

**T.C.  
ISTANBUL GEDİK UNIVERSITY  
INSTITUTE OF GRADUATE STUDIES**



**THE EFFECT OF ISO 9001 ON THE PERFORMANCE OF GENERAL  
COMPANY FOR PORTS OF IRAQ**

**MASTER'S THESIS**

**Karrar Abdulabbas Farhan Hamad ALMANSOORY**

**Business Administration Department**

**Business Administration Master in English Program**

**NOVEMBER 2021**

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(191285062)**

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**Thesis Advisor: Prof Dr: Enver Alper GUVEL**

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**T.C.**  
**İSTANBUL GEDİK ÜNİVERSİTESİ**  
**LİSANSÜSTÜ EĞİTİM ENSTİTÜSÜ MÜDÜRLÜĞÜ**

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Enstitümüz, Business Management Department İngilizce Tezli Yüksek Lisans Programı (191285062) numaralı öğrencisi Karrar Abdulabbas Farhan Hamad ALMANSOORY'nin "The Effect of Iso 9001 on the Performance of General Company for Ports of Iraq" adlı tez çalışması Enstitümüz Yönetim Kurulunun 25.11.2021 tarihinde oluşturduğu jüri tarafından *Oy Birliği* ile Yüksek Lisans tezi olarak *Kabul* edilmiştir.

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**1) Tez Danışmanı:** Prof. Dr. Enver Alper GÜVEL

**2) Jüri Üyesi:** Dr. Öğr. Üyesi Ahmet ERKASAP

**3) Jüri Üyesi:** Dr. Öğr. Üyesi Ali ÖZCAN

## **DECLARATION**

I am, Karrar Abdulabbas Farhan Hamad ALMANSOORY, as a result of this declare that this thesis titled “The Effect of Iso 9001 on the Performance of General Company for Ports of Iraq” is original work I accomplished for the honor of the graduate degree in the workforce of Business administration. I additionally announce that this proposal or any piece of it has not been submitted and introduced for some other degree or exploration paper in some other college or establishment.  
(25/11/2021)

Karrar Abdulabbas Farhan Hamad ALMANSOORY



## **DEDICATION**

It is in my pleasure to dedicate my thesis work to the soul of my beloved parents (Father and Mother). They taught me many lessons that become the guide of my life. They still encourage me to work hard and achieve my goals.

I also dedicate my thesis work to my dear and lovely wife and kids. They always stands for me and gives support. I dedicate my thesis work to my amazing brothers and sisters. I feel so greatly privileged to have them in my life.



## **PREFACE**

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Finally, I would like to thank all participants who took part in the study and enabled this research to be possible.

October 2021

Karrar Abdulabbas Farhan HAMAD

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## **ABBREVIATIONS**

<b>GCPI</b>	: General Company for Ports of Iraq
<b>CP</b>	: Company's Performance
<b>TQM</b>	: Total Quality Management
<b>APP</b>	: Appendix



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## **THE EFFECT OF ISO 9001 ON THE PERFORMANCE OF GENERAL COMPANY FOR PORTS OF IRAQ**

### **ABSTRACT**

Applying the ISO 9001 standards can be an important factor of improving the companies' performance. Studies showed that applying different versions of ISO could lead to improve the companies' ability of providing products and services and satisfy their customer. That is because; it can provide many benefits to companies. The Iraqi companies have started applying the ISO 9001 directly after 2003. That is because, Iraq started new political system after 2003, and become more economically open to the entire world. However, some Iraqi companies' managers in were misunderstanding the concepts and the goals of applying ISO 9001. In addition, there are limited studies that evaluate the effect of ISO on the Iraqi companies' performance. Therefore, this study is empirically tests the effect of applying ISO 9001 on the performance of The General Company for Ports of Iraq, Basrah, Iraq. The importance of the study is to help decision makers of the company to understand the concepts of ISO 9001. The study contributes to the literature by providing an analytical method to test the effect of ISO on companies' performance in Iraq. The study hypothesis is that the ISO 9001 has a positive and significant impact on the performance of The General Company for Ports of Iraq. The study used the questionnaire method to collect data. The questionnaire sheets were sent to a sample of 300 employees in the company, and 174 sample sizes was used. The results of the study showed that applying ISO 9001 has significant impact on the performance of The General Company for Ports of Iraq. The results also indicate that applying ISO 9001 has direct and indirect impact on the company's performance. The results of the study partially support the study hypothesis. That is because applying ISO 9001 has a positive and negative impact on the performance of The General Company for Ports of Iraq. The study suggests The General Company for Ports of Iraq should focus more on the benefits from applying ISO 9001, and work hard on eliminating the barriers of applying ISO 9001. In addition, the company should improve two parts of its TQM, which are the organizational leadership and customer satisfaction and relationships. The company should fix any problem related to its supplier quality management.

**Keywords:** *ISO 9001, Iraq, Companies' Performance*

## ISO 9001'İN IRAK LİMANLARI İÇİN GENERAL COMPANY NİN PERFORMANSINA ETKİSİ

### ÖZET

ISO 9001 standartlarını uygulamak, şirketlerin performansını iyileştirmede önemli bir faktör olabilir. Çalışmalar, ISO'nun farklı versiyonlarını uygulamanın, şirketlerin ürün ve hizmet sağlama ve müşterilerini memnun etme yeteneklerini geliştirmesine yol açabileceğini göstermiştir. Çünkü bu; şirketlere birçok fayda sağlayabilir. Iraklı şirketler, 2003 yılından sonra doğrudan ISO 9001'i uygulamaya başladılar. Çünkü Irak, 2003'ten sonra yeni bir siyasi sisteme geçerek ekonomik olarak tüm dünyaya daha açık hale geldi. Ancak, bazı Iraklı şirketlerin yöneticileri, ISO 9001'i uygulama kavramlarını ve hedeflerini yanlış anlıyordu. Ayrıca, ISO'nun Irak şirketlerinin performansı üzerindeki etkisini değerlendiren sınırlı sayıda çalışma var. Bu nedenle, bu çalışma, ISO 9001 uygulamasının Irak, Basra, Irak Limanları için The General Company'nin performansı üzerindeki etkisini ampirik olarak test etmektedir. Çalışmanın önemi, şirketin karar vericilerinin ISO 9001 kavramlarını anlamalarına yardımcı olmaktır. Çalışma, ISO'nun Irak'taki şirketlerin performansı üzerindeki etkisini test etmek için analitik bir yöntem sunarak literatüre katkıda bulunmaktadır. Çalışma hipotezi, ISO 9001'in The General Company for Irak Limanları'nın performansı üzerinde olumlu ve önemli bir etkisi olduğudur. Araştırmada veri toplamak için anket yöntemi kullanılmıştır. Anket formları şirkette 300 çalışandan oluşan bir örneğe gönderilmiş ve 174 örneklem büyüklüğü kullanılmıştır. Çalışmanın sonuçları, ISO 9001'in uygulanmasının The General Company for Irak Limanları'nın performansı üzerinde önemli bir etkisi olduğunu göstermiştir. Sonuçlar ayrıca ISO 9001'in uygulanmasının şirketin performansı üzerinde doğrudan ve dolaylı etkisi olduğunu göstermektedir. Araştırmanın sonuçları, araştırma hipotezini kısmen desteklemektedir. Bunun nedeni, ISO 9001'in uygulanması The General Company for Irak Limanları'nın performansı üzerinde olumlu ve olumsuz bir etkiye sahip olmasıdır. Çalışma, Irak Limanları Genel Şirketi'nin ISO 9001'i uygulamanın faydalarına daha fazla odaklanması ve ISO 9001'i uygulamanın önündeki engelleri ortadan kaldırmak için çok çalışması gerektiğini önermektedir. liderlik ve müşteri memnuniyeti ve ilişkileri. Şirket, tedarikçi kalite yönetimi ile ilgili herhangi bir sorunu çözmelidir.

**Anahtar Kelimeler:** *ISO 9001, Irak, Şirketlerin Performans*

# 1. INTRODUCTION

## 1.1 Overview

In the world of business, almost all rational companies' managers are seeking to achieve high level of their companies' performance. This fact arise some questions. That is because individuals may know the results of good companies' performance such as the increase in their production. However, they may not know what exactly the companies' performance is (Franco et al. 2007).

It is important to understand the exact meaning of the companies' performance, its measurements, and the factors that can affect it. That is because, it can led to make better improvements in the company (Frazier & Howell 1983).

A quick look at the literature of companies' performance can show that researchers from different fields are contributing to the field of companies' performance definitions and measurement. For example, the researchers of operations management, the human resources managements, and the information systems managements are all contributing to the field of companies' performance. That have led to present different definitions to that concept (Neely 2002).

Three important questions have to be answered to better understand the company's performance. The first question is what is exactly the companies' performance? The second question is what are the measurements of the companies' performance? The third question is what factors can affect the companies' performance.

To answer the first question, the definition of the companies' performance should be identified. That can help understand the concept of the companies' performance and the ways of measuring it.

There are many definitions to the companies' performance. For example, researchers define it as a set of analytic steps that help the managers to achieve their goals (Zhu 2000).

A group of specialists defines it as a group of indicators that cover the profitability, and the growth rate of the company (Waworuntu 2014).

In some cases, people consider it as the activities that focus more on the business efficiency (Srinivasa 2007). Studies in the literature presented it as the management of financial and non-financial issues that can lead to high rate of growth (Lassala 2017). Other groups of studies shows that it is the balance between the company outcomes and the company goals (Wang & Sarkis 2017).

The effectiveness and the efficiency of the company is another definition of companies performance (Srinivasa 2007). In addition, it also can be the company outcomes such as revenues, and the returns of the company's shareholder (Wang & Sarkis 2017). Finally, it can be a measure that identify the position of the company in comparison with its competitors in the market (Brown & Earle 2000).

It is clear that the each one of the above definitions explains part of the companies' performance. Therefore, it is important to analyze each part of them when analyzing any companies' performance.

Answering the second question is not far from the answer of the first question. That is, each one of the definitions can help found a measure or measures of the companies' performance. For example, the first definition can present a measure related to achieving the company's goals. The more company's goals achieved the better company's performance.

Answering the third question, which asking about the factors that can affect the companies' performance is not easy. In other words, it is hard to generalize the factors that affect the companies' performance. That is because each company operate under different market conditions. In fact, there are general factors that can affect all companies' performance, but they may differ under different market conditions. Therefore, analyzing the effects of different factors on the companies' performance required determining these factors under specific market conditions and specific period (Feng et al. 2017).

Applying the ISO 9001 standards can be an important factor that may affect the companies' performance. The ISO stands for (The International Standard that Specifies Requirements for a Quality Management System). The 9001 is the version number of this ISO standards.

Companies have applied different versions of ISO to improve their ability of providing products and services that satisfy the customer (Van et al. 2005). Based on that, applying ISO can be one important factor that may affect the companies' performance.

The ISO is now globally accepted, and most companies around the world have applying it. That is because, until now there is no other standard that can provide many benefits to companies like what ISO does. In general, the ISO can benefits the companies by making a balance between providing the required product and services that meet the customer requirements and following the requirements that stated by law (Priede 2012).

The ISO was created by a nonprofit organization in 1947. The central secretariat of this organization is located in Geneva, Switzerland. ISO has now more than 164 countries around the world as memberships. The ISO is considered now as one of the most accepted standards in the world. The ISO is accepting new membership by many agents and through a specific process. Even ISO is not mandatory; some governments enforce the organizations to be get ISO certificates. In addition, some countries consider ISO certificate like a business license for organizations (Kumar & Balakrishnan 2011).

## **1.2 The Study Topic**

The topic of this study was selected because most of Iraqi companies have started applying the ISO 9001 and other ISO versions. They started applying ISO directly after 2003, when Iraq started new political system, and become more economically open to the entire world. However, after directly interviewing some companies' managers in Basrah, Iraq, there was misunderstanding about the concepts and the goals of applying ISO 9001. In addition, there are limited studies that evaluate the effect of ISO on the Iraqi companies' performance. The General Company for Ports of Iraq, Basrah, Iraq was selected to be the case study. That is because it is one of the most important company in Iraq and for some other reasons that will be explained later.

### **1.3 The Purpose / Importance of the Study**

The purpose of the study is to empirically test the effect of applying ISO 9001 on the Iraqi companies' performance.

More specifically, the study tests the impact of applying ISO 9001 on the performance of the General Company for Ports of Iraq, Basrah, Iraq.

The importance of the study is to help decision makers of Iraqi companies to better understand the concepts of ISO 9001. The study contribution is that it could present an analytical method to test the effect of ISO on companies' performance in Iraq. That can be applied on other companies that are using IOS 9001 or other versions.

### **1.4 Literature Review**

This section reviews some studies in the literature that are related to testing the effect of different factors on the company's performance. It also reviews some studies in the literature that tests the impact of applying ISO on the companies' performance.

#### **1.4.1 Studies in the literature that are related to testing the effect of different factors on the company's performance**

1. The study by Elena and Maria, (2016) showed that the environment, the objectives, and the recognizable features influence the companies' performance. It showed that the companies' performance should consider the efficiency and the effectiveness of actions. In other words, the companies' performance is closely related to efficiency and effectiveness. The study showed that the performance could be defined at the level of each individual within the organization or at the organization level. The study showed that the companies' performance could improve when focusing on achieving the set of objectives including the customer's satisfaction (Elena & Maria 2016).
2. The study by Zhu, (2000), introduced away that can gather different measures of the financial performance. The study was applied on the Fortune 500 companies. The study used the data envelopment analysis (DEA) method to identify the factor that affect the performance of the Fortune 500 companies (Zhu 2000).

The results of this study shown that getting high revenue does not mean that the company has high ranked performance. That is because; the revenue is only one

dimension of companies' performance. The results of the study showed that about 3% of the case study companies were operating on the frontier curve.

The results also showed that a reduction in the number of employees, could be a reason for the increase in the revenue. The study developed the Factor-specific measures to test the companies' performance. The results showed that the performance of the frontier companies could affect the performance of other companies.

3. The study by Waworuntu, et al (2014), indicated that many companies have faced difficulties getting funds. Therefore, funds can be an important factor that affects company's performance. Without funds, it very hard for any company to keep its operation and necessary investment. The study indicated also that the increase in the employee satisfaction might increase the companies' performance. The study indicated that the increase in market competition between companies may led companies to have good performance and market position (Waworuntu, et al. 2014).

The study aimed to investigate the relationship between the companies' commitment to their stakeholders and the companies' performance. The study used the financial results as a measure of the companies' performance. The results of this study showed that the companies' commitment to their stakeholders has a positive correlation with the companies' performance.

4. The study by Lassala et al (2017) provided information about the relationship between socially behavior of the companies and their performance. The study used the financial measure to represent its performance. The study showed some important factors that can affect the companies' performance. These factors are the social factors, the environmental factors, the economic actions and polices the globalization, and the demand for stakeholders (Lassala et al. 2017).

The study indicated that there is a debate about the relationship between social and environmental performance and companies' performance. The study used the fuzzy-set qualitative comparative method to analysis the relationship between the two types of performance. The study was applied on some companies from the Spanish markets. The financial variable that used is the return on equity ratio. The

results of this study showed that the return on the companies' assets is required to reduce the cost and get good performance.

5. The paper by Brown, and Earle, (2000) focused on the efficiency as a measure of companies' performance.

The paper investigated the effect of market competition on the companies' performance. The study was applied on companies in Russia. That is because Russian economy started a reform program in 1992. This reform towards the liberalization put the Russian companies under high competition. As a result, these companies started focusing more on their operations' efficiencies (Brown & Earle 2000).

The paper analyzed the impact of some factors of market competition on companies' performance using the efficiency as the performance variable. The study used data from 14,961 organization, which represent more than 75% of the total organization. The study took in account the geographic, and the intensity dimensions of the market competition. The results of this study showed that competition has positive and significant effects on companies' performance.

#### **1.4.2 Studies in the literature that tests the impact of applying ISO on the companies' performance**

1. The study by Ilkay, and Aslan, (2012), examined whether there is a difference between ISO 9001 certified companies and non-certified companies in terms of performance. The results showed that there are no statistically significant difference between certified and non-certified companies in terms of performance. The study showed that certification has no direct effect on performance (Ilkay & Aslan 2012).
2. The paper by Ismyrlis and Moschidis, (2015) aimed to test the effect applying the ISO 9001 on the performance of some Greek companies. The purpose of this paper is to investigate whether the ISO 9001 certification can benefits the companies. In addition, it investigated the relation between the required factors for the good functioning of the ISO 9001 and the demographic variables (Ismyrlis & Moschidis 2015).

The study was applied on some Greek companies from all sectors. The study used the questionnaire technique to collect data. The selection of companies is related to applying the ISO 9001 standard. The statistical analysis was used to test the effect of ISO 9001 on the performance of the selected companies.

The study used the financial variable as a measures of companies performance. The study used subjective data taken only from one quality manager of each company. That was one of the study limitations.

The results of the study showed that ISO 9001 could benefit the performance of the companies that apply it. The results indicated that the external benefits are more important than the internal benefits.

3. The study by Al-Refaie, (2012) tests the effects of ISO 9001 certification on the performance of some companies in Jordan. Four measures were used in this study to represent the companies' performance. These measures are the quality outcomes, the satisfaction of the customer, the business efficiency, and the innovations (Al-Refaie 2012).

The data used in this study was collected from many companies in Jordan that have the ISO 9001 certificates. The survey was used as a method to collect data. The survey has two parts. The first part represent the structural of each company, such as the, size of the company, and the status of ISO 9001 certificate. The second part represents the company's performance measures.

The results of this study indicated that applying the ISO 9001 can significantly effects the quality of outcomes, and the customer satisfaction. In addition, it has significant effect on and business efficiency. The results showed that ISO 9001 has no effect on innovation. The results showed that applying ISO 9001 could affect the companies' performance.

4. Kresse and Fadaie (2013) provides information about the ISO system. More specifically, it provides information about the requirements of ISO. For example, it indicates that the companies have to show its ability to provide products and services that meet customer satisfaction requirements. In addition, the company have to improvement their system to meet the customers' needs. It showed that all the requirements of ISO could be applicable to any organization, regardless of its type or size (Kresse & Fadaie 2013).

## **1.5 The Study Hypothesis**

The study hypothesis is that the ISO 9001 has a positive and significant impact on the performance of The General Company for Ports of Iraq.

## **1.6 The Study Plan**

The rest of the study includes four section as shown below:

1. Chapter one which is the theoretical framework of the companies' performance.
2. Chapter two will discuss the structure and the concepts of ISO 9001.
3. Chapter three will be the empirical work that includes data, model, methodology, and the results.
4. The conclusion.

## **2. THE COMPANIES' PERFORMANCE**

### **2.1 The Concept of Companies' Performance**

In general, the companies' performance can be viewed as the companies' outcomes. The companies' performance can be good if the outcomes were good such as the increase in production and the improvement in the products quality. In addition, it can be the increase in profits and the reduction in the costs. However, the companies' performance can be bad if the outcomes were not good such as the reduction in production or the increase in costs and low profits (Mehari & Aemiro 2013).

Many internal and external factors can affect the companies' performance. For example, the companies' performance can be affected by a set of analytic steps that lead the managers of companies to achieve their goals. In addition, it can be affected by some activities that focus more on the business efficiency, such as the management of financial and non-financial issues, which can lead to high rate of growth. Furthermore, it can be affected by the changes in the market conditions. Therefore, analyzing the companies' performance requires analyzing the effect of each factor (Gonçalves & Quintella 2006).

It is important to indicate that the evaluating or measuring the performance of companies is consider one of the basic elements of the management system. In addition. Therefore, the effective ways of measuring the companies' performance must include basic indicators of performance. These indicators measure the activity of the companies as a whole from the viewpoint of their customers. They can provide Feedback to help companies identify deficiencies and opportunities for improvement. The good performance measures can help matching the objectives of the companions with the strategic goals (Kennerley & Neely 2003).

Linking the measures of companies' performance with customer concerns can be in the companies' priority.

However, it should not negatively affect the requirements of the owners of other parties related to the company such as investors, lenders, and suppliers. Therefore,

the companies' performance measures must be determined based on balancing between achieving the company's goals and the requirements of other parties related to them.

## **2.2 The Measurements of Companies' Performance**

Even there are different measures to the companies' performance; they are all used to know where the company stands in the market. In addition, they are used to evaluate the current companies' operation systems and then making important decisions to improve them. Therefore, it is necessary to know the criteria for measuring the companies' performance (Likierman 2009).

For example, to measure the companies' performance regarding corrective and preventive actions, the criterion is that companies do the required corrective and preventive actions by 95%. To measure the performance of customer complaints, the criterion is the percentage of the number of customer complaints that were resolved in the last year to the total number of complaints. To measure the performance in monitoring non-conforming services or products, the criterion is the appropriate action taken by companies regarding them.

It is also very important to pay attention to the relationship between these criteria in measuring performance and the companies' objectives that previously defined. It is important to link the companies' performance measuring to the strategic plan, responsibilities of work teams, companies' achievements. It is important that the companies' performance measuring can provide clear specific data (Werastuti 2021).

In addition, they must be accurate, can be verified, can provide guide to procedures and feedback. The companies' performance measuring should be connected to covers all companies' activities. The most common activates are production, costs, reboot, speed of response, on time delivery, customers' reactions, and revenues and profits.

The companies' performance measurement usually have two main categories including both financial and non-financial performance measures (Kotane 2015).

## **2.2.1 The financial measures of companies' performance**

### **2.2.1.1 The concept of the financial measures**

The financial measures is the common measure that most companies have used to evaluate their performance. That is because most companies' management interest in increasing the wealth of shareholders and evaluating the economic performance. The use of financial measures depend on financial and accounting information, which include the return on investment and the added economic value (San & Teh 2009).

The financial measures reflect the results of overall operational system of the companies. Therefore, they can be used to determine the extent to which the strategic objectives of the company are achieved.

The financial measures have important benefits that can help better evaluating the companies' performance. These benefits are the following (Kald & Nilsson 2000):

1. They present the impact of decisions using comparable unit of measure, which is the money. That allows the results to be aggregated across the company's units.
2. They show the costs of exchanges between resources. That can make them necessary indicators to measure performance.
3. They can be used to make the quantification of the performance. That can be made by linking the wage system and incentives to actual performance and achievements. Doing that can help developing the employees' performance in line with the strategic objectives. In addition, doing that can lead to proper utilization of resources to achieve the specified goals with high efficiency and effectiveness.

### **2.2.1.2 Types of financial measures**

Looking at the numbers in the financial statements of a company is not enough to evaluate the performance of this company. To evaluate a company's performance or compare the performance of two companies, it is necessary to know how to use the numbers in the financial statements (Kald & Nilsson 2000).

For example, if we know that the net profit of a company is 10 million this year, and another company only earns 5 million, is the first company better than the second is? Are the two companies successful companies?

It is hard to answer these questions because these two numbers do not provide any information about the value of the investments in each of the two companies. In addition, we do not know their profits in previous years, so we cannot decide whether their profits increased or not. We do not know the profits of similar companies so that we can evaluate their performance compared to similar companies. Based on that, use financial measures in evaluating the companies' performance, we need to know the types of financial measures and the ways of using them in the evaluating process.

The following are the most important types of financial measures:

### 1. Profitability ratios

There are four types of profitability ratios that their formulas shown in table (1.1) and they are explained as following (Delen et al 2013):

**Table 1.1:** Types of profitability ratios.  
Source: (Delen et al 2013)

<b>Profitability ratio</b>	<b>Formula</b>
Gross Profit Margin	$(\text{gross profit} / \text{net sales}) * 100\%$
Net Profit Margin	$(\text{net profit} / \text{net sales}) * 100\%$
Return on Equity	$(\text{net profit} / \text{average equity}) * 100\%$
Return on Assets	$(\text{net profit} / \text{total assets}) * 100\%$

#### a. The gross profit margin

It is the ratio of gross profit to the net sales. The higher this ratio compared to the competitors, the more efficient the operations are. That is because the ratio of sales costs to net sales of a company is less than of its competitors. For example, suppose a company produces school bags. At the end of the year, the company sold 100 bags at a price of five, while the cost of producing one bag is four. This is:

- Net sales are 500
- The cost of sales is 400
- The total profit is 100
- Gross profit margin is 20%

If a competitor achieves a gross profit margin equal to 25%, that means it was able to increase the difference between the cost of the bag and the price of the bag. This means a greater ability to reduce the cost of the product.

b. The net profit margin

The net profit margin is the ratio of net profit to the net sales. This ratio shows the ability of companies to make a profit from their sales. It is important to know that the profit margin may be high while the net profit margin is low because the cost of sales does not have additional costs from marketing, interest rates, and other expenses. This indicates that the company is successful in the basic operation. However, the company is failed in other aspects because there are additional costs charged to the expenses of the company that has nothing to do with the cost of the basic products.

For example, assume in the previous example that the company's net profit margin during the past year is 10%, while that of competitor is only 8%. This means that even the competitor can maximize its gross profit margin, its additional expenses will be more. This may be due to the high marketing expenses, costly operations, and others.

c. The return on equity

Which is the ratio of net profit to average equity. The average shareholder equity is used because the shareholder equity at the start of the year differs from that at the end of the year. The average shareholder equity can be calculated using the following formula:

$$\text{The Average Shareholder Equity (ASE)} = 0.5 * \left[ \frac{\text{ASE1}}{\text{ASE2}} \right]$$

Where:

ASE1: is the average shareholder equity at the beginning of the year

ASE2: is the average shareholder equity at the end of the year

This ratio is very important indicator because it shows the percentage of return on investment represented in shareholder equity. The lower the value of this ratio, the worse the company's performance

For example, if two investors shared an office supply store and each of them paid half of the capital, which is \$20000.

Then one of them made profits of \$1000 in the first year, and they were withheld. In the second year, they become \$4000. Therefore, the rate of return on shareholders' equity in the second year is:

$$\text{Average shareholders' equity} = 0.5 * (20,000 + 21,000) = \$20,500$$

$$\text{Return} = \$4,000$$

$$\text{Rate of return on equity} = 4,000 / 20,500 = 19.5\%$$

The question now is how to use this result for evaluation. In other words, is this a good percentage? It is considered a good rate because the return in the first year was very low. That is not bad indicator because it is normal for the profits of the first year to be less than the profits of the following years. The reasons of that is the customers do not know the company well and thus the need to bear high advertising expenses as well as some other expenses. This indicates that the financial figures cannot be analyzed without taking in account the other information about the company.

#### d. Return on assets

The return on assets is the ratio of net profit to total assets, which is the sum of current and fixed assets. This ratio is similar to the rate of return on shareholders' equity. That is because both of them measure the return on investment in one form or another.

The rate of return on assets measures the company's ability to invest the assets it owns, including equipment, buildings, land and inventory. Therefore, comparing this ratio between two companies that working in two different fields does not give us an indication of the failure or success of one. However, it can be used to compare the value of this indicator for the same company year after year. It can be used to compare it with similar companies in terms of the nature of activity.

#### 2. The liquidity ratios or financial strength ratios

The liquidity ratios represent the companies' financial strength, and it has two types as following (Swanevelder 2005):

a. Circulation rate (Current ratio)

The current ratio is the ratio of current assets to the total current liabilities. If the current assets are much less than the current liabilities, the business can face problems in paying off its liabilities. Whenever this ratio is greater than one, the business can pay off its liabilities including debts and late dues owed by the company.

b. Rapid circulation rate (Quick ratio)

It is the ratio of quick current assets. It is the ratio of total current assets minus inventory to total current liabilities. This ratio is similar to the current ratio except that it excludes inventory because it takes time to be converted to cash.

3. The asset management ratios

There are two types of the asset management ratios, which explained as following (Erdogan et al. 2015):

a. Receivables turnover ratio

The receivables turnover ratio is net sales divided by the average receivables at the end of the period. The average collection period usually calculated in days. For example, 365 day in the case of a full year / the turnover of the receivables.

This ratio indicates whether the collection period is short or long. It is important to indicate that the length of the collection period does not necessarily mean an administrative failure. That is because some companies allow customers to repay the value of the product after a month or two or in installments. Companies do that as one of selling strategies to encourage customers to buy.

b. Total assets turnover ratio

It is the result of dividing net sales by average total current and fixed assets. The higher this percentage, the better the company's performance. However, it must be taken into account that this percentage varies from one sector to another. That is because some activities require large fixed assets while other activities not.

4. The financial power ratios

There are two types of the financial power ratios, which explained as following (Davis & Peles 1993):

a. Debt ratio

It is the ratio of total liabilities to total assets. This ratio shows the company's ability to meet its short and long-term obligations.

b. Debt to equity ratio

It is the ratio of total liabilities to shareholders' equity. It indicates the company's dependence on borrowing to finance investments.

5. Profits distribution ratios

The distribution ratios are two types, which explained as following ((Davis & Peles 1993):

a. The ration of divided yield

The ration of divided yield is defined as the annual dividend per share to the market value of the share. This ratio is important for the investor who is concerned about the periodic cash return.

For example, if a person wants to buy shares in order to obtain an annual return of no less than a certain value, this ratio can affects his/her decision to buy the share.

b. Payout ratio

It is the ratio of the dividend to the net profit. This ratio represents the company's policy of distributing profits.

6. The ratios of market value

The ratios of market value includes two types, which explained as following (Meditinos et al. 2011):

a. Price to earnings ratio

It is the ratio of the stock market's price to return on share. The higher value of this ratio means more investors in the stock market who expect an increase in the company's profits. For example, if investors expect that the return on a company's stoke will be fixed for the coming years, they will not buy. However, if they expect profits to more than double in the next year, they will buy.

b. The stock market value to its book value ratio

It is the market value of the stock to its book value. The book value per share is equal to the equity per number of shares. This ratio indicates whether the value of the share in the market is lower or higher than its book value. Thus, this ratio shows whether the investors in the stock market expect an increase in the company's profitability in the future.

Even the financial measures have benefits, there are some criticisms regards using them, the most important criticisms are the following (San & Teh 2009):

- 1) Some specialists indicate that using the financial measures can lead to weak performance.

That is because they report historical data, or their reports focus on activities that occurred in the past. In addition, they do not pay attention to the current and future value. Therefore, they are considered insufficient in the decision-making processes to improve the current and future operational processes. In other words, they may give misleading signals about continuous improvement and innovations in developing operational processes.

- 2) Some specialists show that the traditional financial measures do not help the companies' managers to realize the factors that drive success in their companies. For example, they do not help in developing the employees' skills and the efficiency of the operational processes. They can limit the managers' ability to make the right decisions that supposed to lead the current and future performance of the company to the best achievements. Based on that, the financial measures are not sufficient to express the company's performance.

Therefore, companies may use non-financial performance measures with the financial measures to reach an accurate and comprehensive picture of evaluating the performance.

### **2.2.2 The non-financial measures of companies' performance**

There are many types of non-financial measures that can be used to evaluate the companies' performance. For example, the company's productivity and its customer satisfaction can be used as measures of its performance. In this part, the most common types of non-financial measures of companies' performance are discussed (San & Teh 2009).

### **2.2.2.1 The productivity**

The productivity is the measure of the company's ability to achieve outputs from specific inputs. It can also be defined as the company's ability to achieve the maximum possible output from the inputs. The productivity is one of the most important measures that are used in the economic, industrial, and different fields of work. It is used as an indication of what the production elements can work together in the production process. The productivity has a strong relationship with different issues within the company such as work environments and technology (Haltiwanger et al. 2007).

Understanding productivity requires discussing the concept of the production process and its inputs and outputs. The production process can be defined as a set of companies' activities that involve changing in materials and goods. More specifically, the production process is the process of transforming inputs into valued goods and services. These inputs can be raw or manufactured materials that are transformed into valuable products and services.

It is important to indicate that the production process can cause products' features to be continually developed.

The companies' suppliers provide the inputs of their production process. The suppliers provide the goods and services that the company needs to operate. The inputs of the production process usually include the following (Rosenblatt & Lee 1986):

- Employees who provide their effort, time, and skills to do their tasks within the process.
- Equipment including machines, buildings, and others that are used to facilitate the process.
- Raw materials which can be physical materials used as inputs such as steel, energy, components, and others.
- Financing which is the cash needed to buy equipment, pay employees, pay rent, pay for marketing, and others.

The outputs of the production process are the goods and services. These outputs are provided to customers who buy them. Customers are often individuals and other businesses.

Improving the productivity is strongly associated with improving the production process. Increasing the productivity can be done by raising the efficiency of the work that is performed within a company. It can also be done improving the work environment.

There are many ways to improve the business's productivity. The following are the most common ways (Sherman 1984):

a. Using advanced technology

Using advanced technology such as computers and robots is one of the important ways to improve the business productivity. For example, using advanced technology can help workers do their jobs' tasks in less time. In addition, it can lead the business to provide high quality products and services.

b. Improving the employees' skills

The most important factor in the production process is the employees. Therefore, improving the employees' skills can increase productivity. In addition, businesses must provide their employees the means of comfort, job security, and give them wages that are proportional with their effort. Furthermore, the businesses must establish continuous training programs and training courses for their employees. These programs can improve the employees' skills and performance and increase their experience. All of these can help raising the efficiency of the worker, and improving the level of productivity.

c. Good management system

The other way to improve productivity is the good management system. Companies' management must be capable of using resources efficiently. The management system must organize the production process, and make appropriate decisions.

d. Delegating employees

Delegating employees to take decisions is necessary to increase the productivity of the business. That is because it will make the completion of tasks to be done in a flexible and fast manner. Depending only on the management in making decisions can sometimes delay the performance of tasks. In addition, it can waste the time of both business's management and employees.

e. Flexible scheduling

Studies showed that flexible schedules could have positive impact on productivity. That is because allowing workers to have flexible schedules actually can enhance productivity. In addition, it can build loyalty, and encourage workers to work hard. Allowing employees to work from home also can enhance productivity. However, forcing the employees to have same schedule without actual needs can be bad for the business's productivity.

f. Using the appropriate communication methods

Businesses should not waste time and on unnecessary meetings with employees. They can communicate their Employees and give instructions or directions using email. This will speed up the operation process and increase productivity.

All of these factors can help increasing the productivity. Improving productivity can affect several aspects. It can increase the per capita income. When the productivity improves, individuals income rise, and their economic level improves (Sherman 1984).

The improvement of productivity has an important impact on the company itself. It can strength the company's competitiveness by increasing the company's ability to reduce prices. That will lead to an increase in the volume of profits, and raising company's position in the market. The improving productivity can also affects the entire economy by increasing exports and decreasing imports. That can enhance the citizens living conditions (Mahmood & Mann 2005).

### **2.2.2.2 The quality of products and services**

The quality of any business's products and services is one of important measure of businesses' performance. In general, the good quality product is the product that has satisfactory quality. That is, only good quality product or service can satisfy the customer requirements. Therefore, customers' requirements are evaluated first, and then the quality decision is taken based on the collected information (Caswell et al. 2002).

Product quality can be defined as the commitment made by the producer to the customers. This commitment may be in terms of the written contract or in terms of quality management expectations of customers

Product quality can be defined as various criteria that should be applied on the products to meet the customers' needs. These criteria are not only the physical parameters. They can be service and time factors since time is an unnecessary aspect of quality. The following criteria are used to determine the quality of products and services (Brinkmann 2000):

- a. Products must be able to solve problems. The products' quality is determined by the extent to which they can fix problems.
- b. Products should be easy to use. The high quality product should be easy to use and not complicated. Customers should not spend much time trying to figure out how to assemble or use them.
- c. Products must be polished. That is they have colors, dimensions, fonts, and other elements of the design.
- d. Products should be efficient. The product should efficiently do the jobs. In other words, they should deliver quickly with minimum effort from the customers.
- e. Products must meet the customers' needs and desires. The product must show that the business' management understands customers' needs, and accept any recommendations provided by them.

There are some important steps that can help ensure the high quality of the products and services, which are the following (Woodhouse 1999):

- Verify that the raw materials that used for the production are within the business's specifications. That is because the quality of the final product depends on the quality of its raw materials.
- Monitoring the production steps to ensure their safety. In addition, to detect the errors in any step, and correct them instantly.
- Verify product quality and conformity to its specifications at the end of the production process. That can be done by physical, and chemical analyzes.
- Ensuring the safety of the business facilities such as storages, warehouses for raw materials, and finished products. That can help avoid any damage in the products.

- Employees must follow the requirements of personal hygiene. That is one of the most important indicators of the products' quality.
- Following the laws, legislations and regulations that are related to the market or region, and in the manufacturing process, in addition to adhering to quality assurance procedures.
- Continuous monitoring the cleanliness of machinery, floors, and others to ensure that the products are healthy, especially food products.
- Use special transportation equipment to keep the products safe and healthy, especially food products.
- Follow up the complaints submitted by customers, and treat it seriously.

It is important here to indicate that the product quality can be measured by what is called the product quality dimensions. The product quality dimensions are first, the performance of the product (Woodhouse 1999).

It represents the product's ability to achieve the desired functions. Second, the product's appearance, which is the external product shape and size. Third, the product's conformity.

The product's conformity means that the product meet required standards. Next, the reliability, which is the stability of the product over time (does not damaged for long time). Next, The product's validity, which is the life of the product. Finally, the product's attractiveness, which is the additional characteristics of the product that make it attractive to the consumers.

All of the above concepts show the products' quality has strong relationships with businesses' operational process and customer satisfaction. That makes products' quality a good measure of business's performance.

### **2.2.2.3 The customer satisfaction**

The customers' satisfaction is the customers' feeling that the products they buy satisfy their needs and desires. It is the primary goal of most businesses. Customers' satisfaction can be achieve by increasing sales, profits, and others. Studies showed that the customers' satisfaction could help in business's success by improving the businesses' performance (Söderlund 1998).

The customer satisfaction depends on the performance of the products. That is, if the product fails to perform well, the customer will be dissatisfied. However, if the products' performance matched the customers' expectations, the customers will be satisfied.

Measuring the customer satisfaction is one of the tools used by businesses to evaluate their performance. The businesses now work under a highly market competition. That can enforce them to focus more on customer satisfaction. The customer satisfaction level can be measured by the following (Grigoroudis & Siskos 2009):

a. The complaints systems

These systems allow customers to submit complaints. These systems can help businesses achieving fast communications with customers. Most customers' complaints are related to the products and services they received. For example, they are related to lack of customer information and experience. They can be related to products' defects performance. The business use these complaints to fix any problems.

b. The surveys

Most businesses use direct surveys to measure the customers' satisfaction. They ask customers some questions about the products and services that they buy and use. Then, they estimate the level of customers' satisfaction.

c. The method of Hidden shopping

In this method, some individuals act as buyers. They send feedback to the business about the strengths and weaknesses they noticed. They also report information about the businesses' competitors. This method can help achieving the customers' satisfaction

d. Analyzing losing customers

Most businesses asked their customers about the reasons why they stopped purchasing. Businesses contact their customers who have stopped purchasing or switched to other business. Based on customers answers, the business take actions to solve any problems in their operational system.

Some studies showed that customer satisfaction has strong relationship with customers' loyalty. That is, customer satisfaction is defined as the commitment to the

business. In other words, the customers' satisfaction can keep customers continuously dealing with the business (Hayes 2008).

Some studies showed also that customer satisfaction has a direct relationship with customer retention. Retaining customers can provide many competitive advantages. The competitive advantages can be the benefits from increasing profitability. In addition, the benefits from high growth rate.

In short, all of the above concepts indicate that customer satisfaction is an important measure of businesses' performance. That is because businesses always seek to achieve customers' satisfaction by improving their performance.

#### **2.2.2.4 The relationship with the customer**

In general, the relationship with the customer represent how businesses deal with them. The idea of customer relationship is considered as the soul of the business. Therefore, businesses must change their behavior towards the customers. Building good relationship with the customer requires first collecting information about customers (Kumar 2010).

Then using this information to design marketing strategies. These marketing strategies can lead to improve the businesses' performance.

The relationship with the customers is considered as a process of building and maintaining profitable customers' relationships. This process based on the concepts of customer retention. The main goals of this process is to achieve customers' satisfaction.

Recently, the competitive environment and has increased the options available to customers. As a result, building relationships with customers became more challenging. Many businesses now work hard on establishing relationships with customers, and retain these relationships. Based on that, relationships with customers can use as a measure of businesses' performance.

#### **2.2.2.5 The employees' performance**

Human resources are considered as one of the most important resources of any business's success. Human resources can strongly affect the businesses' performance since employees do all the operational tasks within the business. Even recent

technologies have introduced robots; human resources still the key part of any business (Motowidlo et al. 2012).

The performance of any business is usually affected by many factors. Some of these factors are non-human such as devices and equipment, while the other is human such as managers and other employees. The businesses' employees are the main factor that help businesses design their strategies. In addition, they are the most important factor of production.

Employees within a business perform their duties and responsibilities of a specific work to achieve specific goals. The performance of those employees determines the overall level of the businesses performance and their ability to carry out activities. Therefore, human resources can be considered as a measure of businesses' performance.

The important questions here are “what is the employees' performance?”, and “what are the ways of measuring employees' performance?” The next section answer these questions.

a. The definitions of employees' performance

The employees' performance is defined as the total value that employees carry out to their business for a specific period. This definition represents the employees' performance as a property of behavior (Borman 1991).

In addition, the property of behavior in this case refers to its expected value to the business. Therefore, the employees' performance constructed by this definition is a variable that distinguishes between different behaviors of different individuals. The distinction between these behaviors depends on the contribution of them in the businesses' operational process.

Even there are many other definitions to employees performance, they all focus on the employees efforts and contribution in their businesses overall performance. For example, the employees' performance is the ability of a worker to perform their job. The employees' performance is how employees perform their tasks with the required job quantity, quality and time.

b. Evaluating the employees' performance

Evaluating the employees' performance is one of the important processes of improving the businesses' performance. The human resources management within the business usually does this process. The human resources department evaluate all levels of the employees including top-level managers and workers at the lowest positions (Bowen et al. 2000).

Evaluating the employees' performance is one of the management tools that used to compare the actual with the planned employees' performance. The importance of evaluating the employees' performance is to encourage the employees to work hard to receive incentives and bonuses that were set for this. The process must be carefully organized and involve all parties that can benefit from the results of the evaluation process. Doing that can help the businesses to achieve the desired goals.

In general, evaluating the employees' performance can be defined as an administrative process that identify the efficiency of employees. It also shows the extent of their contribution to the completion of their tasks. Furthermore, it evaluates the behavior of employees and the progress they make during their work. Based on that definition, evaluation the employees' performance includes two basic tasks.

The first task is pushing different activities in the directions that lead to achieve the goals of the business, and prevent them from deviation. The second task is correcting any activities deviation over time.

#### c. Measuring employees' performance

There are many methods to determine or measure the employees' performance. Before discussing these methods, it is important to indicate that most of these methods depend on four basic tools, which are as following (Cheng & Li 2006):

- Monitoring the employees
- The statistical reports
- The oral reports
- The written reports

It is also important to indicate that these methods must follow specific criteria, which are as following:

- The evaluation must show the employees' achievements in their position and their success in achieving their businesses' objectives.
- The evaluation should reflect the actual employees' performance in their job, but not the evaluator's impressions or opinions.
- The evaluator and the employees who are evaluated should accept the evaluation.
- The evaluation should be used to help improving the employees' productivity.
- The evaluation results should be used to reform and improve the overall operation process.

The important methods that use to evaluate and measure employees' performance are discussed as following:

#### 1) The comparison methods

These methods depend on the comparison different between employees' performance. In other words, the performance of an employee is compared with the performance of each other's employees. Then, arranging them in descending order according to the results of the comparison. There are several comparison methods that used for measuring employees' performance.

For example, the simple ranking method. In this method, the employees are arranged in sequence based on their performance compared to those who have similar positions within the business. The arrangement starts with the best performing employee (at the top of the list) to the worst performance employee (at the bottom of the list).

The other example is the distribution method. In this method, the employees are distributed according to the normal distribution curve. The distribution is usually 50% in the middle, which represents good performance. The distribution is 15% at both sides (right and left) represent good performance. The distribution is 10% at the extremes, which represents high performance and low performance. The evaluator distribute employees on the curve to match their proportions of the normal distribution curve.

#### 2) Evolution based on standard measures

According to standard measures method, employees performance is evaluated based on specific factors or standards. The evaluator determines the degree of availability of these factors to the employees. The evaluator uses measures that reflect the employees' variance in each of the evaluation factors.

Several methods that based on standard measures are used to evaluate employees' performance. For example, the gradient graphic method. In this method, a number of elements (characteristics) that are related to employees' performance are identified. They are usually include quality of and quantity of performance, and cooperation.

All of these are measured using a graded scale from (1-5) or from low to high. The evaluator chooses the degree that represents the employee's performance in each element. Then, the weights obtained by each employee are collected to determine the overall evaluation.

### 3) Evolution based on work results

This evaluation method depends on work results as the main criterion for measuring employees' performance. The performance is evaluated by comparing the work results of the employees with specific goals.

This method requires meetings the supervisors with the employees to define the goals and duties required to be accomplished by them.

The employees have certain period to complete their tasks. The goals are usually clear and realistic and can be defined quantitatively or descriptively. In addition, the supervisors should define the objectives elements and criteria that are used to measure the extent of employees' achievement.

Then, the evaluation will be done based on what has been achieved and accomplished from these goals. The evaluation is based on work results achieved in relation to the goals, but note on employees' behavior.

#### **2.2.2.6 Employees' satisfaction**

The employees' satisfaction is one of the measures that used to evaluate the businesses' performance. It plays an important role in the performance of the businesses. That is because the satisfied employees can be motivated to achieve extraordinary work results.

Employees' satisfaction can contribute to businesses' success and growth. In addition, it can enhance the productivity, and increase the quality of work. Furthermore, measuring the employees' satisfaction can help determine the employees' needs and motivations (Latif et al. 2013).

Employees' satisfaction is the level of the employees' feelings with their job and workplace experience. It is also the employees' attitude toward their companies. Employee satisfaction is considered as one of the main measures for evaluating the overall workplace.

### **2.3 Internal and External Factors Affect Businesses' Performance**

Many internal and external factors can affect the economic environment where businesses operate, and then affect the businesses' performance. These factors can be internal factors as the businesses can control them. However, some factors are external factors that businesses have no control over. Both types of factors can influence the businesses' success and growth. Businesses must work hard to account for these factors to perform well and stay in the market (Dragnić 2014).

#### **2.3.1 Internal factors**

Many internal factors can affect the businesses' performance. Examples of these factors are the employees and managers (personal), capital, facilities, organizational systems, technologies, marketing system, management system, and others (Dragnić 2014).

#### **2.3.2 External factors**

Many external factors can affect the businesses' performance, which can be discussed as follows (Abd Ghani et al. 2010):

##### **1. Economic factors**

The economic environment is an important factor that can affect a businesses' performance. For example, during a recession, customers spend less on optional products such as home appliances. As a result, the businesses will be negatively affected. However, if the economic is doing well, customers are spending more money even on unnecessary products. In this case, businesses will get more profits.

## 2. Technological factors

Innovation and technologies can businesses' performance. That is because technology can help businesses keeping progress. For example, using computer systems can provide much more powerful to the businesses' operational processes. Businesses that do update their technology are in risk of high production costs and higher prices.

## 3. The social factors

The social factors that affect businesses' performance is the cultural at specific time. For example, a fashionista creating a design that is not acceptable by society will not succeed.

## 4. Other factors

Many other external factors can affect the businesses' performance such as legislation factors and political factors.

### **3. THE ISO 9001 AND TQM**

#### **3.1 The Relationship between ISO 9001 and TQM**

##### **3.1.1 An overview**

There is strong relationship between TQM and the international standard ISO 9001. The TQM is an entrance to a comprehensive continuous development that includes all stages of performance. In addition, it constitutes a joint responsibility of the senior management, departments, and work teams to satisfy the needs of the customer. The ISO 9001 is a specific standard that have a unified meaning agreed upon in any language and from any perspective. This is what facilitates the evaluation of its compatibility on a global level (Martínez et al. 2009).

The ISO 9001 series of international standards is a set of specifications that lead to fixing the requirements for TQM systems in organizations. The ISO 9001 is considered as a global passport that facilitates trade exchange between countries around the world. Its use indicates the commitment of the organization and its management to quality and improvement of the products and services provided. It is also considered as an effective way to increase profits and reduce errors.

Based on that, the applying ISO 9001 is the first and important step to achieve TQM. When the organization adopt ISO 9001 or other version of ISO, its quality system will achieve the goals of total quality in an ideal manner. The organizations that wish to achieve total quality management based on ISO requirements must depend on ISO standards from beginning. In other words, it must adapt the requirements of the ISO system to serve the requirements of TQM. That can help moving towards continuous improvement of the quality of the products and the development of production processes (Oliveira et al. 2019).

The ISO 9000 describes the quality management system. The goal of applying different versions of the ISO is to provide guidance and tools to the organization. These guidance and tools are important to make sure that the products and services provided meet the requirements. The ISO 9001 provides a framework and a

mechanism to make important changes and improvements. That can be done through some evaluation procedures and programs.

Many studies showed that the organization that adopted ISO standards could take a good position in the market. That is because applying ISO standards can help, through a set of rules, ensuring the ability of the supplier to produce the goods or services as required. In other words, the products and services that will be supplied to the customers are fully met their desires (Arumugam et al. 2008).

Therefore, it is important for any organization applying the international standards ISO9000 and obtaining the certificate to announce that to its customers. The can help customers know the extent to which its procedures, operations and products conform to the quality standards.

In short, any organization that works within the framework of ISO9000 and obtains the ISO9000 certificate is able to apply the philosophy of TQM. That is because its management system depends on the degree of correspondence between the ISO9000 and the TQM. Figure (3.1) shows the link between TQM and ISO standards.

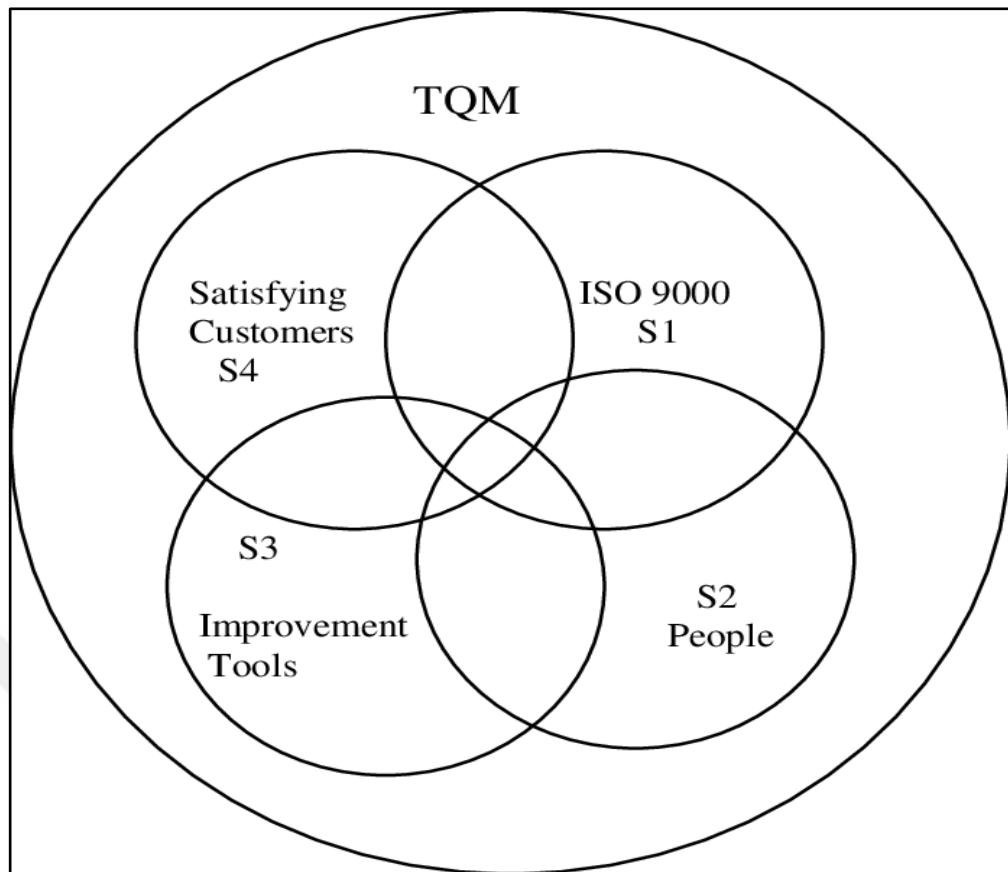
### **3.1.2 The concept of ISO Standards**

The previous sections discussed the TQM and its relation with ISO standards. The important issue here is the need to understand in details the ISO standards. That can help better understand the link between it and TQM (Pustejovsky et al. 2010).

The ISO standards is defined as a series of written specifications issued by the International Organization for Standardization. This series includes a specifications of the basic elements that must be available in the quality management system in order for the organization's products to meet the needs and desires of the customer (Aven 2011).

The word ISO expresses the International Organization for Standardization. It provides guidelines and global standards that ensure the provision of customer requirements with high quality.

Its basis are presented to institutions and companies in the form of certificates. The certificates acknowledge that this company applies the agreed and authorized standards.



**Figure 3.1:** The link between TQM and ISO standards.  
 Source: <https://www.researchgate.net/figure>

### 3.1.3 The types of ISO standards

The ISO Standards are the following (Hoyle 2012):

#### 1- ISO 9000 Standard

This certificate is guidelines for choosing ISO standards. They classify basic quality concepts, and define key terms. In addition, it provides guidelines for the selection and use of ISO standards. It also clarifies the way for the use of all ISO standards.

#### 2- ISO 9001 Standard

This standard indicates the extent to which specifications for quality systems exist for a commodity or product. This certificate is mostly concerned with evaluating the areas of design, development, production, examination and selection.

It also includes the evaluation of all companies that deal with products from Design stage to delivery, and after-sales service.

#### 3- ISO 9002 Standard

It is a measure that assesses the extent to which specifications cover all the previously mentioned areas completely, except for development and after-sales service. This specification is mostly applied to companies that work in production and do inspection, testing and installation.

#### 4- ISO 9003 Standard

This type of standard assesses the extent to which there are specifications related to the final inspection and testing process only. They are applicable only in the case in which quality can be ascertained.

#### 5- ISO 9004 Standard

This type of standard evaluates the extent to which advice, directions and instructions are necessary for quality management. It also used to indicate the elements of the system within any institution. For example, it is used in some institutions that seek to train their members and provide them with more experiences and knowledge.

#### 6- ISO 2000 Standard

This type of standards is very similar to the standards of total quality management. That is because it concerns with evaluating the extent to which the same specifications and characteristics are required by total quality management.

### 3.1.4 Reasons for obtaining ISO certificate

The reasons for obtaining ISO are the following (Simon & Kafel 2018):

- 1- To meet the needs of customers.
- 2- To increase the ability to export.
- 3- Commitment to make reduction in waste, and thus reduces production costs, as well as making the occurrence of defects equal to zero.
- 4- To improve the companies' reputation and thus its competitive position.

## **3.2 Total Quality Management (TQM)**

### **3.2.1 Background**

William Deming first developed the concept of Total Quality Management (TQM). William Deming was a director of quality management, whose work had a major impact on Japanese manufacturing. Some studies showed that the TQM terminology arose from an initiative in the US Navy. It referred to the recommendations of William Deming, which they called them later as TQM (Hellsten & Klefsjö 2000).

The roots of TQM principles and practices go back to the early twentieth century. They depended on the Frederick Taylor's principles of scientific management. These principles were defined as a consistent way of performing tasks and inspecting final work. Their goal was to prevent invalid or inferior products from leaving the store.

In the 1920s, further innovation came with Walter Schwart. He introduced a statistical process controls to be applied at any point in the production process to predict quality levels. In the early 1940s, William Deming developed a statistical process control theories that was used to aid the US Census. This was the first use of statistical process control in a field other than manufacturing.

TQM has three words, and each word has specific meaning. More specifically, the word (management) means the ability to motivate others to achieve the desired goals. In addition, it means developing the capabilities of administrative leaders.

The word (quality) can be defined as the perfection of the product or service that are provided to satisfy the customers. It also can be the efforts to provide a higher level of customers' expectations of the products and services (Black & Porter 1996).

The word (Total) means using all elements of the organization's work to accurately identify the needs and desires of the consumer. It also means, the organization's work to make every possible effort to achieve these goals. Fore example, striving for continuous improvement, and achieving the best and continuous changes in methods and tools.

Total Quality Management (TQM) has many different definitions. For example, TQM can be defined as the organization's continuous efforts to obtain specific goals. The organization's management and employees usually provide these efforts.

The general goal of TQM is to ensure customers loyalty to the organization, to ensure their satisfaction for a long time. That is because, customer satisfaction can enhance and bring in more customers. In addition, the permanent loyalty, which requires giving the customer additional privileges, can help the organization keep its customer (Zairi & Youssef 1995).

TQM can also be defined as the process of applying four administrative processes. These processes are the planning, organizing, directing, and controlling. These processes must be done in a correct manner to achieve the requirements of the customers' satisfaction. In addition, these processes must be followed-up by the customer's evaluation of the product, and working to continuously improve the quality of the product (Oschman et al. 2006).

TQM is defined as the system that focuses on performing the right work directly from the first time. In addition, it takes preventive methods in addressing problems before they occur. Furthermore, it emphasizes on continuous improvement in the processes of producing goods and services. That can lead to achieve customer satisfaction, and ensure reasonable competitive costs (Barclay 1993).

TQM is a strategic management concerned with the use of quality in all operations. It is used in many areas such as manufacturing, education, government, service industries and scientific programs. It is an ongoing process of discovering, reducing or eliminating errors.

TQM can also be defined as an approach to the performance of work that requires the renewal of traditional administrative methods. In addition, the participation of all members of the organization in any activity that requires inputs and turns them into outputs (Dale et al. 1999).

That is because TQM is not the responsibility of one member of the organization. However, it must be from all of the employees, workforce, and suppliers. At the head of them is the management applying quality standards.

Their task is to improve their products or services through feedback, and various research. TQM is a complex management process in which the focus and emphasis is on all aspects of quality within the organization. This is considered as one of the strategic management methods of the organization.

### 3.2.2 The principles of TQM

Before reviewing the TQM principles, it is important to indicate the differences between the traditional administrative method, and the administrative method with TQM. The TQM focuses on the following points (Isac 2010):

- Strategic planning rather than short-term planning.
- Open discussion rather than intimidation.
- Collective participation in decision-making.
- Flexible policies rather than rigid labor policies.
- Getting closer to the beneficiary and knowing his requirements.
- Research the causes of problems rather than working on the results.
- Depends on simulation and the self-assessment tool, which is the powerful and effective tool in applying the concepts and principles of total quality management.

Based on that, the following are the basic principles of TQM:

- a- Understanding and commitment of the senior management (leadership) to make quality the first place among the concerns of the organization. That is associated with providing the appropriate environment of organizational structures, procedures, work policies, and incentive systems. In other words, the leaders create the appropriate internal environment for employees to gain their confidence in leadership. In addition, to achieve the objectives of the organization.
- b- Motivating the organization's employees to think and respond to the managers' vision and adopt this vision. Enabling them to participate in decision-making. Notifying them of the importance of their role to ensure their loyalty. Benefit from their views and suggestions that contribute to achieving total quality. Finally, giving attention to all employees without exception.
- c- Emphasizing the concept that the quality process is a continuous process. In addition, creating constructive working relationships between all organization's members. That involvement can lead to improving quality.

- d- Coordination and cooperation between departments and sections in the organization. In addition, emphasizing the use of work teams, and the need to distinguish between individual efforts and collective efforts.
- e- Involve all individuals in the organization in the efforts to improve quality. Identifying the quality problems and work on solving them using different methods. For example, using the statistical methods, the scientific research methods, and problem analysis. That means, the decision-making must be work based on scientific analysis of data and information.
- f- The organization works with its customers to determine their needs of goods and services, and make every effort to meet these needs. The organization must focus on the customer, and work hard to exceed the expectations and aspirations of them. The desired results are achieved more effectively when resources are managed as a process with inputs and outputs.

The effective leadership is characterized by the application of these principles while maintaining a strong relationship with its subordinates. That can lead to help achieving total quality management.

### **3.3 Applying TQM**

#### **3.3.1 The requirements of applying TQM**

Applying the TQM system needs, like any other system, a set of basic requirements to be available in order to achieve and obtain the benefits from working with it. Achieving total quality management requires the availability of the following (Harrington et al. 2012):

- a) - Commitment to provide the required support: That is, the management must participate in the quality program.

In addition, the quality objectives must be specified in the action plan. Furthermore, the annual quality improvement program must be defined, and managers must participate in all quality improvement teams.

- b) - Focus on the customer: The TQM system should focus on customers primarily. In addition, it should work on meeting their current and future needs. In other words, the customer's voice must be in the first place.

c) - Effective use of the entire workforce: TQM is the responsibility of each employee within the organization, so all employees must be trained on the methods of TQM.

In addition, they must be trained on statistical control methods and methods of improvement. The employees must understand that they come to work to improve it, not to only do it.

d) - Continuous improvement of work in general and the production process in particular: There must be a continuous improvement for all work. This improvement includes the production processes and quality improvement projects. For example, reducing delivery time, reducing the percentage of errors, achieving customer satisfaction. In addition, reducing waste, and achieve competitive excellence.

e) - Determining the performance measures of operations: The performance measure must be determined such as the time of readiness, the percentage of non-conformance and other measures that must be sent to each person in the organization to be seen. Quantitative data is necessary to measure continuous quality improvement activity.

f) - providing an appropriate work environment: The implementation of TQM requires a work environment that has cooperation, enthusiasm and desire to work, and strive to develop skills and capabilities for continuous improvement prevail.

g) - Having ISO certificate: It is preferable that the organization be built on the basis of one of the quality assurance systems, including ISO 9000. This can provide the basis for the TQM.

### **3.3.2 The advantages of applying TQM**

Applying TQM can benefit the organization by increasing the satisfaction of internal and external customers. It can increase profits, productivity and market share. Increase sales, and reduce customer complaints.

Reducing the cost of production, services and administrative operations. Reducing the production cycle time and defects. Finally, increasing the return on investment and work efficiency (Zairi 2002).

### **3.3.3 The obstacles of applying TQM**

There are some important obstacles to the application of total quality management. The first one is the organizations' lack of knowledge about the meaning of quality, and how to measure it.

The second one is the resisting change in behavior and in relationships. Next is the lack of convinced of the philosophy of total quality management. Another obstacle is the enthusiasm without being supported when applying total quality management (Jun et al. 2004).

The ineffective participation at all levels, and ineffective communication and information systems. The resistance of senior management personnel to educate themselves according to the requirements of total quality management. Finally, inadequate reward system followed in organizations, as rewards are made on an individual basis and not on a collective basis.

### **3.3.4 The costs of applying TQM**

What are the costs of applying TQM? This important question needs to be answered before applying TQM. That is because, applying TQM adds more costs, but it also provides many benefits to the organization. Therefore, it is important to understand the costs that are associated with applying TQM to make right decision (Poister & Harris 1997).

One of the core cost of applying TQM is the cost of doing things right at the first time. These costs are much less than the potential cost of doing them again. In addition, there are additional costs when customers abandon products for quality reasons.

The evaluation costs is another type of costs that are associated with applying TQM. Assessment costs cover inspection and testing throughout the production cycle. This includes verifying that materials from the supplier meet specifications. In addition, it ensures that products are acceptable at every stage of production.

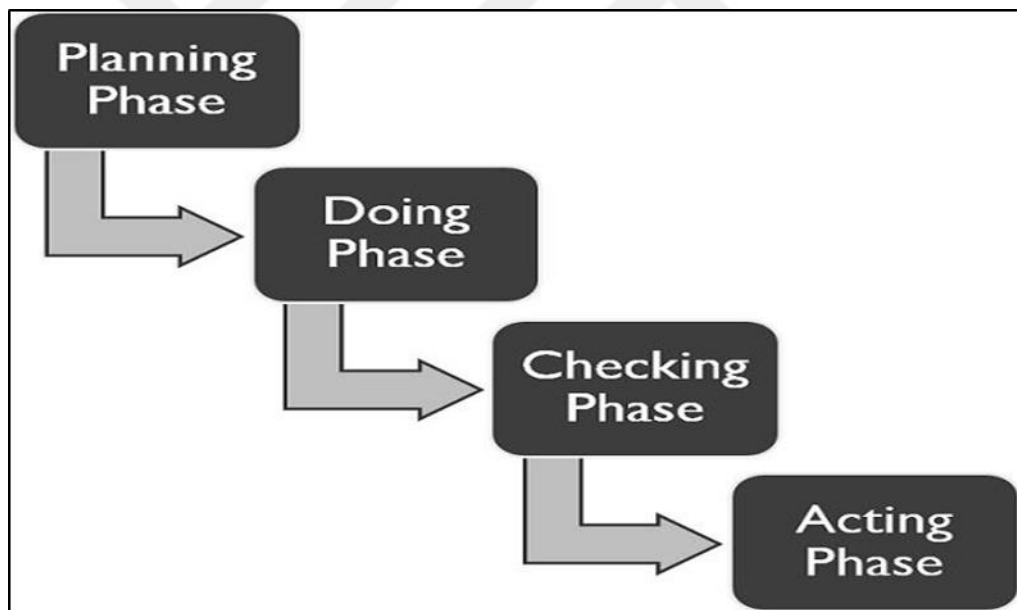
Another type of costs is the prevention costs. The prevention costs include proper preparation of work areas for efficiency and safety. It also includes proper training and planning. This type of cost also includes conducting reviews, and prevention-related activities that are often given the smallest allocation to the company's budget.

External failure costs are another type of costs that are related to the problems after releasing the products to the market. This type of costs may include warranty issues, product returns, and repairs.

The other type of costs is the internal failure costs. They are the costs of problems that happened before arriving the products to customers. They include internal failures and broken hardware. They can cause delays and downtime, faulty product operations, and designs that require rework (Lorente et al 1999).

### 3.3.5 The stages of applying TQM

Applying TQM is not easy because of the time it takes to be able to complete its stages. It is considered as a sophisticated and organized methodology that links all activities of the organization to quality issue, which requires many stages as shown in figure (3.2) (Lakhe & Mohanty 1994). This section discusses in details these stages as following:



**Figure 3.2:** The stages of applying TQM

Source: <https://businessjargons.com>

#### 1. The preparation stage (or zero stage)

The preparation stage is the most important stage of applying TQM. In this stage, it is determined whether the organization is benefiting from the total quality or not. The tasks that take place at this stage are decision making for the implementation of TQM. The senior management is committed to making

improvements to TQM. Asking for assistance of an external consultant if necessary (Sun 1999).

Forming a quality council that includes members of the senior management. Promoting ideas that supports change and enhances quality. Working on building work teams from the organization's departments to achieve the objectives of participation. Preparing appropriate quality training programs for senior management and the Quality Council. Finally, setting standards for measuring job satisfaction and customer satisfaction.

## 2. Planning stage

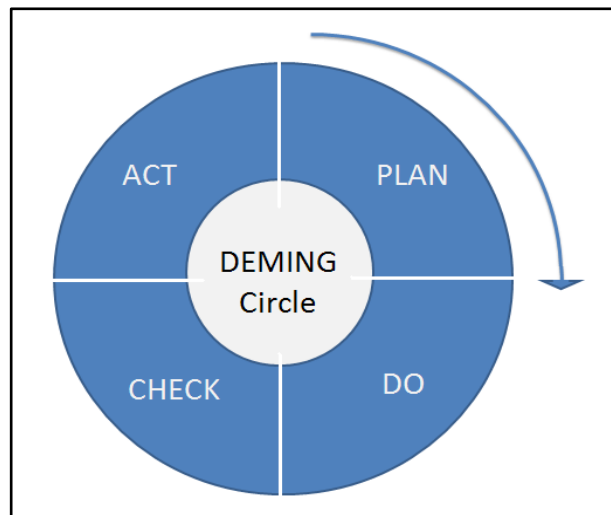
Planning stage is the second stage of the applying TQM. In this stage, the information collected in the first stage is used to successfully implement the planning stage. It uses the Deming circle that known as (PDCA) (Chin & Pun 2002). Figure (3.3) shows the Deming circle, which includes plan, do, check, and act. The tasks that take place at this stage are studying the internal environment that represents strengths and weaknesses. Studying the external environment that represents the available opportunities and the expected threats.

Developing the missions of the organization to determine the reason for the existence of it. Setting long-term strategic goals. Implementing training programs for the various work teams on issues that are related to quality. Developing implementation plans for the next stage with taking in account the resources in the organization.

## 3. The implementation stage

It is the transfer of what is on paper to the working system. In other words, it is the actual implementation of the plans. In this stage, the work teams bring about the changes they need by performing tasks to reach the set of goals. The important tasks of this stage are the training, and the start of the implementation process, which depends on the nature of the activity (Anderson & Cook 1995).

The financial support from senior management for TQM. Identifying ways to continuously improve the processes in the organization. Solving administrative and technical errors, when implementation these errors are encountered. Thus, quality management must use tools to solve administrative errors. Example of these tools are cause and effect map, Pareto analysis, and control maps.



**Figure 3.3:** Deming circle (PDCA).  
 Source: <https://www.pinterest.com>

#### 4. The monitoring stage

In this stage, the TQM system is monitored to make sure it suits the nature of the organization's activities. Some monitoring methods are used to measure the performance and the organization's success when implementing TQM (Vassilakis & Besseris 2009).

The tasks that are done in this stage are the self-evaluation process by the employees themselves. Receiving feedback from customers to make sure that their needs are met. Training employees to use monitoring and controlling methods. Take corrective actions to correct errors. Finally, Providing simplicity, cost reduction and error detection capability.

#### 5. The advanced stage

It is the application of the methodology of TQM in an excellent manner that making the organization at the top position among other organizations.

The tasks of this stage are inviting other organizations to explore the achievements they have reached. The publication of experiences and success achieved. Participating in international and local competitions for total quality management. Clarify to employees their role in the application of TQM, and the positive motivation they made (Rahman & Tannock 2005).

### **3.4 The Elements of TQM**

As mentioned before, the TQM is one of the branches of management science, which focus on continuously improve and develop performance and productivity. That can be done by responding to the customers' needs in order to achieve their satisfaction. The TQM primarily targets the quality of production. It is the first point of interest in the integrated and comprehensive control of it. Therefore, developing the work of the various units within the organization is considered as the main goal of TQM. Achieving that goal can lead to satisfying the consumer's at the lowest cost. The Elements of TQM are shown in figure (3.4), and will be discussed in this section (Curry & Kadasah 2002).

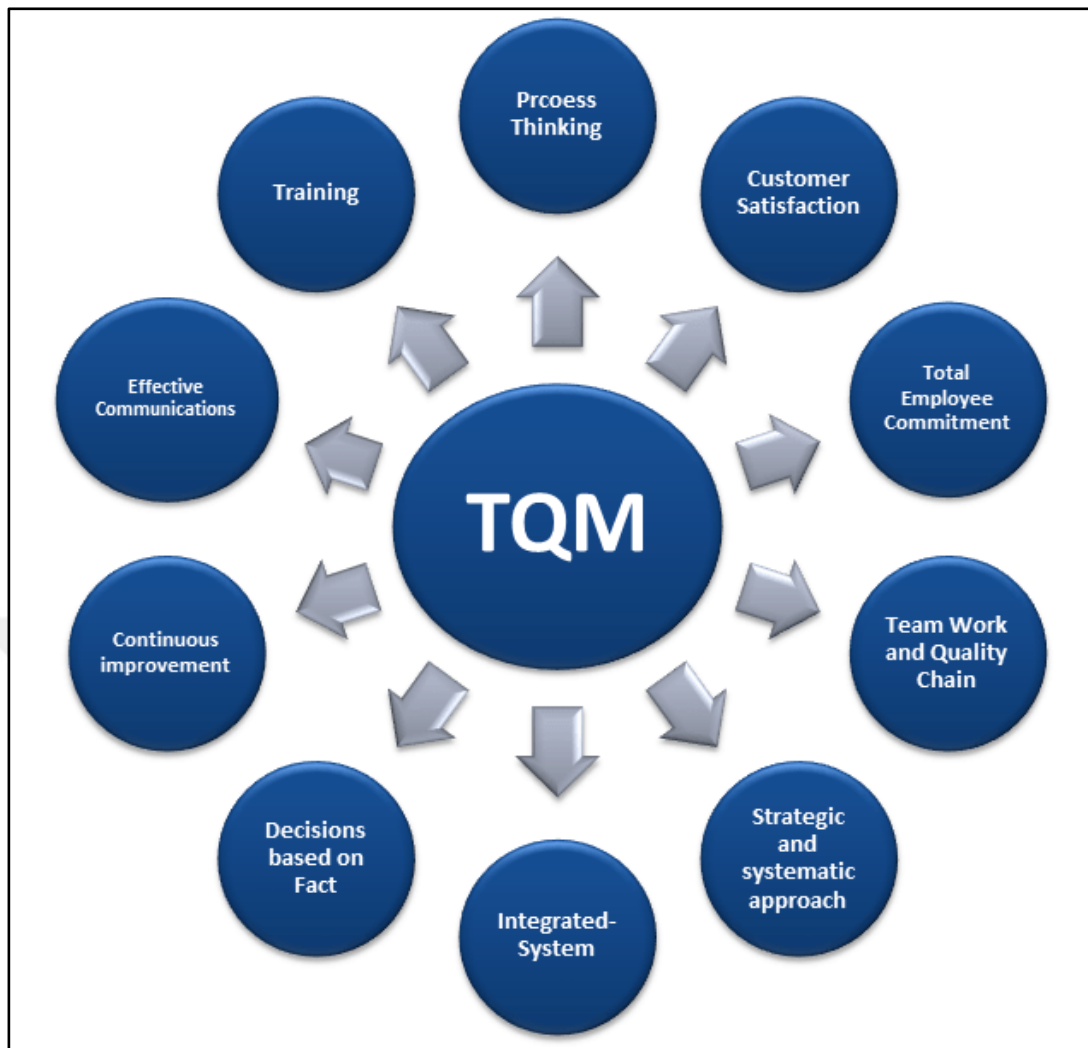
The first element of TQM is the management's commitment to quality. If an organization is about implementing TQM, its top management must commitment to Quality.

The top management should continue make all efforts and provide resources to keep the quality improvement programs. This can be provided by collecting, reporting and using quality-related information.

The second element of TQM is customer satisfaction. The customer satisfaction is defined as the customer's feel in relation to a product or service obtained or consumed. In other words, the products or services provided to customers are completely covered their expectations at the time of purchase.

It is important to indicate that the customer satisfaction is a direct result of comparing the perceived performance of a product or service with the expectations made by it. Therefore, the TQM is designed in a way that meets customer expectations. In addition, it must be noted that customers are the most important part in any business. That is because; the existence of any organization depends on them. They are the lifeblood of businesses and deserve the most friendly treatment.

Preventing defects rather than detecting them is the third element of TQM. The TQM system checks for poor quality products or services rather than just detecting and classifying defects. The prevention instead of detection is the key feature of TQM. Some of the important techniques of TQM aim to prevention defect using special statistical process. This process is used to controlling, continuous improving, problem solving, system failure analyzing, and others.



**Figure 3.4:** The Elements of TQM.  
 Source: <https://welearnindia.wordpress.com>

Quality measurement is the fourth element of TQM. This element is responsible for measuring the quality level (Fazlollah et al. 2013).

The quality is a measurable entity, and it is important to know the current quality levels. In addition, it is important to identify the quality levels that the organization wants to reach.

The continuous improvement is one of the important element of TQM because it adjust the system to meet the changes in the customer needs and desires. The TQM includes a continuous improvement process that covers people, equipment, suppliers, materials, and procedures.

It includes every aspect of a process in an organization. This element is called Kaizen in Japan, while in the USA is called zero defects or six sigma.

TQM aims to prevent recurrence of problems by identifying the root causes of their occurrence.

Then it develops means and corrective actions to solve these problems at the root level. Failure analysis and problem solving skills are very useful techniques in this regard. The process or TQM element is called (corrective action for root causes).

Another important TQM element is training. Appropriate training programs should be implemented to train employees on using TQM concepts and techniques. Regular training should be provided to employees for continuous improvement.

TQM aims to develop long-term relationships with a few high-quality suppliers rather than those who supply inferior goods at a low price. This part of TQM is called High quality recognition.

Employee participation is another element of TQM. The employees involvement means that each employee is fully involved in every step of the production process. In addition, employees are playing an active role in helping the organization achieve its goals. Employee participation can be ensured by extending the employee's job. In other words, the responsibility and authority is transferred to the lowest possible level in the organization (Simmons et al. 1995).

Measurement performance is another element of TQM. Performance measurement is a structured way in which organizations can measure themselves against industry best practices. Benchmarking aims to develop best practices that lead to better performance. It helps the company learn and incorporate best practices into its own operations. Performance measurement is a method of identifying the organization's efforts with the best performance in this area. In addition, it also help eliminating the gap between the two offers. Thus, measurement performance can be considered as a technique for continuous improvement.

Respect and appreciation of workers within the organization. This element of TQM means that there must be mutual respect between the various administrative levels. In addition, there must be a communication among them, while neglecting the functional levels.

It also means ensuring the continuity of evaluating the performance of employees objectively based on the principle of rewarding excellence and creativity.

The teamwork is one of the applications of TQM. It is very important factor in achieving cooperation between all members of the organization in it various departments, units and administrative levels. Thus, the senior management must understand that achieving teamwork is not limited to managers only, but that others can make valuable contributions.

### **3.5 Evaluating TQM**

The evolution of TQM is an important part of keeping the system work efficiently. That is because the market conditions including customers' needs and desires are always changing. In addition, the technology is changing in fast and advance ways. The first and important issue related to evaluating TQM is that it must be continuous. In other words, it is part of the system, but not just external inspection (Gupta et al. 2017).

The evolution of TQM is basically evaluating each part or element of the system. There are seven issues to be evaluated when evaluating TQM, which are the following:

#### **1. The leadership of the organization**

This part of evaluation is related to the performance of top management in the organization. It evaluates first whether the top management actively involved in communications and planning of organizational goals. Second, the top leadership provide significant resources to improve and maintain quality. Third, the top leadership views quality more important than production. Fourth, the top managements take quality as their responsibility

It also evaluates whether the top executives routinely interact with their concerned departments especially the quality department as well as the others. In addition, the top leadership anticipate changes and make plans to accommodate them.

#### **2. Data collection and analysis**

Some key considerations need to be taken into account before, during and after data collection. Therefore, evaluating the process of data collection and analysis means making sure that these considerations are taken in account.

These considerations are where and when the data is collected, the tools used to collect data, and the type of information needed. In addition, the feasibility of collecting data, the context, time, and availability (Kaur & Sharma 2014).

### 3. Strategic Planning

In this process, the evaluation tests whether the organization encourages study and planning for improvement of all its product and processes

In addition, it tests whether the company does frequent inspection of product quality and processes takes place. It also test if the organization has applied the tools of quality, plan, control, and improvement of processes. Finally, it tests if the collect data is used when making decisions for the improvements of process.

### 4. Human Resource Management

Evaluating human resource management includes checking that the right person is selected for right job. It tests if the organization provides efficient training programs, and health and safety practices are excellent (Rosenthal et al. 1997).

### 5. Quality assurance of products and services

The quality of products and services are very important issue since it is strongly related to customers' satisfaction. Therefore, the organizations pay more attention to this issues. In order for the quality of the product to be evaluated, the following criteria must be followed (Rezazadeh et al. 2012):

- Evaluating the quality of raw materials needed for manufacturing with the company's specifications. That is because the quality of the final product depends on the raw materials used in its manufacture.
- Evaluating the product manufacturing steps to ensure its integrity, and to detect errors.
- Evaluating the quality of the product and its specifications at the end of the manufacturing process.
- Evaluating the commitment of workers to permanent personal hygiene, which is one of the most important things that reflect the quality of the product.

- Evaluating the monitoring system of the cleanliness of manufacturing machines, floors, and toilets.
- Evaluating the transport companies to make sure they are equipped with the best fit means to maintain the quality of products.
- Evaluating the follow-up complaints submitted by consumers, and work to address them.

## 6. The results of TQM

This part of evaluation is very important since it reflects the direct impact of TQM on the overall organization's performance. The results of TQM that need to be evaluated include the following items:

- The increase in productivity.
- The existing of work environment that supports and maintains continuous improvement.
- The integration and perfection of operation system.
- The improvements in performance measures.
- The progress in reducing the routine work procedures in terms of time and cost in a systematic manner.
- The contribution in strengthening human relations.
- The ability to make decisions based on facts, not personal assumptions.
- The loyalty to work.

## 7. Customers satisfaction

The customer satisfaction is an important indicator used to measure the degree of customer satisfaction with a particular product, service, or experience. It deals with how the customers feels about their experience with the brand. The customer satisfaction is usually checked using different questionnaires with various questions. Sometimes, the data is collected immediately after the purchase process. However, sometimes it is collected at a specific date from the relationship with the customer (Choi & Eboch 1998).

Evaluating whether the organization focuses on customers satisfaction can be done by answering some questions. For example, are key customer requirements identified? Is the customer oriented strategy built and reviewed for further improvements?

Is the design, development, and delivery of products according to the requirement of customers?

All of these different evaluating processes and others can lead to test the degree of TQM effectiveness and success. They can also lead to correct any errors in the TQM systems and make the required corrections. As a result, the TQM should by the end work properly and achieve its goals.

It is important to indicate that evaluating TQM is different from one organization to another. That is because each organization has its specific criteria of evaluation. For example, in education, it is necessary to adopt several international standards, and apply them on the ground. To achieve high quality in educational organizations, the following criteria are used (Tan 1997):

a. Administrative Standard

This criterion includes the increase in productivity and reduce waste in costs. The belief that quality is a global system. There is a close relationship between quality, productivity, and production improvement. Optimum use of human and material resources. The integrity of the quality system for all areas. Developing the leadership and management capabilities of future leaders and developing their skills.

b. Standards related to students

The general average cost per person. The ratio between the number of students and teachers. The level of services provided to students.

c. Standards related to teachers

These standards include the level of professional culture of teachers. The extent to which they respect students. Their contribution to the society in which they live.

d. Curriculum related criteria

These criteria include the quality of the syllabus. The general level of its contents, and the extent to which these contents relate to reality.

e. Criteria related to financial capabilities

These criteria include the ability of the educational facility to achieve the goals. The extent to which students benefit from the school library, tools, and techniques.

To achieve high quality in health organizations and hospitals, the following criteria are used:

a. Quality awareness assessment criteria

They are represented in developing the skills of hospital workers, and training them on the clinical evidence of work available in the hospital services.

b. Criteria for evaluating medical services

These include the development of a clinical manual that explains how to apply it.

In addition, direct hospital workers to the most common diagnoses, and the procedures to be followed for these diagnoses.

c. Criteria for evaluating administrative services

They are represented in the efficiency of the administrative work. More specifically, the extent to which the basic needs of patients are managed in terms of medical supplies, medicines.

d. Critical services evaluation criteria

They are represented in the level of urgent medical services, and surgical procedures. In addition, they include the methods in which anesthesia is used, the extent of infection control, adherence to the laws of scientific research, and others.

e. Performance evaluation criteria

They are to determine the extent to which the quality of services provided by the hospital is ensured. In addition, measuring the satisfaction of patients and their families with the general performance of the hospital staff. Furthermore, measuring the success of clinical, financial, and administrative procedures.

#### **4. THE ISO 9001 AND COMPANIES' PERFORMANCE**

This chapter analyzes and discusses the impact of applying ISO 9001 on the performance of the General Company for Ports in Iraq. The study methodology has several steps that will be discussed one by one. These steps are:

1. Describing the sample of the study
2. Determining the sample size.
3. Identifying the conceptual model of the study.
4. Collecting the study data.
5. Checking the data reliability and normality.
4. Reducing dimensions using Factor analysis.
5. Using regression analysis to test the study hypotheses.
6. Discussing the results.

##### **4.1 Describing the Case Study**

This study was applied on the General Company for Ports in Iraq to test the impact of applying ISO 9001 on its performance. The General Company for Ports in Iraq is public company affiliated with the ministry of transport in the republic of Iraq. The company was established in 1919. It specializes in managing Iraqi ports, navigation in regional waters. In addition, maintenance work and drilling in navigational channels. The company is responsible for managing several ports such as the port of Umm Qasr, and the port of Khor Al Zubair (Al-Omari & Hamid 2021).

The company is located in the south of Iraq, specifically, in Basrah city. The company is the only one in Iraq that manages the imports and exports.

The company is considered as one of the biggest companies in Iraq. It has more than 10 facilities in different locations, and has more than 3000 employees. The company provides different services such as:

- 1 - Setting the necessary rules for the operation of ports and harbors in accordance with modern systems and methods, and setting instructions for that.
- 2 - Providing services and supplies related to the work of ports and harbors.

- 3 - Building, utilizing and maintaining docks and docks.
- 4 - Purchasing, leasing or borrowing any ship or boat for use or exploitation for the services and works of ports and harbors in accordance with the laws in force.
- 5- Supervising the entry and departure of ships and boats to ports or harbors and controlling their movement.
- 6 - Determining the necessary measures to maintain the safety of ports, harbors, facilities, docks and lanes leading to them.
- 7- Determining the procedures related to the care of the aquatic environment and the prevention, reduction and control of pollution, especially from ships and boats.

It is important to indicate that after 2003, this company has faced huge change in the sizes of exports and imports. Specifically, the exports of oil and the imports of different goods. These changes put more pressure on the management of the company, and enforced it to enhance its operation system. As a result, the company started applying ISO 9001 standards to improve its total quality management system (Aljawareen 2020). This study aims to evaluate the effect of applying ISO 9001 on the company's performance.

#### **4.2 Determining the Sample Size**

The sample size is calculated based on Slovin's formula (Isip 2015). A random sample of 300 employees who are working in the company was the sample population. The respondents are the company's top managers and the quality related employees.

The sample size is calculated as following:

$$n = N / (1 + Ne^2)$$

Where,

n: the sample size

N: the sample population = 300

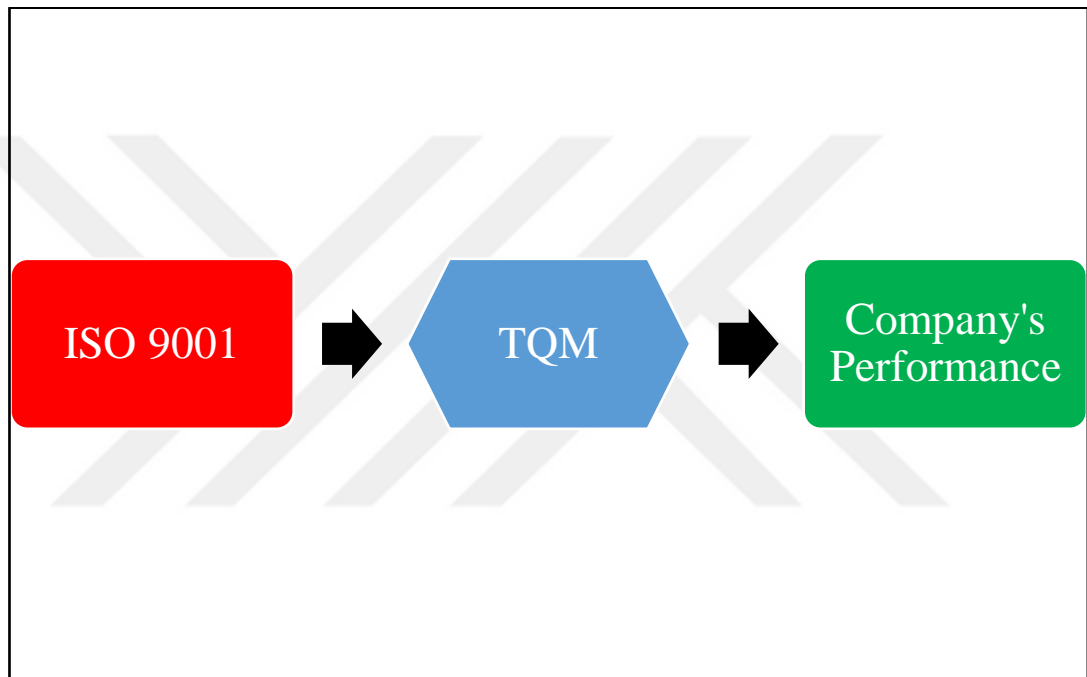
e: the confident level which is 95% (the error is 5%)

$$n = 300 / (1 + (300 * 0.0025))$$

$n = 300 / 1.75 = 171$  (the required sample size)

### 4.3 The Conceptual Model

The goal of this study is to test the impact of ISO 9001 on the performance of The General Company for Ports of Iraq. Therefore, the study conceptual model is as shown in figure (4.1). Figure (4.1) shows that applying ISO 9001 affect the total quality management (TQM) of the company, which affects the company's performance.



**Figure 4.1:** The conceptual model.

### 4.4 Collecting Data, and Describing the Data

#### 4.4.1 The method of collecting data

The study used the questionnaire method to collect data. The questionnaire was used because it can provide cheap, quick and efficient large amounts of information. In addition, it also allows getting large sample. Bravi et al. (2015), Singh et al (2018), and Sadikoglu & Olcay (2014) were used to form the questionnaire.

The questionnaire was used to get information about the implementation of ISO 9001, TQM and company's performance. In addition, to get demographic

information about the respondents. The items in the questionnaire were designed to have seven Likert. Specifically, each item has seven options to answer.

These options are weighted as (1. strongly disagree, 2. disagree, 3. Somewhat disagree, 4. Normal, 5. Somewhat agree, 6. Agree, 7. Strongly agree). The items were coded in the data as ISO<sub>i</sub> for ISO 9001, TQ<sub>i</sub> for TQM, and CP<sub>i</sub> for company's performance. A sample of the questionnaire is shown in appendix A.

Table (4.1) shows the study dimensions that included in the questionnaire. In addition, it shows the number of items for each dimension. The table shows that the study has three dimensions, which are ISO 9001, TQM and company's performance. The table shows that both TQM and company's performance dimensions have 27 item (variable). The table shows that ISO 9001 dimension has 18 item (variable).

**Table 4.1:** The study dimensions, and the number of items for each dimension.

Dimensions	Number of questions	The sources
ISO 9001	18	(Bravi et al. 2015)
TQM	27	(Singh et al. 2018)
Company's Performance	27	(Sadikoglu & Olcay 2014)

The questionnaire sheets were sent by hand to a sample of 300 employees in the company. Based on the sample size calculation, the minimum sample size that should be used is 171. As mentioned before, 300 questionnaire sheets were sent, and only 193 sheet were returned. The uncompleted sheets are 19, and they are neglected. Therefore, 174 sample sizes is used.

#### **4.4.2 Demographic and other information of the sample (simple percentage analysis)**

After collecting, recording, cleaning, and organizing the data, it is now ready for analysis. The Microsoft Excel and the SPSS 17.0 are used to provide all statistics, statistical tests, and statistical analysis. The next few tables show the demographic information of data.

Table (4.2) shows the demographic information about the respondents in the sample. Specifically it shows the working type and gender of respondents. The table shows

that the number of managers in the sample is 74, which represent 42% of the sample. The number of employees is 100, which represent 58% of the sample. The table shows that the number of males in the sample is 97 (66%), while the number of females is 77 (34%).

**Table 4.2:** The demographic information.

Item	Number of individuals
Managers	74 (42%)
Employees	100 (58%)
Male	97 (66%)
Female	77 (34%)

Table (4.3) shows the other demographic information about the respondents in the sample. Specifically it shows the age, working experiences, and education levels of respondents. The table shows that the education levels are good since about 70% of the respondents have Diploma (two years after high school) or higher level of education. The working experiences are also good since about 70% of respondents have experiences more than 5 years.

**Table 4.3:** The age, working experiences, and education levels.

<b>Age (year)</b>	<b>18-30</b>	<b>31-40</b>	<b>41-50</b>	<b>&gt; 50</b>	<b>Total</b>	
Statistics	42 (24%)	47 (27%)	37 (21%)	48 (28%)	174	
<b>Experiences (year)</b>	<b>1-5</b>	<b>6-10</b>	<b>11-20</b>	<b>&gt;20</b>		
Statistics	51 (29%)	48 (27%)	36 (21%)	39 (23%)	174	
<b>Education</b>	<b>HS</b>	<b>Diploma</b>	<b>BA</b>	<b>Master Degree</b>	<b>PhD</b>	
Statistics	51 (29%)	56 (32%)	62 (36%)	3 (2%)	2 (1%)	174

Table (4.4) shows the information that is related to applying ISO 9001 and TQM in the company. The table shows that about. The statistics in the table indicate that 100% of the company's employees know that their company has applied ISO 9001 standards. The table shows that 94% of the respondents confirm that their company has applied TQM, while 4 of them do not. These statistics show that the company's employees are involved in applying both TQM and ISO 9001 standards.

That can be good indicator since it supports the study results. In other words, there is no possibility to get errors because of missing information or misunderstanding the process.

**Table 4.4:** The information about ISO 9001 and TQM.

The question	Number of answers	
	(Yes)	(No)
Do you know that your organization has applied ISO	174 (100%)	0 (0%)
Is your organization applying the Total Quality Management	170 (98%)	4 (2%)

#### 4.4.3 Descriptive statistics of data (Frequency, Mean, Skewness, and Kurtosis)

This section presents and discusses the descriptive statistics of data including Frequency, Mean, Skewness, and Kurtosis. Table (4.5) shows the frequency of the answers for each item in the questionnaire that are related to ISO 9001. For example, the answer (Agree) appeared 21 times in item 1 (ISO1). In other words, 21 respondents agree that applying ISO 9001 standards in their company can improve the customer satisfaction. Another example is that the answer (Strongly agree) appeared 27 times in item 14 (ISO14). That is, 27 respondents strongly agree that applying ISO 9001 standards in their company can increase in business costs.

**Table 4.5:** The frequency of ISO 9001 items

Item	Strongly disagree	Disagree	Somewhat disagree	Normal	Somewhat agree	Agree	Strongly agree	Total
ISO1	26	23	26	19	30	21	29	174
ISO2	15	18	28	28	27	29	29	174
ISO3	15	18	23	27	24	25	42	174
ISO4	21	21	24	26	19	29	34	174
ISO5	11	25	22	25	34	26	31	174
ISO6	20	24	32	20	27	22	29	174
ISO7	16	15	31	20	24	32	36	174
ISO8	21	16	20	26	32	28	31	174
ISO9	23	24	12	30	27	26	32	174
ISO10	24	24	19	22	30	27	28	174
ISO11	15	22	17	29	25	27	39	174
ISO12	20	22	28	25	19	24	36	174
ISO13	21	16	20	26	32	28	31	174
ISO14	29	27	20	26	27	18	27	174
ISO15	26	27	25	32	20	21	23	174
ISO16	22	28	26	31	24	17	26	174
ISO17	23	23	28	31	24	27	18	174
ISO18	31	21	28	28	14	23	29	174

Table (4.6) shows the frequency of the answers for each item in the questionnaire that are related to TQM. For example, the answer (Disagree) appeared 16 times in item 1 (TQ1). In other words, 16 respondents disagree about the idea that the top management of their company are actively involved in communications and planning of organizational goals. Another example is that the answer (Normal) appeared 29 times in item 13 (TQ13). That is, 29 respondents are normal about the idea that the customer complaints are properly recorded, and reviewed by their company to maintain the quality standards.

**Table 4.6:** The frequency of TQM items.

Item	Strongly disagree	Disagree	Somewhat disagree	Normal	Somewhat agree	Agree	Strongly agree	Total
TQ1	22	16	21	28	21	21	45	174
TQ2	14	22	20	27	28	25	38	174
TQ3	26	23	22	19	30	16	38	174
TQ4	18	20	26	25	31	25	29	174
TQ5	17	20	21	24	26	23	43	174
TQ6	21	30	20	24	21	24	34	174
TQ7	15	23	24	21	27	25	39	174
TQ8	30	21	28	30	27	19	19	174
TQ9	23	27	33	19	24	19	29	174
TQ10	27	23	27	27	20	23	27	174
TQ11	18	29	22	24	38	21	22	174
TQ12	26	25	32	21	30	16	24	174
TQ13	25	17	27	29	28	21	27	174
TQ14	27	17	43	25	18	23	21	174
TQ15	22	27	24	22	24	23	32	174
TQ16	22	28	19	26	22	23	34	174
TQ17	19	19	31	16	26	32	31	174
TQ18	23	19	23	21	37	24	27	174
TQ19	20	24	22	26	31	17	34	174
TQ20	31	23	22	23	27	18	30	174
TQ21	25	26	16	24	29	24	30	174
TQ22	26	27	24	16	31	21	29	174
TQ23	19	31	17	24	29	21	33	174
TQ24	23	29	25	21	20	22	34	174
TQ25	23	38	26	19	21	20	27	174
TQ26	18	34	24	17	22	22	37	174
TQ27	13	37	23	19	26	19	37	174

Table (4.7) shows the frequency of the answers for each item in the questionnaire that are related to company's performance.

For example, the answer (Disagree) appeared 26 times in item 3 (CP3). In other words, 26 respondents disagree about the idea that their company delivers the products/services to customers on time. Another example is that the answer (Somewhat agree) appeared 34 times in item 26 (CP26). That is, 34 respondents are somewhat agree about the idea that their company's profits have grown.

**Table 4.7:** The frequency of company's performance items.

Item	Strongly disagree	Disagree	Somewhat disagree	Normal	Somewhat agree	Agree	Strongly agree	Total
CP1	19	35	21	16	29	31	23	174
CP2	8	23	20	19	37	26	41	174
CP3	19	26	19	13	38	25	34	174
CP4	9	28	24	19	30	31	33	174
CP5	18	24	22	26	23	19	42	174
CP6	25	26	28	21	24	26	24	174
CP7	18	20	24	25	27	23	37	174
CP8	20	16	29	29	37	19	24	174
CP9	22	23	25	35	23	24	22	174
CP10	23	24	26	27	22	23	29	174
CP11	20	30	26	23	29	21	25	174
CP12	20	35	34	20	18	23	24	174
CP13	22	17	32	25	25	21	32	174
CP14	34	26	28	21	23	19	23	174
CP15	21	27	32	20	24	18	32	174
CP16	23	29	27	23	16	33	23	174
CP17	20	21	25	19	27	35	27	174
CP18	26	26	22	24	20	32	24	174
CP19	21	23	20	26	32	25	27	174
CP20	29	26	23	19	26	25	26	174
CP21	31	25	13	27	26	24	28	174
CP22	31	27	22	24	26	20	24	174
CP23	32	20	25	33	19	22	23	174
CP24	24	26	27	22	21	24	30	174
CP25	24	30	21	25	31	17	26	174
CP26	20	28	27	19	24	22	34	174
CP27	25	26	24	29	23	22	25	174

The tables (4.8) shows the descriptive statistics of data related to ISO. The table shows the mean and the standard deviation. In addition, it shows the skewness and kurtosis with their stander error.

The mean is a statistics measure to the central tendency of the probability distribution. It also represents the expected value. The standard deviation measures the dispersed of the data from the mean. When the value of the standard deviation is close to zero, that data is close to the mean. However, when the value of the standard

deviation is above or below zero, the data is above or below the mean (Livingston 2004).

The skewness is the measure for the amount and direction of data distribution departure from the horizontal symmetry. The skewness value can be positive or negative (Blanca et al. 2013).

The positive value of skewness indicates that the tail on the right side of the distribution is longer or fatter. The negative value of skewness indicates that the left side tail of the distribution is longer or fatter. In general, if the skewness value is less than -1 or greater than 1, the data distribution is highly skewed. If the skewness value is between -0.5 and -1, or between 0.5 and 1, the data distribution is moderate skewed. If the skewness value is between  $\pm 0.5$ , the data distribution is symmetric.

The kurtosis is the measure of the combined sizes of the two tails of data distribution. If the value of kurtosis is close to 3, the distribution is normal. If the value of kurtosis is greater than 3, the distribution has heavy tail than normal distribution. If the value of kurtosis is less than 3, the distribution has light tail than normal distribution (Blanca et al. 2013).

**Table 4.8:** The descriptive statistics of ISO 9001 items.

Item	No. Statistic	Mean	Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
ISO1	174	4.05	2.049	-0.030	0.184	-1.284	0.366
ISO2	174	4.36	1.887	-0.185	0.184	-1.076	0.366
ISO3	174	4.55	1.981	-0.276	0.184	-1.147	0.366
ISO4	174	4.29	2.045	-0.149	0.184	-1.278	0.366
ISO5	174	4.43	1.872	-0.202	0.184	-1.107	0.366
ISO6	174	4.10	1.986	0.008	0.184	-1.237	0.366
ISO7	174	4.50	1.964	-0.273	0.184	-1.157	0.366
ISO8	174	4.38	1.969	-0.302	0.184	-1.070	0.366
ISO9	174	4.26	2.043	-0.207	0.184	-1.228	0.366
ISO10	174	4.17	2.035	-0.150	0.184	-1.271	0.366
ISO11	174	4.52	1.979	-0.286	0.184	-1.146	0.366
ISO12	174	4.25	2.046	-0.069	0.184	-1.294	0.366
ISO13	174	3.60	1.994	0.343	0.184	-1.185	0.366
ISO14	174	3.90	2.053	0.064	0.184	-1.269	0.366
ISO15	174	3.85	1.974	0.128	0.184	-1.164	0.366
ISO16	174	3.93	1.955	0.121	0.184	-1.135	0.366
ISO17	174	3.94	1.894	0.009	0.184	-1.116	0.366
ISO18	174	3.91	2.091	0.100	0.184	-1.292	0.366

The table shows that the minimum mean value among the variables is 3.60 at item ISO13, and the maximum value is 4.55 at ISO3. The table shows that the minimum standard deviation value among the variables is 1.87 at item ISO5, and the maximum value is 2.09 at ISO18. The table shows, as an example, that the mean value of item ISO1 is 4.05, and its standard deviation is 2.04. That means, the data of ISO1 variable is deviated from its mean within 2.04 range. The other variables' means and standard deviations can be interpreted same way.

The table shows that the skewness value of item ISO3, as an example, is -0.276. Since the skewness value is negative, the left side tail of ISO3 distribution is longer or fatter. In addition, since the skewness value of item ISO3 is less than -1, the data distribution is highly skewed. The other variables' skewness values can be interpreted same way. The table shows that the kurtosis value of item ISO10, as an example, is -1.271. Since the kurtosis value is less than 3, the distribution of this variable has light tail than normal distribution. The kurtosis values of the other variables can be interpreted same way.

Table (4.9) and table (4.10) shows the descriptive statistics of data related to TQM and company's performance respectively.

**Table 4.9:** The descriptive statistics of TQM items.

Item	No. Statistic	Mean	Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
TQ1	174	4.45	2.092	-0.247	0.184	-1.235	0.366
TQ2	174	4.49	1.955	-0.252	0.184	-1.142	0.366
TQ3	174	4.17	2.122	-0.078	0.184	-1.337	0.366
TQ4	174	4.28	1.934	-0.159	0.184	-1.124	0.366
TQ5	174	4.51	2.031	-0.270	0.184	-1.204	0.366
TQ6	174	4.16	2.079	-0.037	0.184	-1.360	0.366
TQ7	174	4.45	2.002	-0.214	0.184	-1.241	0.366
TQ8	174	3.78	1.935	0.091	0.184	-1.099	0.366
TQ9	174	3.96	2.024	0.123	0.184	-1.260	0.366
TQ10	174	3.96	2.035	0.055	0.184	-1.253	0.366
TQ11	174	4.07	1.892	-0.059	0.184	-1.137	0.366
TQ12	174	3.85	1.971	0.133	0.184	-1.157	0.366
TQ13	174	4.09	1.973	-0.066	0.184	-1.129	0.366
TQ14	174	3.82	1.935	0.168	0.184	-1.082	0.366
TQ15	174	4.13	2.056	-0.027	0.184	-1.320	0.366
TQ21	174	4.14	2.064	-0.115	0.184	-1.300	0.366
TQ22	174	4.02	2.071	-0.007	0.184	-1.336	0.366
TQ23	174	4.20	2.033	-0.077	0.184	-1.298	0.366
TQ24	174	4.08	2.097	0.033	0.184	-1.372	0.366
TQ25	174	3.83	2.046	0.220	0.184	-1.305	0.366
TQ26	174	4.18	2.095	0.005	0.184	-1.424	0.366
TQ27	174	4.22	2.032	0.017	0.184	-1.383	0.366

**Table 4.10:** The descriptive statistics of company's performance items.

<b>Item</b>	<b>No. Statistic</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Skewness</b>	<b>Std. Error</b>	<b>Kurtosis</b>	<b>Std. Error</b>
CP1	174	4.07	1.999	-0.043	0.184	-1.364	0.366
CP2	174	4.70	1.875	-0.362	0.184	-1.061	0.366
CP3	174	4.36	2.034	-0.248	0.184	-1.261	0.366
CP4	174	4.48	1.904	-0.212	0.184	-1.235	0.366
CP5	174	4.36	2.060	-0.132	0.184	-1.293	0.366
CP6	174	3.96	2.013	0.038	0.184	-1.282	0.366
CP7	174	4.38	2.001	-0.188	0.184	-1.194	0.366
CP8	174	4.15	1.859	-0.117	0.184	-.957	0.366
CP9	174	4.00	1.911	0.005	0.184	-1.096	0.366
CP10	174	4.07	2.016	0.003	0.184	-1.245	0.366
CP11	174	4.00	1.959	0.051	0.184	-1.218	0.366
CP12	174	3.84	1.976	0.245	0.184	-1.229	0.366
CP13	174	4.18	1.996	-0.055	0.184	-1.184	0.366
CP14	174	3.70	2.052	0.203	0.184	-1.245	0.366
CP15	174	4.04	2.030	0.092	0.184	-1.275	0.366
CP16	174	3.98	2.019	0.041	0.184	-1.336	0.366
CP17	174	4.29	1.988	-0.225	0.184	-1.232	0.366
CP18	174	4.02	2.046	-0.040	0.184	-1.336	0.366
CP19	174	4.20	1.967	-0.156	0.184	-1.168	0.366
CP20	174	3.95	2.079	0.011	0.184	-1.350	0.366
CP21	174	4.01	2.104	-0.064	0.184	-1.341	0.366
CP22	174	3.82	2.048	0.101	0.184	-1.276	0.366
CP23	174	3.83	2.015	0.085	0.184	-1.188	0.366
CP24	174	4.05	2.059	0.026	0.184	-1.320	0.366
CP25	174	3.94	1.996	0.058	0.184	-1.222	0.366
CP26	174	4.16	2.058	-0.010	0.184	-1.342	0.366
CP27	174	3.95	1.995	0.054	0.184	-1.213	0.366

#### 4.5 The Reliability and Normality of the Data

##### 4.5.1 The reliability of the Data

The reliability of the data is checked by Cronbach's Alpha (or coefficient alpha). The Cronbach's Alpha measures the internal consistency between items in a scale. The internal consistency means that respondents respond to the questionnaire items of specific scale in consistence way. If the alpha coefficient takes values close to (1), the reliability due to internal consistency is at a high level. If the alpha coefficient takes values between (0.50-0.80), the data is reliable. If alpha coefficients was between (0.81-1.00), it means that the data is highly reliable (Pallant 2013).

The results of data reliability are shown in table (4.11). The results in table (4.11) indicate that the coefficient alpha is greater than 0.5 for all scales of ISO 9001. In addition, the coefficient alpha is also greater than 0.5 for all scales of TQM and CP.

These results indicate that the data is reliable and ready for analysis.

**Table 4.11:** The Cronbach's Alpha coefficients.

<b>ISO 9001 dimension</b>	
<b>Scale</b>	<b>Cronbach's Alpha</b>
A. Benefits Perceived from ISO 9001 Standard	0.719
B. Barriers Perceived from ISO 9001 Standard	0.546
<b>TQM dimension</b>	
A. Organizational Leadership	0.628
B. Customer satisfaction and relationships	0.512
C. Human resource focus	0.576
D. Strategic planning and development	0.582
E. Supplier quality management	0.598
<b>Firm's Performance dimension</b>	
A. Operational Performance	0.566
B. Inventory Management Performance	0.636
C. Employee Performance	0.676
D. Innovation Performance	0.644
E. Social Responsibility	0.718
F. Customer Results	0.632
G. Market and Financial Performance	0.684

#### 4.5.2 The normality check of the Data

This section tests whether the data is normally distributed or not. Kolmogorov-Smirnova and Shapiro-Wilk tests are used to test for normality. If these two tests were statistically significant, the hypothesis of normal distribution is rejected, which indicates that the data is not normally distributed (Pallant 2013). The SPSS software was used to run the normality test, and the results are shown in table (4.12), table (4.13), and table (4.14). The tables show the results of normality tests for all dimensions.

**Table 4.12:** The normality test for ISO 9001 items.

Item	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ISO1	0.138	174	0.000	0.911	174	0.000
ISO2	0.141	174	0.000	0.926	174	0.000
ISO3	0.153	174	0.000	0.905	174	0.000
ISO4	0.161	174	0.000	0.907	174	0.000
ISO5	0.144	174	0.000	0.922	174	0.000
ISO6	0.148	174	0.000	0.918	174	0.000
ISO7	0.168	174	0.000	0.907	174	0.000
ISO8	0.147	174	0.000	0.914	174	0.000
ISO9	0.136	174	0.000	0.906	174	0.000
ISO10	0.147	174	0.000	0.910	174	0.000
ISO11	0.152	174	0.000	0.906	174	0.000
ISO12	0.149	174	0.000	0.907	174	0.000
ISO13	0.174	174	0.000	0.901	174	0.000
ISO14	0.145	174	0.000	0.910	174	0.000
ISO15	0.130	174	0.000	0.920	174	0.000
ISO16	0.126	174	0.000	0.923	174	0.000
ISO17	0.121	174	0.000	0.931	174	0.000
ISO18	0.140	174	0.000	0.903	174	0.000

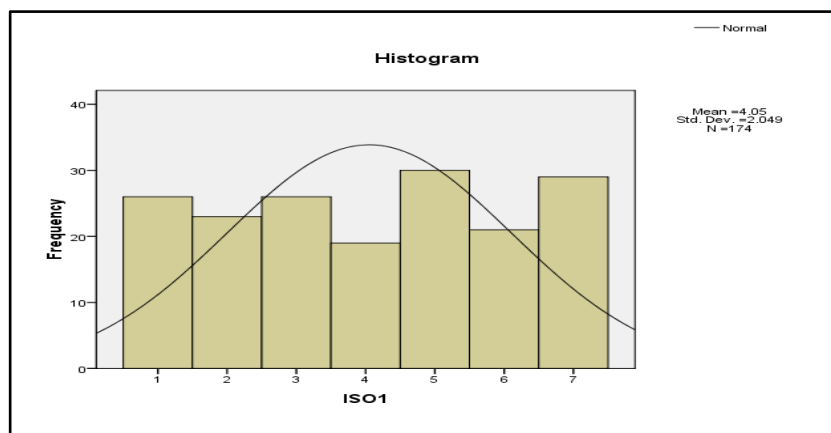
**Table 4.13:** The normality test for TQM items.

Item	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TO1	0.149	174	0.000	0.893	174	0.000
TO2	0.141	174	0.000	0.911	174	0.000
TO3	0.135	174	0.000	0.898	174	0.000
TO4	0.134	174	0.000	0.924	174	0.000
TO5	0.148	174	0.000	0.899	174	0.000
TO6	0.145	174	0.000	0.902	174	0.000
TO7	0.148	174	0.000	0.905	174	0.000
TO8	0.115	174	0.000	0.925	174	0.000
TO9	0.159	174	0.000	0.911	174	0.000
TO10	0.129	174	0.000	0.914	174	0.000
TO11	0.154	174	0.000	0.927	174	0.000
TO12	0.144	174	0.000	0.920	174	0.000
TO13	0.115	174	0.000	0.923	174	0.000
TO14	0.165	174	0.000	0.920	174	0.000
TO15	0.135	174	0.000	0.908	174	0.000
TO16	0.139	174	0.000	0.904	174	0.000
TO17	0.160	174	0.000	0.909	174	0.000
TO18	0.162	174	0.000	0.917	174	0.000
TO19	0.124	174	0.000	0.915	174	0.000
TO20	0.134	174	0.000	0.904	174	0.000
TO21	0.143	174	0.000	0.906	174	0.000
TO22	0.147	174	0.000	0.906	174	0.000
TO23	0.147	174	0.000	0.908	174	0.000
TO24	0.142	174	0.000	0.900	174	0.000
TO25	0.165	174	0.000	0.901	174	0.000
TO26	0.150	174	0.000	0.893	174	0.000
TO27	0.151	174	0.000	0.897	174	0.000

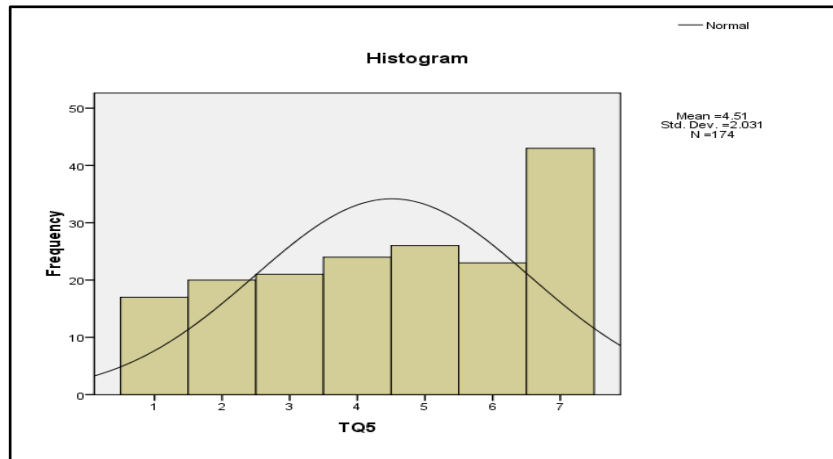
**Table 4.14:** The normality test for company's performance items.

Item	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
CP1	0.160	174	0.000	0.907	174	0.000
CP2	0.161	174	0.000	0.904	174	0.000
CP3	0.182	174	0.000	0.900	174	0.000
CP4	0.155	174	0.000	0.910	174	0.000
CP5	0.141	174	0.000	0.900	174	0.000
CP6	0.137	174	0.000	0.915	174	0.000
CP7	0.136	174	0.000	0.911	174	0.000
CP8	0.136	174	0.000	0.933	174	0.000
CP9	0.117	174	0.000	0.930	174	0.000
CP10	0.130	174	0.000	0.916	174	0.000
CP11	0.134	174	0.000	0.921	174	0.000
CP12	0.176	174	0.000	0.908	174	0.000
CP13	0.131	174	0.000	0.917	174	0.000
CP14	0.141	174	0.000	0.906	174	0.000
CP15	0.156	174	0.000	0.910	174	0.000
CP16	0.163	174	0.000	0.909	174	0.000
CP17	0.161	174	0.000	0.911	174	0.000
CP18	0.155	174	0.000	0.908	174	0.000
CP19	0.142	174	0.000	0.920	174	0.000
CP20	0.142	174	0.000	0.905	174	0.000
CP21	0.152	174	0.000	0.901	174	0.000
CP22	0.147	174	0.000	0.910	174	0.000
CP23	0.118	174	0.000	0.915	174	0.000
CP24	0.139	174	0.000	0.908	174	0.000
CP25	0.145	174	0.000	0.917	174	0.000
CP26	0.144	174	0.000	0.905	174	0.000
CP27	0.129	174	0.000	0.919	174	0.000

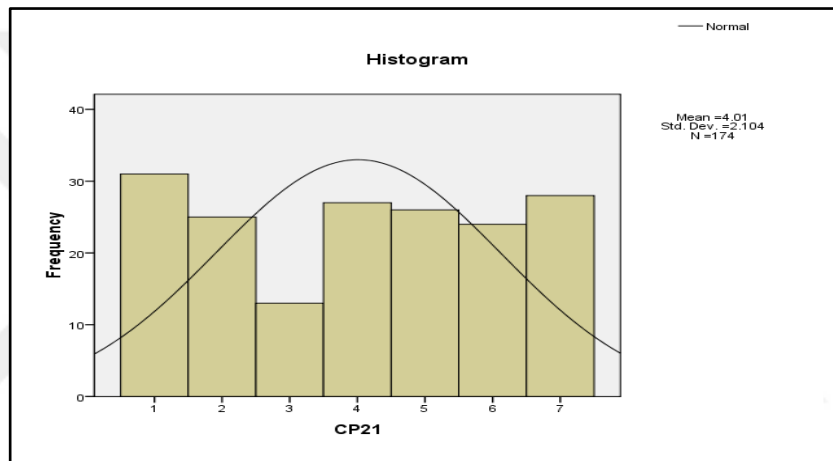
The results in the above tables indicate that all items of ISO, TQM and company's performance are not normally distributed. That is because all the results of the tests are statistically significant at 1% confidence level. Figure (4.2), figure (4.3), and figure (4.4) show examples of data distribution of ISO, TQM, and CP variables.



**Figure 4.2:** An example of the data distribution of the ISO variables.



**Figure 4.3:** An example of the data distribution of TQM variables.



**Figure 4.4:** An example of the data distribution of CP variables.

## 4.6 Factor Analysis

### 4.6.1 Background

In this part, a factor analysis is run using SPSS, and based on principal components analysis. The principal components analysis is the most common method that used to reduce the dimension of a group of variables. For example, if there are five variables for a specific scale, they can be reduced to one or two components or factors (Pallant 2013).

This extracted components or factors explains the relationship among the variables of that scale. Therefore, it is important to analyze the correlation between the variables within the group. The diagonal values of the correlation matrix are usually ones.

These values are ones because they represent the correlated between the variables and themselves, which is always one. The off-diagonal values of the correlation matrix represent the correlations of the variables with each other.

The importance of testing the correlation between variables is that factor analysis required that variables be correlated with each other at the minimum significant. In other words, the factor analysis analyzes the correlations or relationships between variables and determine the minimum number of factors that can explain these correlations.

#### 4.6.2 The correlation between scales items

Table (4.15), table, (4.16), and table (4.17) show examples of inter-item correlation matrices of ISO, TQM and CP scales respectively. The results indicate that all items of each scale are correlated. Therefore, this specific condition for running factor analysis is met.

**Table 4.15:** An example of Pearson Correlation matrix of ISO 9001 scales.

Item	ISO14	ISO15	ISO16	ISO17	ISO18
ISO14	1	0.429**	0.171*	0.094	0.041
ISO15		1	0.270**	0.141	0.132
ISO16			1	0.477**	0.075
ISO17				1	0.194*
ISO18					1

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

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 4.16:** An example of Pearson Correlation matrix of TQM scales.

Item	TQ23	TQ24	TQ25	TQ26	TQ27
TQ23	1	0.238**	0.209**	0.190*	0.217**
TQ24		1	0.192*	0.372**	0.236**
TQ25			1	0.120	0.206**
TQ26				1	0.280**
TQ27					1

**Table 4.17:** An example of Pearson Correlation matrix of CP scales.

Item	CP6	CP7	CP8	CP9	CP10
CP6	1	0.198**	0.182*	0.424**	0.243**
CP7		1	0.330**	0.234**	0.405**
CP8			1	0.263**	0.298**
CP9				1	0.278**
CP10					1

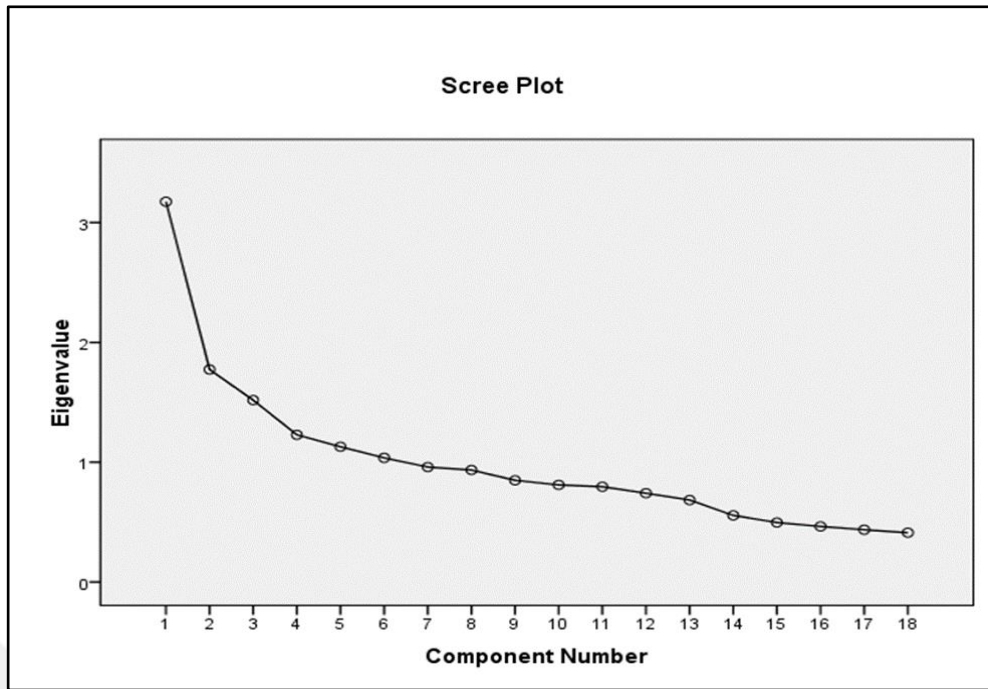
#### 4.6. Factor Analysis

A factor analysis is run based on principal components analysis using SPSS and 1.5 minimum Eigenvalue (Swaminathan & Jawahar 2013). The result of factor analysis of ISO items are shown in table (4.18).

**Table 4.18:** Total Variance Explained of ISO variables

Component	Initial Eigenvalues	Extraction Sums of Squared Loadings		Rotation Sums of Squared Loadings	
		% of Variance	Cumulative %	% of Variance	Cumulative %
1	3.175	17.638	17.638	15.975	15.975
2	1.774	9.855	27.493	11.518	27.493
3	1.519				
4	1.229				
5	1.129				
6	1.036				
7	0.960				
8	0.935				
9	0.849				
10	0.810				
11	0.795				
12	0.741				
13	0.684				
14	0.556				
15	0.497				
16	0.464				
17	0.436				
18	0.412				

Table (4.18) shows that there are 2 component extracted from the factor analysis of ISO. These 2 components or factors can be used instead of using 18 variables of ISO dimension. The results indicated that these 2 factors explain about 28 % of the total variance of ISO. Figure (4.5) shows the scree plot of ISO factor analysis, and it indicates same results. Table (4.19) shows that the first component is related to the items ISO1 to ISO13 (benefits perceived from ISO 9001).



**Figure 4.5:** The scree plot of factor analysis of ISO.

**Table 4.19:** The Rotated component matrix of ISO dimension.

Item	Component	
	1	2
ISO10	0.568	
ISO12	0.530	
ISO9	0.527	
ISO8	0.498	
ISO6	0.494	
ISO13	0.477	
ISO4	0.471	
ISO7	0.463	
ISO1	0.427	
ISO2	0.418	
ISO3	0.411	
ISO11	0.371	
ISO5	0.367	
ISO16		0.736
ISO17		0.677
ISO15		0.594
ISO14		0.421
ISO18		0.361

The second component is related to the items ISO14 to ISO18, which are the items of barriers perceived from ISO 9001. Therefore, the benefits perceived from ISO 9001 and the barriers perceived from ISO 9001 will be the independent variables of ISO.

It is also important to indicate that the overall measurement quality of ISO factor analysis was good. That is because the Kaiser-Meyer-Olkin (KMO), which measures the sampling adequacy, is more than 60%. That indicates good measurement quality. In addition, the Bartlett's test of sphericity is significant at 1% level of confidence. These tests indicate good measurement quality. Table (4.20), shows the KMO and Bartlett's Tests.

**Table 4.20:** The KMO and Bartlett's tests

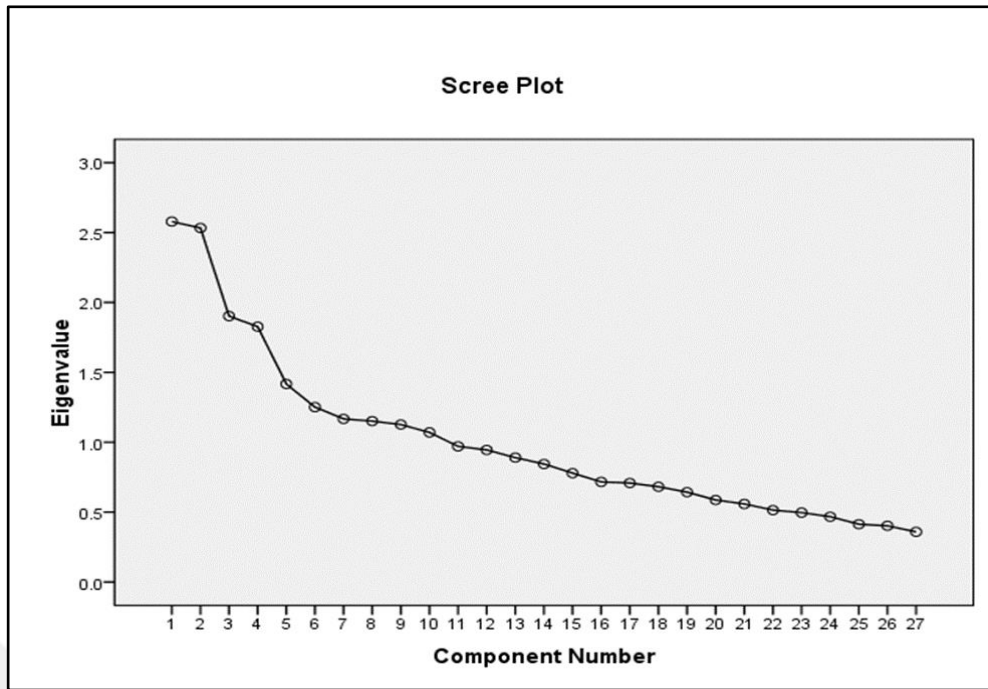
Test Name	Test Result
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.678
Bartlett's Test of Sphericity	Approx. Chi-Square
	df
	153
	Sig.
	0.000

The result of factor analysis of TQM items are shown in table (4.21). Table (4.21) shows that there are 4 component extracted from the factor analysis of TQM.

**Table 4.21:**Total Variance Explained of TQM variables.

Component	Initial Eigenvalues	Extraction Sums of Squared Loadings		Rotation Sums of Squared Loadings	
		% of Variance	Cumulative %	% of Variance	Cumulative %
1	2.579	9.551	9.551	8.852	8.852
2	2.533	9.381	18.932	8.742	17.595
3	1.902	7.046	25.978	7.576	25.170
4	1.826	6.765	32.743	7.572	32.743
5	1.417				
6	1.251				
7	1.167				
8	1.151				
9	1.126				
24	0.467				
27	0.359				

These 4 components can be used instead of using 27 variables of TQM dimension. The results indicated that these factors explain about 33 % of the total variance of TQM total variance. Figure (4.6) shows the scree plot of TQM factor analysis, and it indicates same results.



**Figure 4.6:** The scree plot of factor analysis of TQM.

Table (4.22) shows the factor loading for each TQM item. The table shows that the first component is strongly related to the items TQM15 to TQM18, which are the items of human resource focus. The second component is related to the items TQM1 to TQM7, which are the items of organizational leadership.

The table shows that the third component is strongly related to the items TQM24 to TQM27, which are the items of supplier quality management. The fourth component is related to the items TQM8 to TQM14, which are the items of customer satisfaction and relationships. Therefore, the human resource focus, organizational leadership, supplier quality management, and customer satisfaction and relationships will be the independent variables of TQM.

It is also important to indicate that the overall measurement quality of TQM factor analysis was good. That is because the Kaiser-Meyer-Olkin (KMO), which measures the sampling adequacy, is more than 60%. That indicates good measurement quality.

In addition, the Bartlett's test of sphericity is significant at 1% level of confidence. These tests indicate good measurement quality. Table (4.23), shows the KMO and Bartlett's Tests.

**Table 4.22:** The Rotated component matrix of TQM dimension.

Item	Component			
	1	2	3	4
TQ15	0.646			
TQ21	0.573			
TQ17	0.542			
TQ18	0.509			
TQ19	0.500			
TQ16	0.491			
TQ20	0.392			
TQ22	0.361			
TQ4		0.657		
TQ2		0.631		
TQ3		0.621		
TQ7		0.548		
TQ5		0.472		
TQ6		0.461		
TQ1		0.431		
TQ24			0.678	
TQ26			0.672	
TQ27			0.599	
TQ23			0.545	
TQ25			0.434	
TQ9				0.581
TQ8				0.512
TQ12				0.487
TQ14				0.479
TQ13				0.434
TQ10				0.400
TQ11				0.399

**Table 4.23:** The KMO and Bartlett's tests

Test Name	Test Result
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.603
Bartlett's Test of Sphericity	Approx. Chi-Square
	df
	Sig.
	351
	0.000

A factor analysis is applied on the the 27 variables of company's performance. The analysis was enforced to extract only one factor. Therefore, only one factor will be used as company's performance, and it will be the dependent variable.

In short, the results of factor analysis provided two components of ISO, four components of TQM and one component of CP. All of these extracted components or factors will be used in regression analysis as dependent and independent variables.

#### **4.7 The Regression Analysis**

The regression analysis is used to test the impact of applying ISO 9001 standards on the companies' performance. Specifically, this study tests the direct and indirect effect of applying ISO 9001 standards on company's performance. The indirect effect is the effect that is coming through TQM. In other words, the ISO 9001 affects TQM, and then TQM affects CP. The direct effect is when ISO 9001 directly affects CP. Therefore, several regression models will be run, and several dependent variables will be used.

These regression models are shown in table (4.24). The models 1, 2, 3, and 4 test the impact of ISO 9001 on TQM. In these models, the TQM four components will be the dependent variables, and the two components of ISO will be the independent variables. The model 5 tests the impact of TQM on CP. In this model, the TQM four components will be the independent variables, and the one components of CP will be the dependent variable. The model 6 tests the impact of ISO and TQM on CP. In this model, the TQM four components and the ISO two components will be the independent variables, and the one components of CP will be the dependent variable.

It is important to indicate that before running the regression model some assumption need to be checked. According to Pallant (2013), running the regression analysis required to meet some conditions. The conditions that are related to running the regression of model 6 are discussed as following:

1. The dependent variables have to be normally distributed.

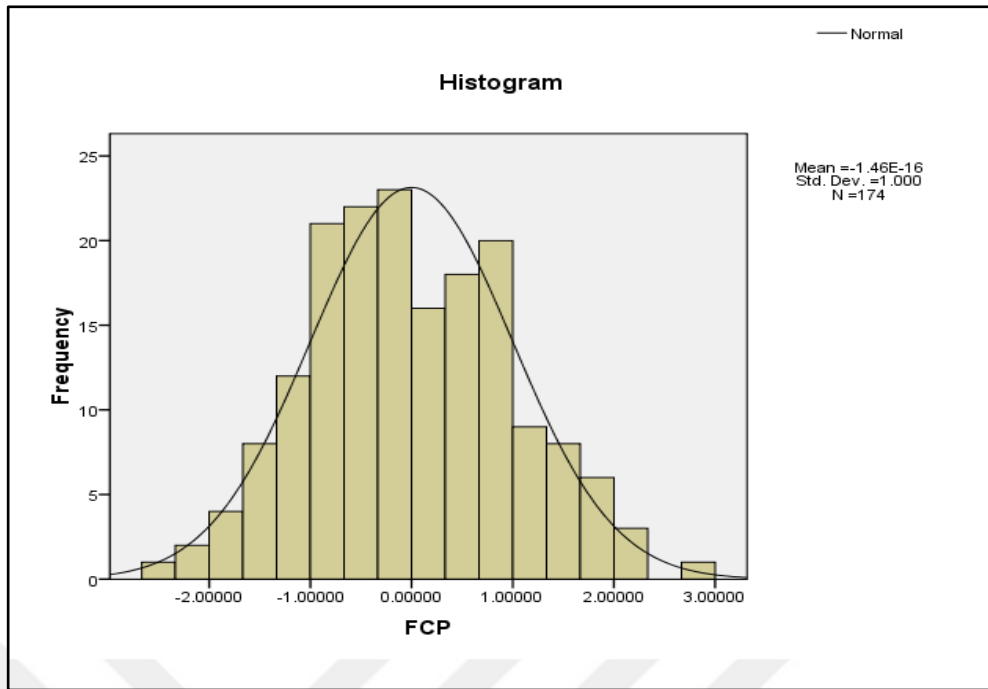
This condition was checked using Kolmogorov-Smirnova and Shapiro-Wilk tests. The tests' results were statistically insignificant, which indicate that the dependent variables are normally distributed. Figure (4.7), and figure (4.8) confirm the normal distribution of CP and human resource focus variable.

2. The linearity assumption

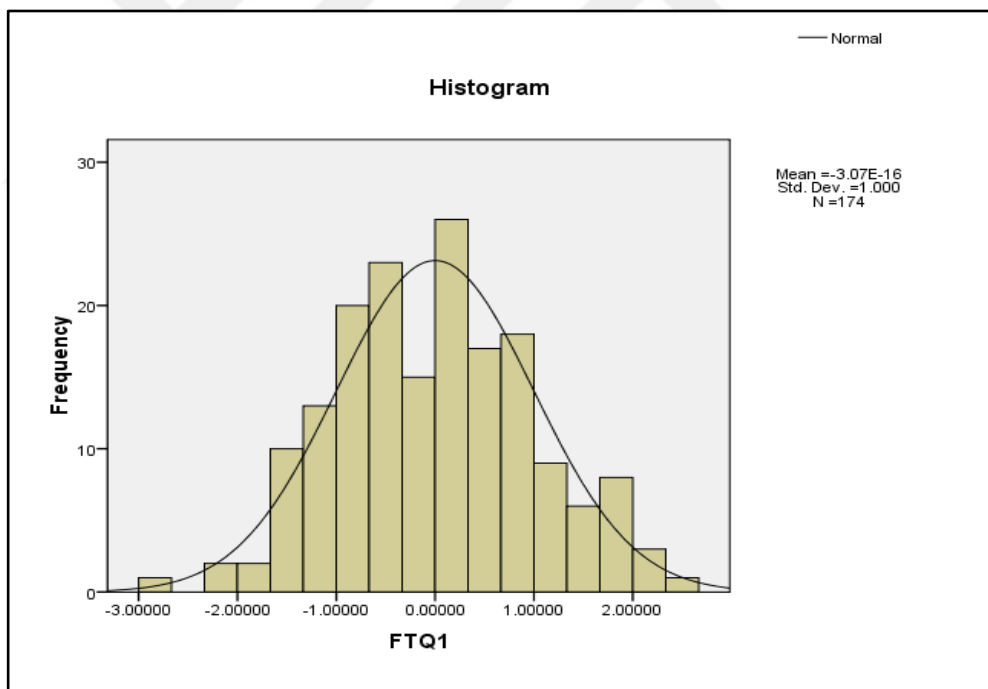
Figure (4.9) shows that all independent variables have liner correlation with the dependent variable. Therefore, this condition is met

**Table 4.24:** The regression models.

<b>Model Number</b>	<b>Dependent Variable</b>	<b>Independent Variables</b>
<b>ISO 9001 → TQM</b>		
1	Human resource focus	a. Benefits perceived from ISO 9001 b. Barriers perceived from ISO 9001
2	Organizational leadership	a. Benefits perceived from ISO 9001 b. Barriers perceived from ISO 9001
3	Supplier quality management	a. Benefits perceived from ISO 9001 b. Barriers perceived from ISO 9001
4	Customer satisfaction and relationships	a. Benefits perceived from ISO 9001 b. Barriers perceived from ISO 9001
<b>TQM → CP</b>		
5	Company's Performance	a. Human resource focus b. Organizational leadership c. Supplier quality management d. Customer satisfaction and relationships
<b>ISO 9001 → TQM → CP</b> 		
6	Company's Performance	a. Human resource focus b. Organizational leadership c. Supplier quality management d. Customer satisfaction and relationships e. Benefits perceived from ISO 9001 f. Barriers perceived from ISO 9001



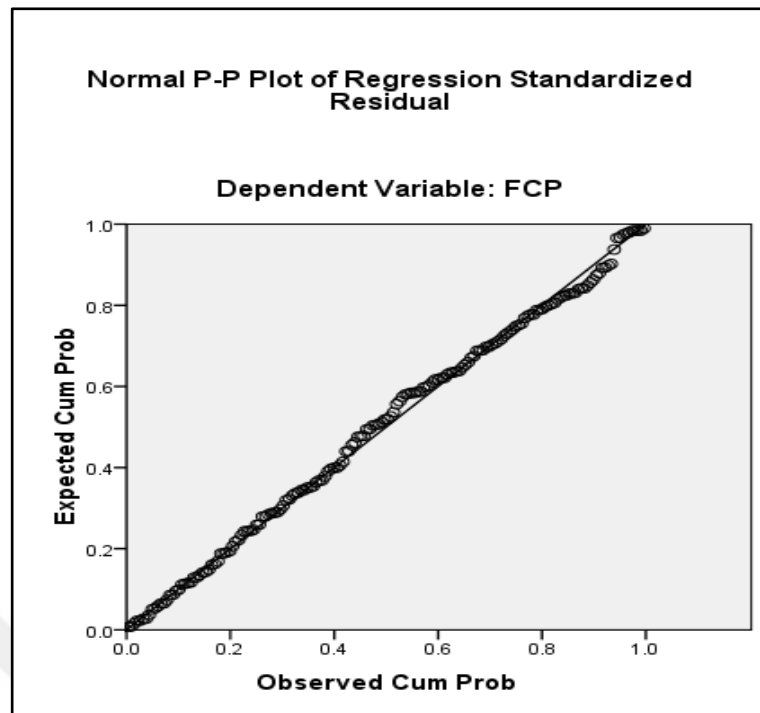
**Figure 4.7:** The distribution of the dependent variable (CP).



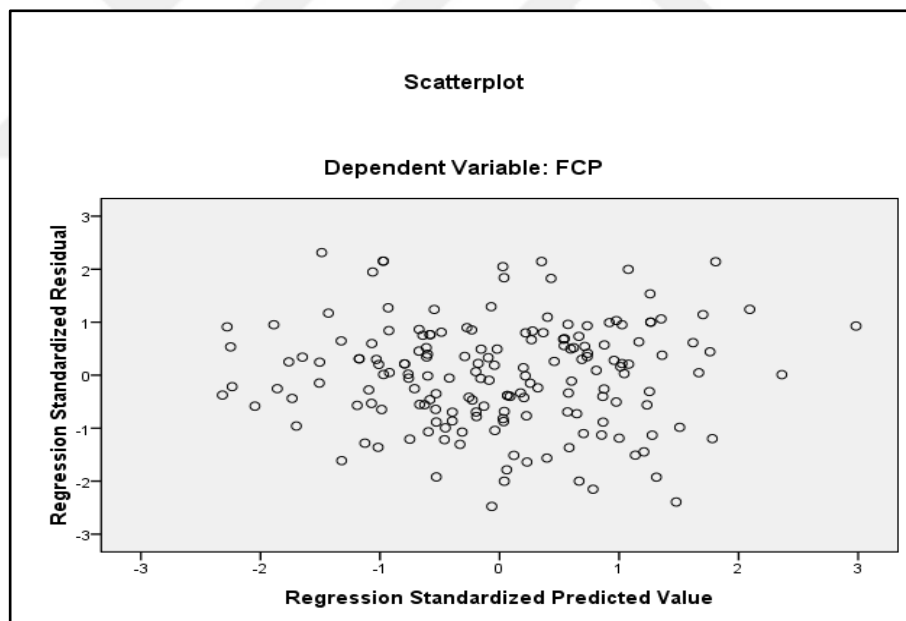
**Figure 4.8:** The distribution of the human resource focus variable.

3. No outlier is accepted

The scatterplot that shown in figure (4.10) shows that all residuals are in the range  $\pm 3$ . Therefore, there is no outliers.



**Figure 4.9:** The regression standardized residuals.



**Figure 4.10:** The scatterplot for outlier check.

4. The stander residual and Cook's Distance should be within the required rages

The regression analysis required that the stander residual to be between  $\pm 3$ , and Cook's Distance to be less than one. The results indicate that the minimum value of stander residual is -2.477, and the maximum value is 2.313. The results indicate that the minimum value of Cook's Distance is 0.001, and the maximum value is 0.089. Therefore, the required conditions are met.

Based on these results, all the required condition for regression analysis are met.

#### **4.8 The Results Discussion**

After running the regression analysis, the results are shown in table (4.25). The results in table (4.25) can be discussed as following:

1. The results of model (1) show that both benefits and barriers perceived from ISO 9001 have positive and significant impact on human resource focus as part of TQM. In other words, benefits and barriers perceived from ISO 9001 can significantly motivate human resources management in the company to do better.
2. The results of model (2) indicate that the benefits perceived from ISO 9001 has positive and significant impact on organizational leadership. That is, applying ISO 9001 can significantly enhance the organizational leadership. However, the barriers perceived from ISO 9001 has negative and significant impact on organizational leadership. That means, applying ISO 9001 can significantly create difficulties or obstacles to organizational leadership.
3. The results of model (3) indicate that the benefits perceived from ISO 9001 has positive and significant impact on supplier quality management. However, the barriers perceived from ISO 9001 has no impact on it. More specifically, applying ISO 9001 can significantly improve the supplier quality management in the company.
4. The results of model (4) show that applying ISO 9001 has no impact on customer satisfaction and relationships. That is because both benefits and barriers perceived from ISO 9001 have insignificant impact on customer satisfaction and relationships.
5. The results of model (5) show that human resource focus has positive and significant impact on the company's performance. That is, the human resource focus in company, which is part of TQM, can significantly enhance the company's performance. However, the supplier quality management has negative and significant impact on the company's performance. The results also show that the organizational leadership and customer satisfaction and relationships have insignificant effects on company's performance.

**Table 4.25:** The results of regression analysis.

<b>Model (1)</b>			
<b>Dependent Variable</b>	<b>Independent Variables</b>	<b>Coefficient</b>	<b>Significance</b>
Human resource focus	a. Benefits perceived from ISO 9001	0.412***	0.000
	b. Barriers perceived from ISO 9001	0.146**	0.036
<b>Model (2)</b>			
Organizational leadership	a. Benefits perceived from ISO 9001	0.354***	0.000
	b. Barriers perceived from ISO 9001	-0.333***	0.000
<b>Model (3)</b>			
Supplier quality management	a. Benefits perceived from ISO 9001	0.157**	0.039
	b. Barriers perceived from ISO 9001	0.062	0.412
<b>Model (4)</b>			
Customer satisfaction and relationships	a. Benefits perceived from ISO 9001	0.031	0.411
	b. Barriers perceived from ISO 9001	0.054	0.714
<b>Model (5)</b>			
Company's Performance	a. Human resource focus	0.294***	0.000
	b. Organizational leadership	0.006	0.935
	c. Supplier quality management	-0.165**	0.024
	d. Customer satisfaction and relationships	-0.094	0.193
<b>Model (6)</b>			
Company's Performance	a. Benefits perceived from ISO 9001	-0.095	0.277
	b. Barriers perceived from ISO 9001	-0.139*	0.074
	c. Human resource focus	0.353***	0.000
	d. Organizational leadership	-0.007	0.934
	e. Supplier quality management	-0.141*	0.055
	f. Customer satisfaction and relationships	-0.084	0.245

\*\*\* Significant at the 0.01 level.

\*\* Significant at the 0.05 level

\* Significant at the 0.10 level

6. The results of model (6) confirm the results in model (5) regarding the effects of TQM items. Specifically, they show that human resource focus has positive and significant impact on the company's performance. The supplier quality management has negative and significant impact on the company's performance.

The organizational leadership and customer satisfaction and relationships have insignificant effects on company's performance. The results indicate that applying ISO 9001 has direct impact on company's performance. That is because the barriers perceived from ISO 9001 has negative and significant impact on company's performance.

In short, the results of the study indicate that applying ISO 9001 has significant impact on the performance of The General Company for Ports of Iraq. The results also indicate that applying ISO 9001 has direct and indirect impact on the company's performance. The results of the study partially support the study hypothesis. That is because applying ISO 9001 has a positive and negative impact on the performance of The General Company for Ports of Iraq.

#### **4.9 The Study Suggestions**

Based on the study results, this study suggests the following:

1. The General Company for Ports of Iraq should focus more on the benefits from applying ISO 9001.
2. The company should work hard on reducing the barriers perceived from applying ISO 9001 to reduce or eliminate their negative effects on its performance.
3. The company should improve two parts of its TQM, which are the organizational leadership and customer satisfaction and relationships.
4. The company should fix any problem related to its supplier quality management, so that it may positively affect its performance.

## 5. CONCLUSION

Studies showed that applying the ISO 9001 standards can be an important factor of improving the companies' performance. The ISO stands for (The International Standard that Specifies Requirements for a Quality Management System). Companies that have applied different versions of ISO to improve their ability of providing products and services and satisfy the customer.

The ISO is now globally accepted, and most companies around the world have applying it. That is because; it can provide many benefits to companies. In general, the ISO can benefits the companies by making a balance between providing the required product and services and following the requirements that stated by law.

Most of Iraqi companies have started applying the ISO 9001 and other ISO versions. They started applying ISO directly after 2003. That is because, Iraq started new political system after 2003, and become more economically open to the entire world. However, after interviewing some companies' managers in Basrah, Iraq, there was misunderstanding about the concepts and the goals of applying ISO 9001. In addition, there are limited studies that evaluate the effect of ISO on the Iraqi companies' performance. Therefore, The General Company for Ports of Iraq, Basrah, Iraq was selected to be the case study. That is because it is one of the most important company in Iraq that applied ISO 9001.

The purpose of the study is to empirically test the effect of applying ISO 9001 on the performance of The General Company for Ports of Iraq, Basrah, Iraq. The importance of the study is to help decision makers of the company to better understand the concepts of ISO 9001. The study contribution is that it provides an analytical method to test the effect of ISO on companies' performance in Iraq. That can be applied on other companies that are using IOS 9001 or other versions.

The study hypothesis is that the ISO 9001 has a positive and significant impact on the performance of The General Company for Ports of Iraq. The study provides theoretical framework of the companies' performance, and the concepts of ISO 9001 and TQM.

The study used the questionnaire method to collect data. The questionnaire was used to get information about the implementation of ISO 9001, TQM and company's

performance. In addition, to get demographic information about the respondents. The items in the questionnaire were designed to have seven Likert.

The questionnaire sheets were sent by hand to a sample of 300 employees in the company, and only 193 sheet were returned. The uncompleted sheets are 19, which are neglected, and 174 sample sizes was used.

The results of the study showed that applying ISO 9001 has significant impact on the performance of The General Company for Ports of Iraq. The results also indicate that applying ISO 9001 has direct and indirect impact on the company's performance. The results of the study partially support the study hypothesis. That is because applying ISO 9001 has a positive and negative impact on the performance of The General Company for Ports of Iraq.

The study suggests The General Company for Ports of Iraq should focus more on the benefits from applying ISO 9001, and work hard on eliminating the barriers of applying ISO 9001. In addition, the company should improve two parts of its TQM, which are the organizational leadership and customer satisfaction and relationships. The company should fix any problem related to its supplier quality management.

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## APPENDICES

### Appendix A: Questionnaire form

**Table A.1:** A copy of the study questionnaire.

<b>PART 1: Demographic an Work Information</b>	
Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/>
Age	<input type="checkbox"/> 18-30 <input type="checkbox"/> 31-40 <input type="checkbox"/> 41-50 <input type="checkbox"/> more than 50
Education level	<input type="checkbox"/> HS <input type="checkbox"/> Diploma <input type="checkbox"/> BA <input type="checkbox"/> Master <input type="checkbox"/> PhD
Years of work experiences	<input type="checkbox"/> 1-5years <input type="checkbox"/> 6-10 years <input type="checkbox"/> 11- 20 years <input type="checkbox"/> more than 20 years
Designation in the organization	<input type="checkbox"/> Manager <input type="checkbox"/> Employee <input type="checkbox"/>
Do you know that your organization has ISO 9001 certificate?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If you answered the last question “yes”, please specify why?	
If you answered the last question “no”, please specify why?	
Is your organization applying the Total Quality Management system?	<input type="checkbox"/> Yes <input type="checkbox"/> No

**PART 2: ISO 9001 items**

In this part, you have seven options that represent the degree of your answer, please select only one option for each question to the best of your knowledge.

**A. Benefits Perceived from the Implementation of ISO 9001 Standard**

Question	Strongly disagree	Disagree	Somewhat disagree	Normal	Somewhat agree	Agree	Strongly agree
1. Greater customer satisfaction							
2. Improved image and reputation							
3. Greater awareness of company possibilities							
4. Improved relationship with customers							
5. Improved delivery times							
7. Increase of corporate efficiency							
8. Reduction of non-conformities							
9. Reduction of complaints							
10. Improvement of internal communication							
11. Increase in sales							
12. Improvement of competitive advantage							
13. Greater staff motivation							

**B. Barriers Perceived from the Implementation of ISO 9001 Standard**

14. Increase in business costs							
15. Increase in the complexity of procedures							
16. Increase in bureaucratization							
17. Reduction in profits							
18. Reduction in customer satisfaction							

<b>PART 3: Total Quality Management (TQM) Items</b>							
In this part, you have seven options that represent the degree of your answer, please select only one option for each question to the best of your knowledge.							
<b>A. Organizational Leadership</b>							
<b>Question</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Somewhat disagree</b>	<b>Normal</b>	<b>Somewhat agree</b>	<b>Agree</b>	<b>Strongly agree</b>
1. Top management actively involved in communications and planning of organizational goals							
2. Top leadership provide significant means (resources) to improve and maintain quality							
3. Top leadership views quality more important than production (means, quality has more importance than production schedules)							
4. Managements at the top takes quality as their responsibility							
5. Top executives routinely interact with their concerned departments (quality as well as others)							
6. Top managements is evaluated on quality performance							
7. Top leadership anticipate changes and make plans to accommodate it							
<b>B. Customer satisfaction and relationships</b>							
<b>Question</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Somewhat disagree</b>	<b>Normal</b>	<b>Somewhat agree</b>	<b>Agree</b>	<b>Strongly agree</b>
8. The key customer requirements are identified (product specifications detected and fulfilled)							
9. customer oriented							

strategies are built and reviewed for further improvements							
10. Encouragement provided to partnerships with customers to make relations better							
11. Design, development, and delivery of products is according to the requirement of customers							
12. Customer satisfaction feedbacks are taken after a regular interval							
13. Customer complaints are properly recorded and reviewed to maintain our quality standards							
14. Concessions are provided for defective parts / products (if delivered)							
<b>C. Human resource focus</b>							
15. Recruitment procedure is such that, “right person is selected for right job”							
16. Proper and efficient training is provided to newly selected personnel							
17. Health and safety practices are excellent							
18. Career development training to employees is provided by the company (both inside and outside of the company)							
<b>D. Strategic planning and development</b>							
19. The company encourages study and planning for improvement of all its product and processes							
20. There is frequent inspection of product quality and processes takes place							
21. The company employs seven tools of quality to							

plan, control, and improvement of processes							
22. We collect data first and then we make decisions for the improvements of process, after reviewing it							
<b>E. Supplier quality management</b>							
23. The company regards quality of products more important than price for selecting a supplier							
24. The company has provided certification to our suppliers and routine audits take place to maintain the quality standards							
25. The company's employees periodically visit our suppliers to inspect and evaluate the products for improving quality							
26. Our company has the detailed information about our supplier and their performances							
27. Our suppliers regularly take feedback from us, so as to maintain quality standards							

<b>PART 4: Company's Performance Items</b>							
In this part, you have seven options that represent the degree of your answer, please select only one option for each question to the best of your knowledge.							
<b>A. Operational Performance</b>							
<b>Question</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Somewhat disagree</b>	<b>Normal</b>	<b>Somewhat agree</b>	<b>Agree</b>	<b>Strongly agree</b>
1. Quality of our products/services is high							
2. Reliability of our products/services is high							
3. We deliver our products/services on time to customers							
<b>B. Inventory Management Performance</b>							
4. Purchase material turnover is high in our firm							
5. Total inventory turnover is high in our firm							
<b>C. Employee Performance</b>							
6. Our employees' organizational commitment is high							
7. Our employees' job performance is high							
8. Our employees' absenteeism is low							
9. Our employees' morale is high							
10. Our employees' turnover rate is low							
<b>D. Innovation Performance</b>							
11. The number of successful new product/service introductions of our firm is high							
12. The use of latest technological innovations in our new product is high							
13. The technological competitiveness of our firm is high							
14. The speed of new							

product development of our firm is high							
15. The number of our new products that are first-to-market is high							
<b>E. Social Responsibility</b>							
16. Protection of environment in our firm has developed							
17. Noise levels caused by our firm have decreased							
18. Pollution levels caused by our firm have decreased							
19. Our firm has a positive impact on society							
20. Our firm is actively involved in the community							
<b>F. Customer Results</b>							
21. Customer satisfaction has improved							
22. Customer retention has improved							
23. Customer complaints have decreased							
<b>G. Market and Financial Performance</b>							
<b>Question</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Somewhat disagree</b>	<b>Normal</b>	<b>Somewhat agree</b>	<b>Agree</b>	<b>Strongly agree</b>
24. Return on assets of our firm has increased							
25. Market share of our firm has improved							
26. Profits of our firm have grown							
27. Sales of our firm have grown							

## **RESUME**

### **EDUCATION:**

- BA in Business Administration from Basra University, 2015-2016

### **WORK EXPERIENCE:**

- Retail Store Manager.

**PUBLICATIONS/PRESENTATIONS ON THE THESIS:** Not Available

**LIST OF PUBLICATIONS AND PATENTS:** Not Available

