>0.000</b>		<b>High</b>

t-tabulated value=1.960

The average mean for quality items is 4.10 with standard deviation of 0.773. This means that the fast food international restaurant companies consider quality of high importance, where  $t\text{-value}=72.291 > 1.960$ .

### **Speed:**

Table (4.8) shows that the means of speed items ranges between 3.89 to 4.19 with standard deviation ranges from 0.879 to 1.236. This indicates that the respondents agree on high importance of speed items. The average mean for speed items is 4.09 with standard deviation of 0.754. This means that the fast food international restaurant companies consider speed of high importance, where  $t\text{-value}=74.002 > 1.960$ .

**Table (4.8): Mean, Standard Deviation, t-Value, Ranking and Importance for Speed**

No.	Item	Mean	S.D.	t-Value	Sig	Ranking	Importance
1	The company serves customers in appropriate time.	3.89	1.236	42.890	0.000	6	High
2	The company uses modern devices to serve customers.	4.15	0.927	60.964	0.000	2	High
3	The company trains the employees on time management.	4.12	0.970	57.964	0.000	4	High
4	The company staff sets up equipment early every day.	4.14	0.908	62.212	0.000	3	High
5	The company launches new products regularly.	4.19	0.879	65.044	0.000	1	High
6	The company has digital display menu for customer use.	4.05	1.012	54.631	0.000	5	High
7	The company has appropriate point of sales to serve customers on time.	4.12	1.152	48.767	0.000	4	High
	<b>Speed</b>	<b>4.09</b>	<b>0.754</b>	<b>74.002</b>	<b>0.000</b>		<b>High</b>

**t-tabulated value=1.960**

### **Reliability:**

Table (4.9) shows that the means of reliability items ranges between 3.99 to 4.19 with standard deviation ranges from 0.902 to 1.243. This indicates that the respondents agree on high importance of reliability items.



The average mean for reliability items is 4.08 with standard deviation of 0.740. This means that the fast food international restaurant companies consider reliability of high importance, where  $t\text{-value}=75.255>1.960$ .

**Table (4.9): Mean, Standard Deviation, t-Value, Ranking and Importance for Reliability**

No.	Item	Mean	S.D.	t-Value	Sig	Ranking	Importance
1	The company produces according orders.	4.04	0.963	57.242	0.000	4	High
2	The company serves many customers at the same time.	4.16	0.902	62.845	0.000	2	High
3	The company has many different menus in the same time.	4.03	0.975	56.412	0.000	5	High
4	The company has self-service system.	4.04	1.015	54.232	0.000	4	High
5	The company provides different products according customer needs.	4.15	0.956	59.134	0.000	3	High
6	The company provides consistent service to customers.	4.19	0.977	58.493	0.000	1	High
7	The company provides drive thru service for customers.	3.99	1.243	43.759	0.000	6	High
	<b>Reliability</b>	<b>4.08</b>	<b>0.740</b>	<b>75.255</b>	<b>0.000</b>		<b>High</b>

**t-tabulated value=1.960**

#### **Innovation:**

Table (4.10) shows that the means of innovation items ranges between 3.61 to 4.18 with standard deviation ranges from 0.911 to 1.274. This indicates that the respondents semi agree on medium to high importance of innovation items. The average mean for innovation items is 3.98 with standard deviation of 0.755. This means that the fast food international restaurant companies consider innovation of high importance, where  $t\text{-value}=71.929>1.960$ . All items rated high importance except item number one “The Company easily adapt new ideas”, which rated medium implementation.

**Table (4.10): Mean, Standard deviation, t-Value, Ranking and Importance for Innovation**

No.	Item	Mean	S.D.	t-Value	Sig	Ranking	Importance
1	The company easily adapt new ideas.	3.61	1.274	38.613	0.000	7	Medium
2	The company concern about customers complaints to develop operations.	4.13	0.911	61.873	0.000	2	High
3	The company has online website application to serve customers.	4.18	0.980	58.192	0.000	1	High
4	The company develops new products.	4.09	0.955	58.369	0.000	3	High
5	The company applies empowerment to encourage innovation.	3.84	1.170	44.754	0.000	6	High
6	The company uses the latest technology to serve customers.	4.04	0.983	56.023	0.000	4	High
7	The company uses external websites (ifood) to serve customers.	3.97	1.112	48.717	0.000	5	High
	<b>Innovation</b>	<b>3.98</b>	<b>0.755</b>	<b>71.929</b>	<b>0.000</b>		<b>High</b>

t-tabulated value=1.960

### **Relationships between Variables:**

Table (4.11) shows that the relationships between total JIT sub-variables are strong, where  $r$  ranging between 0.737 and 0.929. The table also shows that the relationships between competitive advantage dimensions are strong, since  $r$  ranging between 0.625 and 0.772. The relationships between total JIT sub-variables and competitive advantages dimensions are strong, since  $r$  ranging from 0.613 to 0.783. The relationships between each total JIT sub-variables with total competitive advantages are strong, since  $r$  ranging from 0.752 to 0.818. Finally, the relationship between total JIT and total competitive advantages is strong, where  $r$  equal 0.856. This indicates that the correlation between the total JIT and total competitive advantage is very strong and can affect each other.

**Table (4.11): Bivariate Pearson Correlation (r) Matrix between Independent and Dependent Variables.**

No.		1	2	3	4	5	6	7	8	9	10
1	JIT Purchasing										
2	JIT Operations	.737**									
		.000									
3	JIT Selling	.745**	.816**								
		.000	.000								
4	Total JIT	.901**	.926**	.929**							
		.000	.000	.000							
5	Cost	.628**	.675**	.705**	.728**						
		.000	.000	.000	.000						
6	Quality	.665**	.711**	.715**	.759**	.658**					
		.000	.000	.000	.000	.000					
7	Speed	.700**	.719**	.740**	.783**	.625**	.716**				
		.000	.000	.000	.000	.000	.000				
8	Reliability	.650**	.663**	.717**	.736**	.666**	.672**	.772**			
		.000	.000	.000	.000	.000	.000	.000			
9	Innovation	.613**	.652**	.668**	.701**	.700**	.695**	.680**	.700**		
		.000	.000	.000	.000	.000	.000	.000	.000		
10	Competitive Advantages	.752**	.789**	.818**	.856**	.834**	.867**	.879**	.880**	.872**	
		.000	.000	.000	.000	.000	.000	.000	.000	.000	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### Hypothesis Analysis:

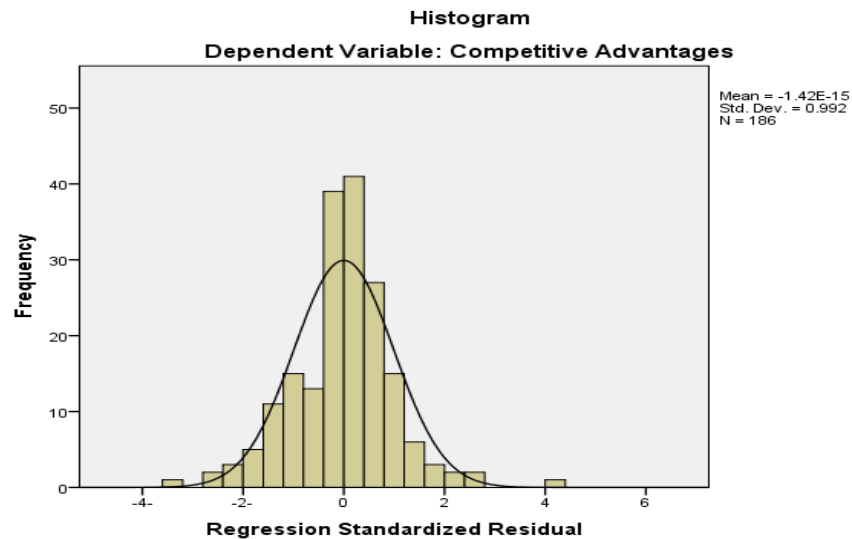
Multiple regressions are used to test the effect of Total JIT on achieving competitive advantage at fast foods international restaurants companies.

After confirming validity, reliability and relationships between variables, the following tests were carried out to be able to use multiple regressions: normality, linearity, and independence of errors, multi-collinearity Sekaran (2003) and Hair, et. al. (2010).

### Normal Distribution (Histogram):

The histogram in the figure (4.1) shows that the data are normality distributed, so the residuals does not affect the normal distribution.

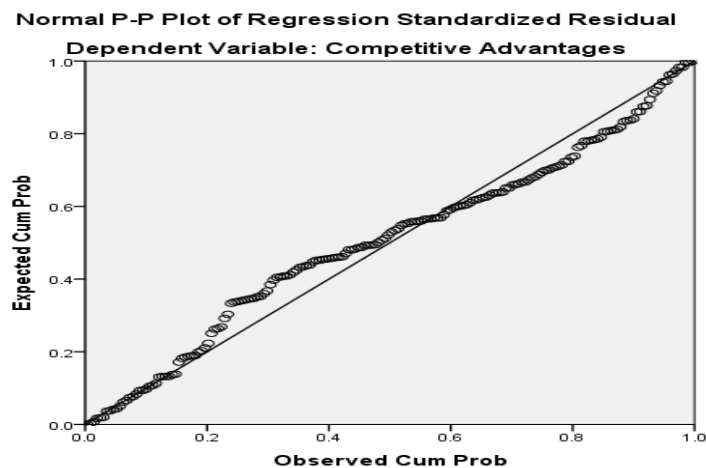
**Figure 4.1: Normality Test**



### Linearity Test:

Figure (4.2) shows that the relationship between independent and dependent variables is linear.

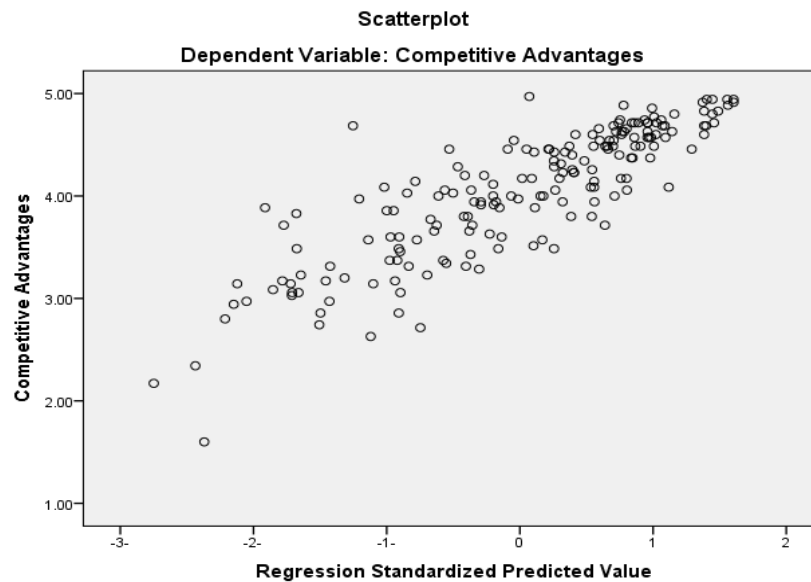
**Figure 4.2: Linearity Test**



### Independence of Errors:

Figure (4.3) shows that the errors are independence from each other. Durbin-Watson used to ensure independence of errors, If Durbin-Watson test value is about two, and the model does not violate this assumption. Table (4.12) shows that Durbin Watson value is ( $d=1.653$ ), which is about two and this shows that the residuals are not correlated to each other; therefore, the independence of errors is not violated.

**Figure 4.3: Scatter Plot**



### Multi-Collinearity:

While, VIF (Variance Inflation Factor) and tolerance are used to test multi collinearity. If VIF is less than 10 and tolerance is more than 10%, the model does not violate the multi-collinearity assumption. Table (4.12) shows also that the VIF values are less than 10 and the tolerance values are more than 10%. This indicates that there is no multi-collinearity within the independent variables of the study.

**Table (4.12): Multi-collinearity and Durbin-Watson Tests.**

Sub-Variables	Collinearity Statistics		Durbin-Watson
	Tolerance	VIF	
JIT Purchasing	0.395	2.533	1.653
JIT Operations	0.296	3.377	
JIT Selling	0.289	3.465	

**Main Hypothesis:**

**H<sub>01</sub>:** Total Just in Time elements (JIT Purchasing, JIT Operation and JIT Selling) do not affect competitive advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

Table (4.13) shows that when regressing the three independent variables of Total JIT together against dependent variable competitive advantages the model is fit for further analysis, where  $R^2$  is 73.6% shows the fitness of the model for multiple regressions, and explains the variance of independent variable on dependent variable, since  $R^2$  is 73.6%. Then the independent variable can explain 0.736% of variance on dependent variable, where ( $R^2=0.736$ ,  $F=169.241$ ,  $Sig.=0.000$ ). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that the total Just in Time elements (JIT Purchasing, JIT Operation and JIT Selling) affect competitive advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

**Table (4.13): Results of Multiple Regressions Analysis (ANOVA<sup>a</sup>): Regressing Total JIT Sub-Variables against Competitive Advantages.**

Model	R	$R^2$	Adjusted $R^2$	F	Sig.
1	0.858 <sup>a</sup>	0.736	0.732	169.241	0.000 <sup>b</sup>

a. Predictors: (Constant), JIT Selling, JIT Purchasing, JIT Operations

b. Dependent Variable: Competitive Advantages

Table (4.14) shows the effect of each total JIT sub-variable on competitive advantage.

**Table (4.14): Results of Multiple Regressions for the Effect of each Total JIT sub-variable on Dependent Variable.**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.429	0.163		2.627	0.009
	JIT Purchasing	0.233	0.059	0.241	3.977	0.000
	JIT Operations	0.263	0.068	0.271	3.872	0.000
	JIT Selling	0.403	0.069	0.417	5.884	0.000

**a. Dependent Variable: Competitive Advantages, t-Tabulated=1.960**

**H<sub>01.1</sub>:** JIT Purchasing does not affect Competitive Advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

Table (4.14) shows that there is significant effect of JIT purchasing on competitive advantage, since (Beta=0.241, t=3.977, sig.=0.000,  $p < 0.05$ ). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted which states that JIT Purchasing affects Competitive Advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

**H<sub>01.2</sub>:** JIT Operation does not affect Competitive Advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

Table (4.14) shows that there is significant effect of JIT operations on competitive advantage, since (Beta=0.271, t=3.872, sig.=0.000,  $p < 0.05$ ). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted which states that the JIT Operation affects Competitive Advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

**H<sub>01.3</sub>:** JIT Selling does not affect Competitive Advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

Table (4.14) shows that there is significant effect of JIT selling on competitive advantage, since (Beta=0.417, t=5.884, sig.=0.000,  $p < 0.05$ ). Therefore, the null hypothesis is rejected and the alternative hypothesis is

accepted which states that the JIT Selling affects Competitive Advantage of fast food restaurants, at  $\alpha \leq 0.05$ .

In summary, the multiple regressions analysis shows that the total JIT sub-variables together affect the competitive advantage, where ( $R^2=0.736$ ,  $F=169.241$ ,  $\text{Sig.}=0.000$ ). In addition, it shows that all the three sub-variables affect competitive advantages, where JIT selling is having the highest effect, followed by JIT operation, then JIT purchasing.



## **Chapter Five: Results' Discussion, Conclusion and Recommendations**

### **Results' Discussion:**

Results show that the Total Just in Time sub-variables are highly implemented in fast food international restaurant companies. The JIT operation has rated the highest, followed by JIT selling and finally, JIT purchasing. Results also show that the Competitive Advantages dimensions are highly implemented, while quality has the highest implementation, followed by speed, then reliability, cost and innovation, respectively. This result is supported by the previous studies, such as Dong, et. al. (2001), Ahmad, et. al. (2003), Meybodi (2009), White, et. al. (2010), Alcaraz, et. al. (2014), Khaireddin, et. al. (2015), Al Maani (2016), and Patel, et. al. (2016)

Result shows that the relationships among total JIT sub-variables are strong; previous studies, such as, Kannan and Tan (2002), and Eker and Pala (2008) support this result. The relationships among competitive advantages dimensions are strong, this result is supported previous studies, Nandini (2014), and Chien and Lin (2015). The relationships between total JIT sub-variables and competitive advantages dimensions are strong; this result is supported previous studies, such as, Claycomb, et. al. (1999), Cuaa, et. al. (2001) Mackelprang and Nair (2009), and Barkhordari and Denavi (2017). Finally, the relationship between total JIT and total competitive advantages is strong, this result is supported by previous studies, such as, Kannan and Tan (2005), and Poojary and Kumar (2015). This indicates that the correlation between the total JIT and total Competitive advantage is strong and can affect each other; therefore, it is advised to work on the three of them together because they affect each other.

Results show that all Total JIT sub-variables have effect on Competitive Advantages in International Fast Foods Restaurants Companies in Jordan. The JIT Selling was holding the highest effect, followed by JIT Operation variable, then JIT Purchasing. Previous studies, such as Kinney and Wempe (2002), Kannan and Tan (2002), Brox and Fader (2002), Salehi, et. al. (2010), Green, et. al. (2011), Mazanai (2012), and Al haraisa (2017) support this result.

### **Conclusion:**

The purpose of this study is to provide further explanations for JIT success. The first contribution of this study is that it adds to the developing literature on JIT implementation.

The results show how JIT implementations affect competitive advantage, and may help investors to decide on which companies to invest.

The results show the importance of JIT implementation for managers, and where they can reduce the cost.

Companies should consider JIT implementation within their strategic plans and devote JIT champion to follow JIT implementation.

Results show that the Total Just in Time sub-variables is highly implemented in fast food international restaurant companies. The JIT operation has rated the highest, followed by JIT selling and finally, JIT purchasing. Results also show that the Competitive Advantages dimensions are highly implemented, whereas quality has the highest implementation, followed by speed, then reliability, cost and innovation, respectively.

Results show that the relationships among total JIT sub-variables are strong, and the relationships among competitive advantage dimensions are

strong. The relationships between total JIT sub-variables and competitive advantage dimensions are strong. Finally, the relationship between total JIT and total competitive advantage is strong.

Results show that all Total JIT sub-variables have effect on Competitive Advantage in International Fast Foods Restaurants Companies in Jordan. The JIT Selling was holding the highest effect, followed by JIT Operation variable, then JIT Purchasing.

### **Recommendations:**

In view of the current study results the following recommendations can be drawn:

#### **Recommendations for International Fast Foods Restaurants Companies in Jordan.**

- The current study recommends using Total JIT as a system and technique to reduce inventory, eliminate all non-value activities and wastes in the companies to serve their customers in timely manner, right cost, right quality, and continue launching new products, which lead to enhance their competitiveness among competitors.
- The current study recommends conducting special training courses on how to implement Total JIT for managers and other employees.
- International Fast Foods Restaurants Companies should assign a Total JIT champion as specialists to follow Total JIT profile.
- The current study recommends that Total JIT elements may affect the company's Competitive Advantage at International Fast Foods Restaurants in Jordan.

### **Recommendations for Academics and Future Research:-**

- The implementation of Total JIT in international fast restaurants in Jordan will undoubtedly contribute to enriching and rising awareness and the importance of this study to researchers.
- This study will open new horizons for researchers who are interested in JIT, which may contribute in further development in this new system.
- The current study recommends adding potential development elements to Total JIT elements in further studies.
- This study is directed towards International Fast Foods. Further empirical research work is needed to test the degree to which the Study findings can be generalized to other industries.
- This study was conducted on Jordanian Companies. Generalizing Jordanian results to other countries is questionable. Therefore, the study recommends carrying out similar study in different countries especially Arab countries
- There is a need to analyze data of other companies over a longer time, in order to, clearly test the assumptions of the Total JIT system.
- Finally, the significant differences between companies and/or industries could be explored by further studies. Therefore, it is recommended to work out researches that compare results with other countries specially developing countries under similar assessment and assumptions.

## References:

- Abdallah, A.; and Matsui, Y. (2007). The relationship between JIT Production and Manufacturing strategy and their impact on JIT Performance. **POMS 18<sup>th</sup> annual Conference, May 4-7, 2007.** Dallas, Texas, USA.
- Abuzaid, M.; Migdadi, M.; Alhammad, F.; and Al-Hyari, Kh. (2016). An empirical examination of total just-in-time impact on operational performance: insights from a developing country. **International Journal of Supply Chain and Inventory Management**, 1(4): 286-305.
- Ahmad, A.; Mehra, S.; and Pletcher, M. (2004). The perceived Impact of JIT Implementation on Firms Financial/ Growth Performance. **Journal of Manufacturing Technology Management**, 15(2): 18-130.
- Ahmad, S.; Schroeder, R.; and Sinha, K. (2003). The role of Infrastructure practices in the effectiveness of JIT practices: Implications for plant competitiveness. **Journal of Engineering and Technology Management**, 20(1): 161-191.
- Al-Ali, A.; and Abdallah, K. (2015). Developing the Framework of Integrated Just-In-Time (JIT) Approach: A conceptual Study. **International Journal of Core Engineering & Management**, 2(9): 25-49.
- Al-haraisa, Y. (2017). Just-In-Time System and Its Impact on Operational Excellence: An Empirical Study on Jordanian Industrial Companies. **International Journal of Business and Management**, 12(12): 158-167.

- Al-Maani, A. (2016). JIT in the Jordanian Industrial Companies. **International Journal of Academic Research in Accounting, Finance and Management Sciences**, 6(3): 31–36.
- Alcaraz, L.; Maldonado, A.; Iniesta, A.; Robles, G.; and Hernandez, G. (2014). A systematic review/survey for JIT implementation: Mexican maquiladoras as case study. **Computers in Industry**, 65 (4): 761–773.
- Amasaka, K. (2007a). New Japan Production Model, An advanced Production Management Principle - Key to Strategic Implementation of New JIT. **International Business & Economics Research Journal**, 6(7): 67-80.
- Amasaka, K. (2007b). The validity Of Advanced TMS: A Strategic Development Marketing System - Toyota's Scientific Customer Creative Model Utilizing New JIT. **International Business & Economics Research Journal**, 6(8): 35-42.
- Aribjorn, S.; and Freytag, V. (2013). Evidence of lean: A Review of International Peer-reviewed Journal Articles. **European Business Review**, 25(2): 174-205.
- Awwad, A.; Al Khattab, A.; and Anchor, J. (2010). Competitive Priorities and Competitive Advantage in Jordanian Manufacturing. **Journal of Service Science and Management**, 6(1): 69-79.
- Barkhordari, R.; and Denavi, H. (2017). Just-In-Time (JIT) Manufacturing and its Effect on the Competence of Supply Chain and Organizational Performance in the Tile and Ceramic Industry in Yazd Province. **Specialty Journal of Knowledge Management**, 2(1): 8-19.

- Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. **Journal Management**, 17(1): 99-120.
- Bavarsad, B.; and Gorjizadeh, Y. (2013). A study of the Effects of JIT System on Agile Production and Firm Performance in Khuzestan Province Manufacturing Firms. **European Journal of Scientific Research**, 109(1): 212-223.
- Bevilacqua, M.; Ciarapica, F.; and De Sanctis, I. (2016). Lean Practices Implementation and their relationships with operational Responsiveness and company performance: an Italian study. **International Journal of production Research**, 55(3): 769-794.
- Bortolotti, T.; Danese, P.; and Romano, P. (2011). Just in Time – Performance link: The moderating role of demand variability. In International Conference on E-Business, **Management and Economics**, 25: 91-95.
- Bortolotti, T.; Danese, P.; and Romano, P. (2013). Assessing the impact of just-in-time on operational performance at varying degrees of Repetitiveness. **International Journal of Production Research**, 51(4): 1117-1130.
- Bozdogan, K. (2010). Towards an Integration of the Lean Enterprise System, Total Quality Management, Six Sigma and Enterprise Process Improvement Process. **Massachusetts Institute of Technology**, 6: 1-23.
- Brox, J.; and Fader, C. (2002). The set of just-in-time management Strategies: an assessment of their impact on plant-level productivity and input-factor substitutability using variable cost function

Estimates. **International Journal of Production Research**, 40(12): 2705-2720.

Canel, C.; Rosen, D.; and Anderson, E. (2000). Just-In-Time is not for Manufacturing: Service Perspective. **Industrial Management & Data Systems**, 100(2): 51-60.

Cecevic, B.; and Antic, L. (2016). Value Stream Performance Measurement and the Lean Business Concept. **Economics and Organization**, 13(3): 273-286.

Chen, Z.; and Shang, J. (2008). Manufacturing planning and control Technology versus operational performance: an empirical study of MRP and JIT in China. **Int. J. Manufacturing Technology and Management**, 13(1): 4-29.

Chen, Z.; and Tan, K. (2014). The perceived impact of JIT implementation on operations Performance. **Journal of Advances in Management Research**, 8(2): 213– 235.

Chien, S.; and Lin, Y. (2015). The Effects of the Service Environment on Perceived Waiting Time and Emotions. **Human Factors and Ergonomics in Manufacturing & Service Industries**, 25 (3): 319– 328.

Cho, W.; Schmelzer, C.; and McMahon, P. (2002). Preparing Hospitality Managers for 21<sup>st</sup> Century: The Merging of Just-In-Time Education, Critical Thinking, and Collaborative Learning. **Journal of Hospitality & Tourism Research**, 26(1): 23-37.



- Christensen, W.; Germain, R.; and Birou, L. (2005). Build-to-order and Just-in-time as predictors of applied supply chain knowledge and Market performance. **Journal of Operations Management**, 23(1): 470-481.
- Christiansen, T.; Berry, W.; Bruun, P.; and Ward, P. (2003). A mapping of competitive priorities, Manufacturing practices, and operational Performance in groups of Danish Manufacturing companies. **International Journal of Operations & Production Management**, 23(10): 1163-1183.
- Claycomb, C.; Germain, R.; and Droege, C. (1999). Total system JIT Outcomes: inventory, organization and financial effects. **International Journal of Physical Distribution & Logistics Management**, 29(10): 612-630.
- Cuaa, K.; McKone, K.; and Schroeder, R. (2001). Relationships between Implementation of TQM, JIT, and TPM and manufacturing Performance. **Journal of Operations Management**, 19 (2001) 675–694.
- De Toni, A.; and Nassimbeni, G. (2000). Just-in-time purchasing: an Empirical study of operational practices, supplier development and Performance. **Omega**, 28(6): 631-651.
- Dong, Y.; Carter, C.R.; and Dresner, M.E. (2001). JIT purchasing and Performance: an exploratory analysis of buyer and supplier Perspectives. **Journal of Operations Management**, 19(4): 471-483.
- Eker, M.; and Pala, F. (2008). The Effect of Competition, Just In Time Production and Total Quality Management on the Use of Multiple

- Performance Measures: An Empirical Study. **Journal of Economic and Social Research**, 10(1): 35-72.
- El-Dabee, F.; Marian, R.; and Amer, Y. (2013). Development of a Model for Simultaneous Cost-Risks Reduction in JIT Systems Using Multi-External and Local Backup Suppliers. **Automation, Control and Intelligent Systems**, 1(3): 42-52.
- Ezema, C.; Nonum, E.; Umezina, C.; and Igwe, J. (2016). Optima Performance Enhancement Using JIT Manufacturing System Simulation Model. **International Journal of Technology and Systems**, 1(1): 48-71.
- Flynn, B. (1994). The Relationship between Quality and Management Practices, Infrastructure and Fast Product Innovation. **Emerald Insight**, 1(1): 48-64.
- Fullerton, R.; and Mc Watters, C. (2001). The production performance Benefits from JIT implementation. **Journal of Operations Management**, 19(1): 81-96.
- Ghosh, B.; Kumuthadevi, K.; and Jublee, D. (2016). Linkage among Competitiveness, Competitive Advantage and Competitive Priority of Apparel Export Firms at Tirupur. **International Journal of Management Research & Review**, 6(8): 1012-1029.
- Gillen, D.; and Lall, A. (2004). Competitive Advantage of Low- Cost Carriers, Some implications for Airports. **Journal of Air Transport Management**, 10(1): 41-50.
- Grawe, S.; Chen, H.; and Daugherty, P. (2009). The relationship between Strategic orientation, service innovation, and performance.

**International Journal of Physical Distribution & Logistics Management**, 39(4): 282-300.

Green, K.; Inman, R.; and Birou, L. (2011). Impact of JIT-selling strategy on organizational structure. **Industrial Management & Data Systems**, 111(1): 63-83.

Green, K.; Inman, R.; Birou, L.; and Whitten, D. (2014). Total JIT (T-JIT) and its impact on supply chain competency and organizational Performance. **International Journal of Production Economics**, (147): 125-135.

Gunasekaran, A. (1999). Just-in-time purchasing: An investigation for Research and applications. **International Journal of Production Economics**, 59(1):77-84.

Gunasekaran, A.; and Lyu, J. (1997). Implementation of just-in-time in a Small company: A case study, Production Planning & Control. **The Management of Operations**, 8(4): 406-412.

Gupta, A. (2011). A conceptual JIT Model of Service Quality. **International Journal Engineering Science and Technology**, 3(3): 2214-2227.

Hatani, L. (2017). Integrated Supply Chain Management Practices in the Flow Information Toyota Car Dealer in Kendari. **The International Journal of Engineering and Science**, 6(1): 36-43.

Heizer, J.; Render, P.; and Al-Zu'bi, Z. (2013). **Operations Management**, Arab World Edition. Pearson Education Limited, England.

Hijuzaman, O.; and Naibaho, E. (2014). Supply Chain Management Development Strategy in Manufacturing Industry Osep. **International Journal of Science and Research**, 3(5): 810-813.

- Hill, A.; and Vollmann, T. (1986). Reducing Vendor Delivery Uncertainties in A JIT Environment. **Journal of Operations Management**, 6(3-4):381-392.
- Hinterhuber, A. (2013). Can Competitive Advantage be predicted? Towards a predictive definition of competitive advantage in the Resource-based view of the firm. **Management Decision**, 51(4): 795-810.
- Hitt, M.; Keats, B.; and DeMarie, S. (1998). Navigating in the new Competitive landscape: Building strategic flexibility and Competitive advantage in the 21st century. **The academy of Management executive**, 12(4): 22-42.
- Hopp, W.; and Spearman, M. (2000). **Factory Physics**, Second Edition, Irwin, MC Graw-Hill.
- Inman, A.; Sale, S.; Green, K.; and Whitten, D. (2011). Agile Manufacturing: Relation to JIT, operational performance and firm Performance. **Journal of Operations Management**, 29(4): 343-355.
- Isa, C.; and Tay, K. (2008). Just-In-Time Manufacturing and Purchasing Practices and Business Performance: An exploratory study. **Asia-Pacific Management Accounting Journal**, 3(1): 67-85.
- Jadhov, R.; Mantha, S.; and Rane, S. (2015). Analysis of interactions among the barriers to JIT production: interpretive structural Modelling approach. **Journal of Industrial Engineering International**, 11(3):331-352.
- Jap, S. (2000). Perspectives on Joint Competitive Advantages in Buyer-Supplier Relationships. **International Journal of Research in Marketing**, 18(1): 19-35.

- Kairu, K. (2015). Role of Strategic Inventory Management on Performance of Manufacturing Firms in Kenya: A Case of Diversey Eastern and Central Africa Limited. **International Academic Journal of Procurement and Supply Chain Management**, 1(4): 22-44.
- Kannan, V.; and Tan, K. (2002). Quality Management, Supply Chain Management, and just in Time: A Model of their Impact on Business Performance. **An International Journal**, 3(2): 58-72.
- Kannan, V.; and Tan, K. (2005). Just in Time, total quality and supply Chain management: understanding their linkages and impact on Business performance. **Omega**, 33(2): 153-162.
- Kartika, C.; and Wijaya, O. (2015). Model Relationship between Organizational Structure, Strategy Evaluation, Jit Selling Strategies, Competence Market, orientation was Strategies on the Balanced Score Card, Process Organization, Effects Associated Organizations In Improving Performance Measure Manufacturing Company East Java. **International Journal of Business and Management Invention**, 4(1): 14-21.
- Khairuddin, M.; Abu Assab, M.; and Nawafleh, S. (2015). Just-in-Time Manufacturing practices and Strategic Performance: An Empirical Study Applied on Jordanian Pharmaceutical Industries. **International Journal of Statistics and Systems**, 10(2): 287-307.
- Kinney, R.; and Wempe, F. (2002). Further evidence on the extent and Origins of JIT's profitability effects. **The Accounting Review**, 77(1): 203-22.

- Kinyua, B. (2015). An Assessment of Just in Time Procurement System on Organization Performance: A case Study of Corn Products Kenya Limited. **European Journal of Business and Social Sciences**, 4(5): 40-53.
- Kotabe, M.; and Murray, J. (2004). Global sourcing strategy and sustainable Competitive advantage. **Industrial Marketing Management**, 33(1): 7– 14.
- Kulkarni, S.; Patil, A.; and Pingle, S. (2014). Supplier Evaluation and Purchasing In Jit Environment-A Survey of Indian Firms. **International Journal of Mechanical and Production Engineering**, 2(1): 1-5.
- Kumar, V. (2010). JIT Based Quality Management: Concepts and Implications in Indian Context. **International Journal of Engineering Science and Technology**, 2(1): 40-50.
- Lai, K.; and Cheng, T. (2009). Just-in-Time Logistics. **Gower Publishing, Ltd. ?????**
- Lockwood, N.R. (2007). Leveraging Employee Engagement for Competitive Advantage. **Research Quarterly**, 52(3): 1-12.
- Ma, H. (2000). Competitive Advantage and Firm Performance. Competitiveness Review. **An International Business Journal**, 10(2): 15-32.
- Mackelprang, A; and Nair, A. (2010). Relationship between just-in-time manufacturing practices and performance: A-meta analytic Investigation. **Journal of Operations Management**, 28(4): 283-302.

- Maiga, A.; and Jacobs, F. (2008). Assessing JIT Performance: An Econometric Approach. **Journal of Management Accounting Research**, 20(s1): 47-59.
- Marhamati, A.; Taheri, M.; and Hesamzadeh, M. (2017). Effect of Supply Chain Management Strategy on Company Performance with mediating Role T-JIT, **Journal of Administrative Management, Education and Training**, 13(1): 10-21.
- Matsui, Y. (2007). An empirical analysis of Just-In-Time production in Japanese manufacturing companies. **International Journal of Production Economics**, 108(1): 153-164.
- Mazanai, M. (2012). Impact of just-in-time (JIT) inventory system on Efficiency, quality and flexibility among manufacturing sector, Small and medium enterprise (SMEs) in South Africa. **African Journal of Business Management**, 6(17): 5786-5791.
- Meybodi, M. (2009). Benchmarking performance measures in Traditional and just-in-time companies. Benchmarking: **An International Journal**, 16(1): 88-102.
- Migdadi, Y. (2016). The impact of operations competitive capabilities on the efficiency of mobile phone service providers in the Middle East region, **Int. J. of Productivity and Quality Management**, 17(3): 328-352.
- Milovanovic, B.; Sisek, B.; and Kolakovic, M. (2011). Just in time concept as a mean for achieving competitive advantage in the virtual economy. **Annals of DAAAM for 2011 & Proceedings of the 22<sup>nd</sup>**

**International DAAAM Symposium**, Vienna, Austria, EU, 22(1): 1726-9679.

Modi, D.; and Thakkar, H. (2014). Lean Thinking: Reduction of Waste, Lead Time, Cost through Lean Manufacturing Tools and Technique. **International Journal of Emerging Technology and Advanced Engineering**, 4(3): 334-339.

Modi, S.; and Mabert, V. (2010). Exploring the relationship between Efficient Supply Chain Management and Firm Innovation: An Archival Search and Analysis. **Journal of Supply Chain Management**, 46(4): 81-94.

Monden, Y. (2011). Toyota Production System. **An Integrated Approach to Just-In-Time**, Fourth Edition. CRC Press.

Nakamura, M.; Sakakibara, S.; and Schroeder, R. (1998). Adoption of Just-in-Time Manufacturing Methods at U.S- and Japanese-Owned Plants: Some Empirical Evidence. **IEEE Transactions on Engineering Management**, 45(3): 230-240.

Nandini, S. (2014). McDonald's Success Story in India. **Journal of Contemporary Research in Management**, 9(3): 21-31.

Nijssen, D.; Hillebrand, B.; Vermeulen, A.; and Kemp, G. (2006). Exploring Product and Service Innovation Similarities and Differences. **International Journal of Research in Marketing**, 23(3): 241-251.

Ozalp, I.; Suvaci, B.; and Tonus, H. (2010). A new Approach in Logistics Management: Just in Time- Logistics (JIT-L). **International Journal of Business and Management Studies**, 2(1): 37-45.



- Patel, K.; Patel, K.; and Sanap, R. (2016). Implementation of Just-In-Time in an Enterprise. **International Journal of Advance research, Ideas and Innovations in Technology**, 2(6): 1-5.
- Petroni, A.; and Bigliardi, B. (2005). Implementation of JIT purchasing Practices a quality function deployment. APICS, Alexandria, USA. Available at: **visit [www.apics.org](http://www.apics.org)**.
- Poojary, A.; and Kumar, R. (2015). Just in Time (JIT): A Tool to Decrease Cost and To Improve Profitability. **International Journal of Management & Business Studies**, 5(1): 31-34.
- Ramezani, A.; and Razmeh, A. (2014). Basic Elements, Tools and Control Techniques of Just-in-Time System. **New Science Series Journal**, 2(9): 11-22.
- Roy, R.; and Guin, K. (1999). A proposed model of JIT purchasing in an integrated steel plant. **International Journal of Production Economics**, 59 (1): 179-187.
- Salehi, M.; Alipour, M.; and Ramazani, M. (2010). Impact of JIT on Firms 'Financial Performance Some Iranian Evidence. **Global Journal of Management and Business Research**, 10(4): 21-29.
- Schonberger, R. (1982). Some observations on the advantages and Implementation Issues of Just in Time Production Systems. **Journal of Operations Management**, 3(1): 1-11.
- Singh, D.; and Singh S. (2013). Working with JIT requires a Flexible Approach. **Journal of Mechanical and Civil Engineering**, 5(6): 24-28

- Singh, G.; and Ahuja, I. (2012). Just-in-time manufacturing: literature Review and directions. **International Journal of Business Continuity and Risk Management**, 3(1): 57-98.
- Sokovic, M.; Pavletic, D.; and Fakin, S. (2005). Application of Six Sigma Methodology for Process Design. **Journal of Materials processing Technology**, 162: 777-783.
- Strach, P.; and Everett, A. (2006). Knowledge Transfer within Japanese Multinationals: Building a Theory. **Journal of Knowledge Management**, 10(1): 55-68.
- Sugimori, Y.; Kusunoki, K.; Cho, F.; and Uchikawa, S. (1977). Toyota Production system and Kanban system Materialization of Just-In-Time and respect –for-human system. **International Journal of Production Res.**, 15(6): 553-564.
- Talib, F.; Rahman, Z.; and Qureshi, M. (2010). The relationship between Total quality management and quality performance in the service Industry: a theoretical model. **International Journal of Business, Management and Social Sciences**, 1(1): 113-128.
- Tatuev, A.; Rokotyanskaya, V.; Kiseleva, N.; Nagoev, A.; and Shaylieva, M. (2016). Innovation Development and Management Technologies in Creating Competitive Advantages of Regional Tourism and Recreation. **International Journal of Humanities and Cultural Studies**, 3(2): 494-504.
- Teeravaraprug, J.; Kitiwangwong, K.; and SaeTong, N. (2011). Relationship model and supporting activities of JIT, TQM, And TPM.

**Songklanakrin Journal of Science and Technology**, 33(1): 101-106.

Ulusoy, G.; and Yegenoglu, H. (2007). Innovation Performance and Competitive Strategies in the Turkish Manufacturing Industry. **Proceedings of the 8th International Research Conference on Quality, Innovation and Knowledge Management**, New Delhi, India, 907-915.

Wafa, M.; and Yasin, M. (1995). The relationship between JIT and Situational constraints: an empirical study. **International Journal of Vehicle Design**, 16 (4-5): 375-383.

White, R.; Ojha, D.; and Kuo, C. (2010). A competitive progression Perspective of JIT systems: evidence from early US Implementations. **International Journal of Production Research**, 48(20): 6103-6124.

Wright, P.; Gardner, T.; Moynihan, L.; and Allen, M. (2005). The relationship between HR practices and firm performance: Examining causal order. **Personnel psychology**, 58(2): 409-446.

Yang, J.; and Pan, J. (2004). Just-in-time purchasing: an integrated inventory Model involving deterministic variable lead time and quality Improvement investment. **International Journal of Production Research**, 42(5): 853-863.

Zaferullah, K.; and Kumar, S. (2013). Manufacturing Excellence through JIT Approach- A Review. **International Journal of Application or Innovation in Engineering & Management**, 2(12): 302-305.

## Appendices:

### Appendix (1): Panel of Referees Committee.

No.	Name	Qualification	Organization
1	Prof. Mohammad Khair Abu Zeid	Professor of Management	Al-Balqa'a University
2	Dr. Ahmed Ali Saleh	Associate Prof.	Middle East University
3	Dr. Abdei-Baset Hassoneh	Associate Prof.	Middle East University
4	Dr. Abdelraheem Qadoumi	Associate Prof.	Middle East University
5	Dr. Amjad Etwaiqat.	Associate Prof.	Middle East University
6	Dr. Azzam Abu Meghly	Ph. D. Management	Applied Science University
7	Dr. Shaker Alqudah	Associate Prof.	Applied Science University
8	Dr. Mohammad Qawaba'a	Ph. D. Management	Applied Science University
9	Dr. Bader Obeidat	Associate Prof.	Jordan University
10	Abdallah Obeidat	Manager	Call Center Manager
11	Ibrahim Al-Amri	Area Manager	Area Manager-TGI
12	Mohammad Tahoun	Operation Manager	Operation Manager-KFC
13	Mohammad Barghouthi	Operation Manager	Operation Manager-Pizzahut
14	Mohammad Marwan	Area Manager	Area Manager-Costa
15	Eyad Saadah	Quality Assurance	Consultant



## **Appendix (2): Letter and Questionnaire of Respondents**

**Dear Participant:**

The purpose of this master thesis is to study “The Effect of Total JIT on Competitive Advantage on International Fast Food Restaurants in Jordan”.

This research contains 65 questions, which may take 15 minutes to answer it; therefore, we will be thankful to you for devoting your valuable time to answer it.

Your answers will be top confidential and will be used for research purpose only.

Again, we appreciate your participation in this research. Please, if you have any question or comment, please call (00962776666094).

Thank you for your fruitful cooperation.

**Researcher: Abdallah Hussain Darwish**

**Supervisor: Dr. Abdel-Aziz Ahmad Sharabati**

## Questionnaire

### Part one: Demographic information

Company Name:

Gender: ☐ Male ☐ Female

Age (years): ☐ less than 25 ☐ 25 – 35 ☐ 36 - 45 ☐ above 45

Education: ☐ High School ☐ Diploma ☐ Bachelor ☐ Master

Division: ☐ Operation ☐ Quality ☐ Marketing ☐ Supply Chain

Experience: ☐ Less than 5 ☐ 5 – 10 ☐ 11 – 15 ☐ Above 15

**Part two:** The following 65 question tap into your perception about actual implementation of total JIT variables and Competitive Advantages elements.

[1 = strongly not implemented, 2 = not implemented, 3 = neutral, 4 = implemented, 5 = strongly implemented] based on your knowledge and experience about the statement.

#### JIT Purchasing

1	The company develops full database about suppliers.	1	2	3	4	5
2	The company selects the right suppliers.	1	2	3	4	5
3	The company shares forecasting with suppliers.	1	2	3	4	5
4	The company places orders based on forecasting.	1	2	3	4	5
5	The company receives materials at the right time.	1	2	3	4	5
6	The company receives requested materials on the right quantity.	1	2	3	4	5
7	The company receives the materials on right quality.	1	2	3	4	5
8	The company develops suitable space to store materials.	1	2	3	4	5
9	The company receives orders in many lots according to demand.	1	2	3	4	5
10	The company settles accounts to the suppliers on time.	1	2	3	4	5

#### JIT Operation

11	The company kitchen layout facilitates operation.	1	2	3	4	5
12	The company arranges the equipment to facilitate operation.	1	2	3	4	5
13	The company controls cooking time well.	1	2	3	4	5
14	The company meets the production schedule of every day.	1	2	3	4	5
15	The company devotes appropriate space to serve customers.	1	2	3	4	5
16	The company selects appropriate staff to serve customers.	1	2	3	4	5
17	The company trains staff to serve customers well.	1	2	3	4	5

18	The company chooses appropriate materials to serve customers.	1	2	3	4	5
19	The company serves customers on the right time.	1	2	3	4	5
20	The company provides comfortable seats.	1	2	3	4	5

### **JIT Selling**

21	The company develops full database about customers.	1	2	3	4	5
22	The company provides car parking for customers.	1	2	3	4	5
23	The company's staff welcome customers with smile.	1	2	3	4	5
24	The company serves the customers accurately.	1	2	3	4	5
25	The company serves customers on right time.	1	2	3	4	5
26	The company develops simple menu for customer selection.	1	2	3	4	5
27	The company serves tasty products.	1	2	3	4	5
28	The company provides appropriate public utility (Internet, A/C,...etc. ).	1	2	3	4	5
29	The company assures appropriate number of seats to serve customers.	1	2	3	4	5
30	The company provides entertainment for customers (play area, music).	1	2	3	4	5

### **Competitive Advantages**

#### **Cost**

31	The company has inventory management plan.	1	2	3	4	5
32	The company has reduced lead-time.	1	2	3	4	5
33	The company employees are well trained on multi tasks.	1	2	3	4	5
34	The company has long-term relationship with suppliers.	1	2	3	4	5
35	The company selects nearby suppliers.	1	2	3	4	5
36	The company uses integrated supply system with their suppliers.	1	2	3	4	5
37	The company receives orders on frequent deliveries.	1	2	3	4	5

#### **Quality**

38	The company's top management is committed to quality	1	2	3	4	5
39	The company applies quality systems throughout institution.4	1	2	3	4	5
40	The company follows franchise owners standards.	1	2	3	4	5
41	The company conducts quality-training courses.	1	2	3	4	5
42	The company uses appropriate quality tools.	1	2	3	4	5
43	The company receives products from approved suppliers.	1	2	3	4	5
44	The company builds a partnership with suppliers.	1	2	3	4	5

#### **Speed**

45	The company serves customers in appropriate time.	1	2	3	4	5
46	The company uses modern devices to serve customers.	1	2	3	4	5
47	The company trains the employees on time management.	1	2	3	4	5
48	The company staff sets up equipment early every day.	1	2	3	4	5

49	The company launches new products regularly.	1	2	3	4	5
50	The company has digital display menu for customer use.	1	2	3	4	5
51	The company has appropriate point of sales to serve customers on time.	1	2	3	4	5

### **Reliability**

52	The company produces according orders.	1	2	3	4	5
53	The company serves many customers at the same time.	1	2	3	4	5
54	The company has many different menus in the same time.	1	2	3	4	5
55	The company has self-service system.	1	2	3	4	5
56	The company provides different products according customer needs.	1	2	3	4	5
57	The company provides consistent service to customers.	1	2	3	4	5
58	The company provides drive thru service for customers.	1	2	3	4	5

### **Innovation**

59	The company easily adapt new ideas.	1	2	3	4	5
60	The company concern about customers complaints to develop operations.	1	2	3	4	5
61	The company has online website application to serve customers.	1	2	3	4	5
62	The company develops new products.	1	2	3	4	5
63	The company applies empowerment to encourage innovation.	1	2	3	4	5
64	The company uses the latest technology to serve customers.	1	2	3	4	5
65	The company uses external websites (ifood) to serve customers.	1	2	3	4	5





### Appendix (3): Participants Letter (Arabic Version)

#### استبانة

حضرة المشارك العزيز:

إن الغرض من رسالة الماجستير هذه هو معرفة أثر الانتاج الكلي الآني على الميزة التنافسية في مطاعم الوجبات السريعة في الاردن.

هذه الاستبانة تحتوي على 65 فقرة، قد تستغرق تعبئتها حوالي 15 دقيقة. وإذا قدّر اشتراكك معنا في هذه الدراسة علمًا أنّ الإجابات سرّية وسوف تُستَخدم لأغراض البحث فقط.

الرجاء التأكيد من إكمال الإجابات على جميع الفقرات في هذه الاستبانة. وإذا رغبتُم في متابعة هذا البحث فسَتُكون نتائج الدراسة متوفرة لَكُم إن طَلَبْتُم. وإذا كان لديكم أي استفسار أو ملاحظة، الرجاء الاتصال على الرقم (0776666094).

الباحث: عبدالله حسين درويش

المشرف: عبد العزيز الشرباتي

### الاستبانة:

الشركة:

الجنس:

☐ ذكر ☐ أنثى

العمر:

☐ 25 - 20 ☐ 35-26 ☐ 45-36 ☐ أكبر من 45

المؤهل العلمي:

☐ ثانوية عامة ☐ دبلوم ☐ بكالوريوس ☐ ماجستير

القسم:

☐ التشغيل ☐ الجودة ☐ التسويق ☐ التوريد

سنوات الخبرة:

☐ أقل من 5 ☐ 10-6 ☐ 15-11 ☐ أكثر من 15

(الرجاء التأكد من إجابة كل سؤال ووضع دائرة حول الجواب الصحيح استناداً إلى معرفتك وخبرتك حول الواقع الموجود وليس بناء على الاعتقاد أو الوضع المثالي لكل فقرة كالتالي: (1 = غير مطبق بقوة.....، 5 = مطبق بقوة)

رقم	السؤال	بشدة	غير مطبق	غير محايد	مطبق	مطبق بشدة
		1	2	3	4	5
<b>1. الانتاج الآني المشتريات</b>						
1.	توفر الشركة قاعدة بيانات شاملة عن الموردين.	1	2	3	4	5
2.	تختار الشركة الموردين المناسبين.	1	2	3	4	5
3.	تشارك الشركة توقعات احتياجاتها مع الموردين.	1	2	3	4	5
4.	ترسل الشركة أوامر الشراء للموردين بناء على التنبؤ.	1	2	3	4	5
5.	تستلم الشركة المواد المطلوبة في الوقت المناسب.	1	2	3	4	5
6.	تستلم الشركة المواد وفقاً للكميات المطلوبة.	1	2	3	4	5
7.	تستلم الشركة المواد بالجودة المناسبة.	1	2	3	4	5
8.	توفر الشركة المساحة المناسبة للتخزين.	1	2	3	4	5
9.	تستلم الشركة طلبات الشراء على دفعات حسب الحاجة.	1	2	3	4	5
10.	تسدد الشركة حسابات الموردين بالوقت المحدد.	1	2	3	4	5
<b>2. الانتاج الآني التشغيل</b>						
11.	تصمم الشركة المطبخ بطريقة تسهل التشغيل.	1	2	3	4	5
12.	تنظم الشركة المعدات بطريقة تسهل التشغيل.	1	2	3	4	5



رقم	السؤال	بشدة	غير مطبق	غير مطبق	محايد	مطبق	مطبق بشدة
		1	2	3	4	5	
38.	تلتزم ادارة الشركة بنظام جودة.	1	2	3	4	5	
39.	تطبق الشركة نظام الجودة عبر جميع منشأتها.	1	2	3	4	5	
40.	تتنوع الشركة مواصفات اصحاب الامتياز.	1	2	3	4	5	
41.	تعقد الشركة دورات جودة للموظفين.	1	2	3	4	5	
42.	تستخدم الشركة ادوات جودة مناسبة.	1	2	3	4	5	
43.	تستلم الشركة المنتجات من موردين معتمدين.	1	2	3	4	5	
44.	تبني الشركة علاقة شراكة مع الموردين.	1	2	3	4	5	
<b>6. السرعة</b>							
45.	تخدم الشركة الزبائن بالوقت المناسب.	1	2	3	4	5	
46.	تستخدم الشركة اجهزة حديثة لخدمة الزبائن.	1	2	3	4	5	
47.	تدرب الشركة الموظفين على ادارة الوقت.	1	2	3	4	5	
48.	يجهز موظفو الشركة المعدات باكرا بشكل يومي.						
49.	تطرح الشركة منتجات جديدة كل فترة.	1	2	3	4	5	
50.	لدى الشركة قائمة عرض رقمية للزبائن.	1	2	3	4	5	
51.	لدى الشركة عدد كاف من نقاط البيع لخدمة الزبائن.	1	2	3	4	5	
<b>7. الدقة</b>							
52.	تنتج الشركة حسب طلب الزبائن.	1	2	3	4	5	
53.	تخدم الشركة عدة زبائن بوقت واحد.	1	2	3	4	5	
54.	لدى الشركة قوائم طعام مختلفة.	1	2	3	4	5	
55.	لدى الشركة نظام الخدمة الذاتية للزبائن	1	2	3	4	5	
56.	تقدم الشركة منتجات متنوعة تلبي رغبات الزبائن.	1	2	3	4	5	
57.	تقدم الشركة خدماتها بثبات للزبائن.	1	2	3	4	5	
58.	تقدم الشركة خدمة السيارات للزبائن.	1	2	3	4	5	
<b>8. الابداع</b>							
59.	لدى الشركة مرونة في تبني الافكار الجديدة.	1	2	3	4	5	
60.	تهتم الشركة بشكاوى الزبائن لتحسين التشغيل.	1	2	3	4	5	
61.	لدى الشركة موقع الكتروني خاص لطلبات الزبائن.	1	2	3	4	5	
62.	تقدم الشركة منتجات جديدة.	1	2	3	4	5	

رقم	السؤال	يشدة غير مطبق	غير مطبق محايد	مطبق	مطبق يشدة
		1	2	3	4 5
63	تطبق الشركة التمكين للموظفين لتشجيع الابداع.	1	2	3	4 5
64	تستخدم الشركة التكنولوجيا الحديثة لخدمة الزبائن.	1	2	3	4 5
65	تستخدم الشركة موقع الكتروني خارجي (اي فود) لخدمة الزبائن.	1	2	3	4 5

### Appendix (4): Population: 250 managers

No.	Company Name	Manager	Operation					Total
		HO Manager	GMR	RM	AM	CM	OM	
1	Touristic Projects (Americana)	19	11	44	11	4	2	91
2	Jordanian Restaurants for Fast Food (PH)	6	4	18	5	1	1	35
3	Arabic Foods Company (Popeys)	7	2	19	3	1	1	33
4	Arabic American Food Company (Burger King)	8	2	20	3	1	1	35
5	Armoush Touristic (McDonlands)	14	6	28	4	3	1	56
	<b>Total</b>	<b>54</b>	<b>25</b>	<b>129</b>	<b>26</b>	<b>10</b>	<b>6</b>	<b>250</b>

**HO** Manager: Head Office Manager

**GMR**: General Manager Restaurant

**RM**: Restaurant Manager

**AM**: Area Manager

**CM**: Chain Manager

**OM**: Operation Manager

## Appendix (5): Original Data Analysis Report:

### Demographic: Frequency and Percentage Table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	88	47.3	47.3	47.3
	2	33	17.7	17.7	65.1
	3	13	7.0	7.0	72.0
	4	19	10.2	10.2	82.3
	5	33	17.7	17.7	100.0
	Total	186	100.0	100.0	

Male Female					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	124	66.7	66.7	66.7
	2	61	32.8	32.8	99.5
	3	1	.5	.5	100.0
	Total	186	100.0	100.0	

less than 25 Bet.25–35 Bet.36–45 above 45					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	59	31.7	31.7	31.7
	2	94	50.5	50.5	82.3
	3	24	12.9	12.9	95.2
	4	9	4.8	4.8	100.0
	Total	186	100.0	100.0	

High School Diploma Bachelor Master					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	59	31.7	31.7	31.7
	2	51	27.4	27.4	59.1
	3	63	33.9	33.9	93.0
	4	13	7.0	7.0	100.0
	Total	186	100.0	100.0	

Operation Quality Marketing Supply Chain					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	128	68.8	68.8	68.8
	2	15	8.1	8.1	76.9
	3	26	14.0	14.0	90.9
	4	17	9.1	9.1	100.0
	Total	186	100.0	100.0	

<b>Less than 5 Bet.5–10 Bet.11–15 Above 15</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	80	43.0	43.0	43.0
	2	66	35.5	35.5	78.5
	3	24	12.9	12.9	91.4
	4	16	8.6	8.6	100.0
	Total	186	100.0	100.0	

**Reliability:**

## JIT Purchasing

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.825	10

## JIT Operations

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.863	10

## JIT Selling

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.847	10

## Total JIT

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.908	3

## Cost

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.801	7

## Quality

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.869	7



## Speed

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.862	7

## Reliability

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.857	7

## Innovation

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.836	7

## Competitive Advantages

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.917	5

**Means:**

<b>One-Sample Statistics</b>				
	N	Mean	Std. Deviation	Std. Error Mean
JIT Purchasing	186	3.9570	.65979	.04838
JIT Operations	186	4.1032	.65866	.04829
JIT Selling	186	4.0081	.66021	.04841
Total JIT	186	4.0228	.60601	.04443

<b>One-Sample Test</b>						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
JIT Purchasing	19.781	185	.000	.95699	.8615	1.0524
JIT Operations	22.843	185	.000	1.10323	1.0079	1.1985
JIT Selling	20.824	185	.000	1.00806	.9126	1.1036
Total JIT	23.017	185	.000	1.02276	.9351	1.1104

<b>One-Sample Statistics</b>				
	N	Mean	Std. Deviation	Std. Error Mean
Cost	186	3.9762	.65926	.04834
Quality	186	4.0960	.77274	.05666
Speed	186	4.0945	.75459	.05533
Reliability	186	4.0845	.74022	.05428
Innovation	186	3.9800	.75464	.05533
Competitive Advantages	186	4.0462	.63845	.04681

<b>One-Sample Test</b>						
	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Cost	82.256	185	.000	3.97619	3.8808	4.0716
Quality	72.291	185	.000	4.09601	3.9842	4.2078
Speed	74.002	185	.000	4.09447	3.9853	4.2036
Reliability	75.255	185	.000	4.08449	3.9774	4.1916
Innovation	71.929	185	.000	3.98003	3.8709	4.0892
Competitive Advantages	86.434	185	.000	4.04624	3.9539	4.1386

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
The company develops full database about suppliers.	186	3.67	1.317	.097
The company selects the right suppliers.	186	3.92	1.011	.074
The company shares forecasting with suppliers.	186	3.84	.993	.073
The company places orders based on forecasting.	186	3.61	1.283	.094
The company receives materials at the right time.	186	4.04	.985	.072
The company receives requested materials on the right quantity.	186	4.16	.971	.071
The company receives the materials on right quality.	186	4.24	.923	.068
The company develops suitable space to store materials.	186	4.08	.997	.073
The company receives orders in many lots according to demand.	186	4.08	.906	.066
The company settles accounts to the suppliers on time.	186	3.92	1.108	.081
JIT Purchasing	186	3.9570	.65979	.04838

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The company develops full database about suppliers.	38.019	185	.000	3.672	3.48	3.86
The company selects the right suppliers.	52.964	185	.000	3.925	3.78	4.07
The company shares forecasting with suppliers.	52.787	185	.000	3.844	3.70	3.99
The company places orders based on forecasting.	38.359	185	.000	3.608	3.42	3.79
The company receives materials at the right time.	55.953	185	.000	4.043	3.90	4.19
The company receives requested materials on the right quantity.	58.363	185	.000	4.156	4.02	4.30
The company receives the materials on right quality.	62.602	185	.000	4.237	4.10	4.37
The company develops suitable space to store materials.	55.835	185	.000	4.081	3.94	4.22
The company receives orders in many lots according to demand.	61.440	185	.000	4.081	3.95	4.21
The company settles accounts to the suppliers on time.	48.327	185	.000	3.925	3.76	4.08
JIT Purchasing	81.792	185	.000	3.95699	3.8615	4.0524

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
The company kitchen layout facilitates operation.	186	3.87	1.206	.088
The company arranges the equipment to facilitate operation.	186	4.17	.859	.063
The company controls cooking time well.	186	4.26	.845	.062
The company meets the production schedule of every day.	186	4.15	.900	.066
The company devotes appropriate space to serve customers.	186	4.15	.927	.068
The company selects appropriate staff to serve customers.	186	4.08	.950	.070
The company trains staff to serve customers well.	186	4.10	1.025	.075
The company chooses appropriate materials to serve customers.	186	4.07	.998	.073
The company serves customers on the right time.	186	4.10	1.006	.074
The company provides comfortable seats.	186	4.09	1.067	.078
JIT Operations	186	4.1032	.65866	.04829

One-Sample Test						
	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The company kitchen layout facilitates operation.	43.789	185	.000	3.871	3.70	4.05
The company arranges the equipment to facilitate operation.	66.242	185	.000	4.172	4.05	4.30
The company controls cooking time well.	68.812	185	.000	4.263	4.14	4.39
The company meets the production schedule of every day.	62.909	185	.000	4.151	4.02	4.28
The company devotes appropriate space to serve customers.	60.964	185	.000	4.145	4.01	4.28
The company selects appropriate staff to serve customers.	58.507	185	.000	4.075	3.94	4.21
The company trains staff to serve customers well.	54.525	185	.000	4.097	3.95	4.25
The company chooses appropriate materials to serve customers.	55.643	185	.000	4.070	3.93	4.21
The company serves customers on the right time.	55.637	185	.000	4.102	3.96	4.25
The company provides comfortable seats.	52.226	185	.000	4.086	3.93	4.24
JIT Operations	84.962	185	.000	4.10323	4.0079	4.1985

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
The company develops full database about customers.	186	3.50	1.240	.091
The company provides car parking for customers.	186	3.96	.941	.069
The company's staff welcome customers with smile.	186	4.21	.921	.068
The company serves the customers accurately.	186	4.08	.961	.070
The company serves customers on right time.	186	4.19	.902	.066
The company develops simple menu for customer selection.	186	4.10	1.037	.076
The company serves tasty products.	186	4.19	.921	.068
The company provides appropriate public utility (Internet, A/C,...etc ).	186	3.93	1.120	.082
The company assures appropriate number of seats to serve customers.	186	4.12	.965	.071
The company provides entertainment for customers (play area, music).	186	3.80	1.109	.081
JIT Selling	186	4.0081	.66021	.04841

One-Sample Test						
	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The company develops full database about customers.	38.492	185	.000	3.500	3.32	3.68
The company provides car parking for customers.	57.377	185	.000	3.957	3.82	4.09
The company's staff welcome customers with smile.	62.357	185	.000	4.210	4.08	4.34
The company serves the customers accurately.	57.819	185	.000	4.075	3.94	4.21
The company serves customers on right time.	63.347	185	.000	4.188	4.06	4.32
The company develops simple menu for customer selection.	53.934	185	.000	4.102	3.95	4.25
The company serves tasty products.	62.077	185	.000	4.194	4.06	4.33
The company provides appropriate public utility (Internet, A/C,...etc ).	47.854	185	.000	3.930	3.77	4.09
The company assures appropriate number of seats to serve customers.	58.299	185	.000	4.124	3.98	4.26
The company provides entertainment for customers (play area, music).	46.733	185	.000	3.801	3.64	3.96
JIT Selling	82.796	185	.000	4.00806	3.9126	4.1036

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
The company has inventory management plan.	186	3.87	1.176	.086
The company has reduced lead-time.	186	4.00	.851	.062
The company employees are well trained on multi tasks.	186	4.06	.993	.073
The company has long-term relationship with suppliers.	186	4.06	.859	.063
The company selects nearby suppliers.	186	3.90	.945	.069
The company uses integrated supply system with their suppliers.	186	3.94	.925	.068
The company receives orders on frequent deliveries.	186	4.01	1.045	.077
Cost	186	3.9762	.65926	.04834

One-Sample Test						
	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The company has inventory management plan.	44.848	185	.000	3.866	3.70	4.04
The company has reduced lead-time.	64.099	185	.000	4.000	3.88	4.12
The company employees are well trained on multi tasks.	55.760	185	.000	4.059	3.92	4.20
The company has long-term relationship with suppliers.	64.484	185	.000	4.059	3.93	4.18
The company selects nearby suppliers.	56.279	185	.000	3.898	3.76	4.03
The company uses integrated supply system with their suppliers.	58.093	185	.000	3.941	3.81	4.07
The company receives orders on frequent deliveries.	52.350	185	.000	4.011	3.86	4.16
Cost	82.256	185	.000	3.97619	3.8808	4.0716

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
The company's top management is committed to quality	186	4.01	1.224	.090
The company applies quality systems throughout institution.	186	4.18	.935	.069
The company follows franchise owners standards.	186	4.27	.891	.065
The company conducts quality-training courses.	186	3.88	1.120	.082
The company uses appropriate quality tools.	186	4.07	.981	.072
The company receives products from an approved suppliers.	186	4.22	.940	.069
The company builds a partnership with suppliers.	186	4.05	1.092	.080
Quality	186	4.0960	.77274	.05666

One-Sample Test						
	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The company's top management is committed to quality	44.643	185	.000	4.005	3.83	4.18
The company applies quality systems throughout institution.	61.001	185	.000	4.183	4.05	4.32
The company follows franchise owners standards.	65.390	185	.000	4.274	4.15	4.40
The company conducts quality-training courses.	47.193	185	.000	3.876	3.71	4.04
The company uses appropriate quality tools.	56.572	185	.000	4.070	3.93	4.21
The company receives products from an approved suppliers.	61.168	185	.000	4.215	4.08	4.35
The company builds a partnership with suppliers.	50.566	185	.000	4.048	3.89	4.21
Quality	72.291	185	.000	4.09601	3.9842	4.2078

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
The company serves customers in appropriate time.	186	3.89	1.236	.091
The company uses modern devices to serve customers.	186	4.15	.927	.068
The company trains the employees on time management.	186	4.12	.970	.071
The company staff sets up equipment early every day.	186	4.14	.908	.067
The company launches new products regularly.	186	4.19	.879	.064
The company has digital display menu for customer use.	186	4.05	1.012	.074
The company has appropriate point of sales to serve customers on time.	186	4.12	1.152	.084
Speed	186	4.0945	.75459	.05533

One-Sample Test						
	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The company serves customers in appropriate time.	42.890	185	.000	3.887	3.71	4.07
The company uses modern devices to serve customers.	60.964	185	.000	4.145	4.01	4.28
The company trains the employees on time management.	57.964	185	.000	4.124	3.98	4.26
The company staff sets up equipment early every day.	62.212	185	.000	4.140	4.01	4.27
The company launches new products regularly.	65.044	185	.000	4.194	4.07	4.32
The company has digital display menu for customer use.	54.631	185	.000	4.054	3.91	4.20
The company has appropriate point of sales to serve customers on time.	48.767	185	.000	4.118	3.95	4.28
Speed	74.002	185	.000	4.09447	3.9853	4.2036



One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
The company produces according orders.	186	4.04	.963	.071
The company serves many customers at the same time.	186	4.16	.902	.066
The company has many different menus in the same time.	186	4.03	.975	.071
The company has self-service system.	186	4.04	1.015	.074
The company provides different products according customer needs.	186	4.15	.956	.070
The company provides consistent service to customers.	186	4.19	.977	.072
The company provides drive thru service for customers.	186	3.99	1.243	.091
Reliability	186	4.0845	.74022	.05428

One-Sample Test						
	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The company produces according orders.	57.242	185	.000	4.043	3.90	4.18
The company serves many customers at the same time.	62.845	185	.000	4.156	4.03	4.29
The company has many different menus in the same time.	56.412	185	.000	4.032	3.89	4.17
The company has self-service system.	54.232	185	.000	4.038	3.89	4.18
The company provides different products according customer needs.	59.134	185	.000	4.145	4.01	4.28
The company provides consistent service to customers.	58.493	185	.000	4.188	4.05	4.33
The company provides drive thru service for customers.	43.759	185	.000	3.989	3.81	4.17
Reliability	75.255	185	.000	4.08449	3.9774	4.1916

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
The company easily adapt new ideas.	186	3.61	1.274	.093
The company concern about customers complaints to develop operations.	186	4.13	.911	.067
The company has online website application to serve customers.	186	4.18	.980	.072
The company develops new products.	186	4.09	.955	.070
The company applies empowerment to encourage innovation.	186	3.84	1.170	.086
The company uses the latest technology to serve customers.	186	4.04	.983	.072
The company uses external websites (ifood) to serve customers.	186	3.97	1.112	.082
Innovation	186	3.9800	.75464	.05533

One-Sample Test						
	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The company easily adapt new ideas.	38.613	185	.000	3.608	3.42	3.79
The company concern about customers complaints to develop operations.	61.873	185	.000	4.134	4.00	4.27
The company has online website application to serve customers.	58.192	185	.000	4.183	4.04	4.32
The company develops new products.	58.369	185	.000	4.086	3.95	4.22
The company applies empowerment to encourage innovation.	44.754	185	.000	3.839	3.67	4.01
The company uses the latest technology to serve customers.	56.023	185	.000	4.038	3.90	4.18
The company uses external websites (ifood) to serve customers.	48.717	185	.000	3.973	3.81	4.13
Innovation	71.929	185	.000	3.98003	3.8709	4.0892

Correlations											
		JITP	JITO	JIT S	Total JIT	Cost	Quality	Speed	Reliab.	Innov.	Competitive Advantages
JIT Purchasing	Pearson Correlation	1	.737**	.745**	.901**	.628**	.665**	.700**	.650**	.613**	.752**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	186	186	186	186	186	186	186	186	186	186
JIT Operations	Pearson Correlation	.737**	1	.816**	.926**	.675**	.711**	.719**	.663**	.652**	.789**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000
	N	186	186	186	186	186	186	186	186	186	186
JIT Selling	Pearson Correlation	.745**	.816**	1	.929**	.705**	.715**	.740**	.717**	.668**	.818**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.000	.000
	N	186	186	186	186	186	186	186	186	186	186
Total JIT	Pearson Correlation	.901**	.926**	.929**	1	.728**	.759**	.783**	.736**	.701**	.856**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000	.000
	N	186	186	186	186	186	186	186	186	186	186
Cost	Pearson Correlation	.628**	.675**	.705**	.728**	1	.658**	.625**	.666**	.700**	.834**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.000
	N	186	186	186	186	186	186	186	186	186	186
Quality	Pearson Correlation	.665**	.711**	.715**	.759**	.658**	1	.716**	.672**	.695**	.867**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000	.000
	N	186	186	186	186	186	186	186	186	186	186
Speed	Pearson Correlation	.700**	.719**	.740**	.783**	.625**	.716**	1	.772**	.680**	.879**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000
	N	186	186	186	186	186	186	186	186	186	186
Reliability	Pearson Correlation	.650**	.663**	.717**	.736**	.666**	.672**	.772**	1	.700**	.880**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000
	N	186	186	186	186	186	186	186	186	186	186
Innovation	Pearson Correlation	.613**	.652**	.668**	.701**	.700**	.695**	.680**	.700**	1	.872**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000		.000
	N	186	186	186	186	186	186	186	186	186	186
Competitive Advantages	Pearson Correlation	.752**	.789**	.818**	.856**	.834**	.867**	.879**	.880**	.872**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	N	186	186	186	186	186	186	186	186	186	186
**. Correlation is significant at the 0.01 level (2-tailed).											

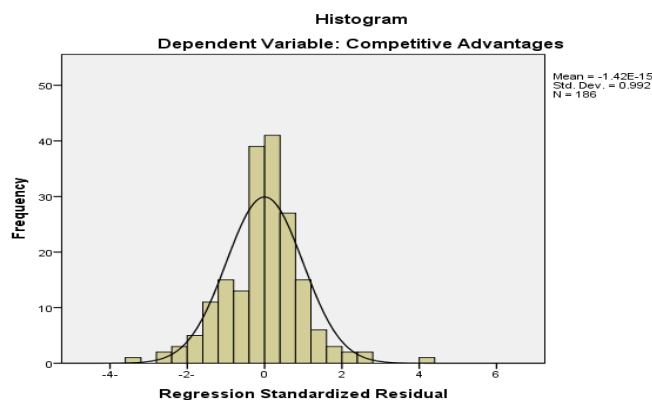
## Regression

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.858 <sup>a</sup>	.736	.732	.33065	1.653
a. Predictors: (Constant), JIT Selling, JIT Purchasing, JIT Operations					
b. Dependent Variable: Competitive Advantages					

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.510	3	18.503	169.241	.000 <sup>b</sup>
	Residual	19.898	182	.109		
	Total	75.409	185			
a. Dependent Variable: Competitive Advantages						
b. Predictors: (Constant), JIT Selling, JIT Purchasing, JIT Operations						

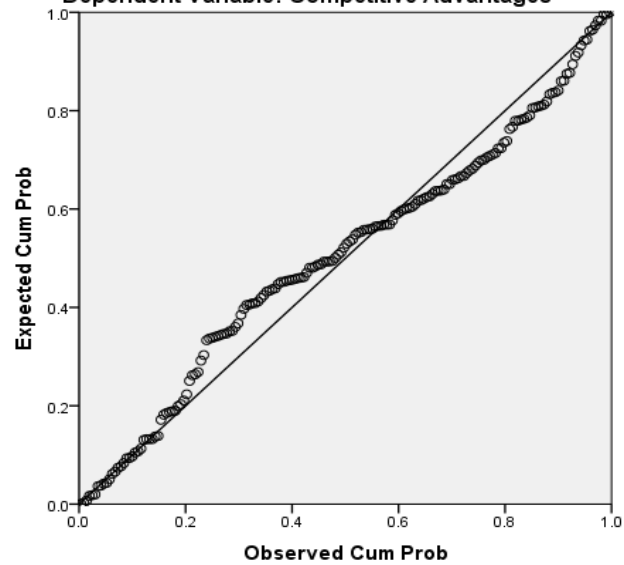
Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.429	.163		2.627	.009		
	JIT Purchasing	.233	.059	.241	3.977	.000	.395	2.533
	JIT Operations	.263	.068	.271	3.872	.000	.296	3.377
	JIT Selling	.403	.069	.417	5.884	.000	.289	3.465
a. Dependent Variable: Competitive Advantages								

## Charts



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Competitive Advantages



Scatterplot

Dependent Variable: Competitive Advantages

