

**Organizational Innovation and It's Impact on the Performance in Industrial  
Firms**

الابتكار التنظيمي وأثره على أداء الشركات الصناعية

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## Delegation

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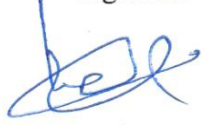


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## Examination Committee Decision

This thesis "Organizational Innovation and its Impact on the Performance in Industrial Firms" was defined successfully on the 2013 and certified on the 2013

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Last, but not least, I extend thanks and appreciation to everyone who helped directly and indirectly to get this work done.

Thank you

## Dedication

I dedicate my dissertation work to my family and many friends. A special feeling of gratitude to my loving parents, whose words of encouragement and push for tenacity ring in my ears. My husband Eng. Jamal Jallab, who has never left my side and is very special. I also dedicate this dissertation to my sons; Majdoleen ,Ahmad, Nana, Abd al Rhman. My friends, whom have supported me throughout the process. I will always appreciate all they have done.

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## Abstract

Organizational Innovation and its Impact on the Performance in Industrial Firms

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The innovation is widely used as one of the most important resources of competitive advantage in the changing environment. It leads to products and process improvements which help companies to survive, grow and continue, and be more efficient and profitable.

The purpose of the study is to investigate the impact of organizational innovation on firms' performance. The organizational innovation has been measured by technological, marketing, and administrative innovation. The study model was developed, and nine hypotheses were proposed. The data of this study have been collected through 55 firms operating in Jordanian industrial sectors listed in Amman Stock Exchange. Two hundred twenty five (225) questionnaires have been distributed to the study sample. The target respondents have been divided to top and middle managers. 169 valid responses were returned for the study analysis. The linear and stepwise regression analysis were used to fulfill the study objectives. The findings have indicated that there is a moderate level of adoption of organizational innovation within selected firms and there was statistically significant impact of organizational innovation on firm's performance as below:

The "Technological and Marketing innovation" has statistically significant impact on financial performance.

The "Technological, Marketing and administrative innovation" has statistically significant impact on customer performance.

The "Technological innovation" has statistically significant impact on internal process performance.

The "Technological and administrative innovation" has statistically significant impact on learning and growth performance.

Additionally, the findings have indicated that there are significant differences between means of organizational innovation and firms' performance adopted by industrial firms due to industrial sectors.

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Also the findings indicated that there were significant differences between means of organizational innovation adopted by industrial firms due to firm size, while there were no significant differences between means of firm's performance adopted by industrial firms due to to firm size.

According to the study findings, the following recommendations are presented to help the firms enhance the organizational innovation :

Industrial firms should be more careful about providing enough resources in order to transform new ideas in new products.

Assigning sufficient budget for research and development.

Adoption of active promotion method.

Making a better use of technologies such as the internet and cloud computing services.

Organic structure should be used with more flexibility.

Firms should care about increasing employee satisfaction.

## الملخص باللغة العربية

### الابتكار التنظيمي وأثره على أداء الشركات الصناعية

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تعيش المجتمعات طفرة استهلاكية وتكنولوجية في كافة المجالات مما يتطلب من الشركات الصناعية متابعة احتياجات ورغبات المستهلكين المتزايدة والمتغيرة، مما ادخل الشركات في حالة تنافسية وفرض عليها تبني الابتكار على نطاق واسع باعتباره واحداً من أهم المصادر التي تؤدي إلى تحسين المنتجات والعملية التي تساعد الشركات على البقاء والنمو والاستمرار، مما يساعد الشركات أيضاً على تحقيق الكفاءة الإنتاجية وزيادة في الربحية.

تهدف هذه الدراسة إلى قياس مستوى تبني الشركات الصناعية الأردنية المدرجة في بورصة عمان للابتكار التنظيمي و أثره على أداءها، حيث تم قياس الابتكار التنظيمي بواسطة ثلاثة متغيرات رئيسية ( الابتكار التكنولوجي و الابتكار التسويقي و الابتكار الإداري ). وقد تم بناء نموذج الدراسة بالاعتماد على الدراسات السابقة ، حيث تم اشتقاق تسع فرضيات. لقد جُمعت البيانات لغايات الدراسة من خلال ٥٥ شركة تعمل في القطاعات الصناعية الأردنية المختلفة المدرجة في بورصة عمان. حيث تم توزيع الاستبانات على العينة المستهدفة المكونة من المديرين في الإدارة العليا والوسطى للشركات، حيث تم توزيع 2٢٥ استبانة ، و قد كان عدد الاستبانات الصالحة للتحليل ١٦٩ استبانة. تم استخدام تحليل الانحدار الخطي والتدرجي لاستخلاص النتائج والتحقق من فرضيات الدراسة. دلت النتائج أن مستوى الابتكار التنظيمي داخل الشركات المختارة ما بين المستوى المتوسط و المستوى المرتفع ، وان هنالك أثر ذو دلالة إحصائية للابتكار التنظيمي على أداء الشركات. ووجود أثر ذو دلالة معنوية لكل من (الابتكار التكنولوجي والابتكار التسويقي) على الأداء المالي، ووجود أثر ذو دلالة معنوية لكل من (الابتكار التكنولوجي والابتكار التسويقي والابتكار الإداري) على أداء العملاء. ووجود أثر ذو دلالة معنوية للابتكار التكنولوجي فقط على أداء العمليات الداخلية، ووجود أثر ذو دلالة معنوية لكل من (الابتكار التكنولوجي و الابتكار الإداري) على أداء التعلم والنمو، كما أظهرت النتائج وجود فروق ذات دلالة إحصائية في الابتكار التنظيمي و فروق ذات دلالة إحصائية في أداء الشركات يعزى للمتغير(قطاع الشركة). في حين أظهرت النتائج وجود فروق ذات دلالة إحصائية في الابتكار التنظيمي يعزى للمتغير (حجم شركة)، ولم يكن هناك فروق ذات دلالة إحصائية في أداء الشركات الصناعية تعزى للمتغير(حجم الشركة).

وقد خلصت الدراسة الى جملة من التوصيات لتعزيز الابتكار التنظيمي في الشركات الصناعية الأردنية، من أهمها :

ضرورة إهتمام الإدارة العليا بتوفير ما يكفي من الموارد من أجل تحويل الأفكار الجديدة الى منتجات جديدة.

تخصيص ميزانية كافية للبحث والتطوير.

زيادة الاستفادة من شبكة الانترنت و التكنولوجيا الحديثة لعمليات الترويج والتسويق .

تبني هياكل تنظيمية عضوية مرنة.

زيادة الاهتمام بنظام إدارة الموارد البشرية لتحقيق مستوى أعلى من رضا الموظفين وتحسين كفاءتهم وقدراتهم الإنتاجية وذلك من خلال الحوافز والمكافآت والتدريب والتاهيل.

## Chapter One : Introduction

### Introduction:

Innovation is an organized activity, and integrated between individual innovation depending on an individual's ability to innovate in their respective fields, and group innovation, which is built on innovative teams, in addition to innovative corporate culture, that commands in all company activities to support the leadership adopts a strategy that seeks to achieve innovation, in order to reach what is completely new (radical innovation) or partial (incremental innovation or improvement).

Innovation is one of the main requirements in modern management. It is no longer acceptable, and it is not enough that the companies work in traditional methods, because it may lead to failure. So companies that ensure continued success does not stop at minimum efficiency and effectiveness, but beyond that the companies have to be innovation and change its characteristics. Thus, innovation in its general function can be engaged and reflected in the form of products, services, production methods , new working methods, and new ways of marketing to achieve high levels of customer satisfaction through satisfying their needs and satisfying their desires.

Jordan looks forward through its leading institutions ( the Higher Council for science and technology) to set up joint ventures, which gets to support the initiatives and strategies for research, technological development, and creativity in industry and business cooperation, and partnership with the European Union, because of what distinguishes Jordan is qualified human resources that allow it to make the output of innovation at the heart of economic development and increase its frequency.

Leading industrial companies play an important role in economic development based on the strengths of human capital. The Jordanian industrial sector contributes about a quarter of GDP, plus links to many other economic sectors, and absorbs part of the Jordanian labor force, and provides training and opportunities, recognizing the employment involved in it about (15%) Of the total workforce ([www.jci.org.jo](http://www.jci.org.jo)). Making it constantly aims for innovation as the key to development and improving performance in a world of rapid changes in various areas, due to the nature of the innovation gives the company competitiveness

### Research Problem :

The Jordanian industrial sector is restricted, and every company is attempting to extend its market share, that creates more competition pressure. The globalization of markets has played a significant role in increasing competitive pressure.

View of the fact of the situation within the industrial sector and according to researchers (Abbas, 2005), there's a gap between current reality of firm's performance and desired performance. On other hand, these firms are facing difficulties in adding value to their products as a result; Jordanian industrial firms are losing out the opportunities emerging from evolution of customers' need ,which consequently created a gap wide open ( [www.jci.org.jo](http://www.jci.org.jo)).

The aim of this study is to investigate the impact of the organizational innovation on firm's performance of industrial companies. This study aims at answering the following questions:

What is the level of organizational innovation in Jordanian industrial firms?

What is the level of performance in Jordanian industrial firms?

Does organizational innovation have a significant impact on the firm's performance of Jordanian industrial firms?

Does organizational innovation have a significant impact on the financial performance of Jordanian industrial firms?

Does organizational innovation have a significant impact on the Customer performance of Jordanian industrial firms?

Does organizational innovation have a significant impact on the Internal Processes performance of Jordanian industrial firms?

Does organizational innovation have a significant impact on the Learning and Growth performance of Jordanian industrial firms?

Is there a significant difference of organizational innovation related to the moderating variables in Jordanian industrial firms?

Is there a significant difference of performance related to the moderating variables in Jordanian industrial firms?

### **Research Importance :**

The importance of this study appears of the following points:

This study will be conducted and applied to the Jordanian industrial firms as one of the main economic sectors in Jordan.

The study will consider organizational innovation as important driver of competitive success for the firm's survival and growth.

The study will also test the impact of organizational innovation on firm's performance from balance scored card perspectives



## **Hypotheses :**

The hypotheses related to the important factors that determine the organizational innovation and its impact on firm's performance will be presented in this section .

### **The Main Primary Hypotheses:**

**H<sub>01</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no impact on firm performance (Financial, Internal Processes, Customer, Learning and Growth,) of industrial companies at significance level ( $\alpha = 0.05$ ).

### **The Sub-Hypotheses:**

**H<sub>01.1</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no impact on financial performance at significance level ( $\alpha = 0.05$ )

**H<sub>01.2</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no impact on Customer performance at significance level ( $\alpha = 0.05$ )

**H<sub>01.3</sub>:** Organizational Innovation (Technological innovation, Marketing innovation, Administrative innovation) has no impact on Internal Processes performance at significance level ( $\alpha = 0.05$ )

**H<sub>01.4</sub>:** Organizational Innovation (Technological innovation, Marketing innovation, Administrative innovation) has no impact on Learning and Growth performance at significance level ( $\alpha = 0.05$ ).

### **The Second Primary Hypotheses:**

**H<sub>02</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to the Moderating variables (Firm size and Industrial sectors).

**H<sub>03</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to the Moderating variables (Firm size and Industrial sectors).

**H<sub>04</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to the demographics variables (position, gender, age, education level, experience duration).

**H<sub>05</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to the demographic variables (position, gender, age, education level, experience duration).

## The Study Model :

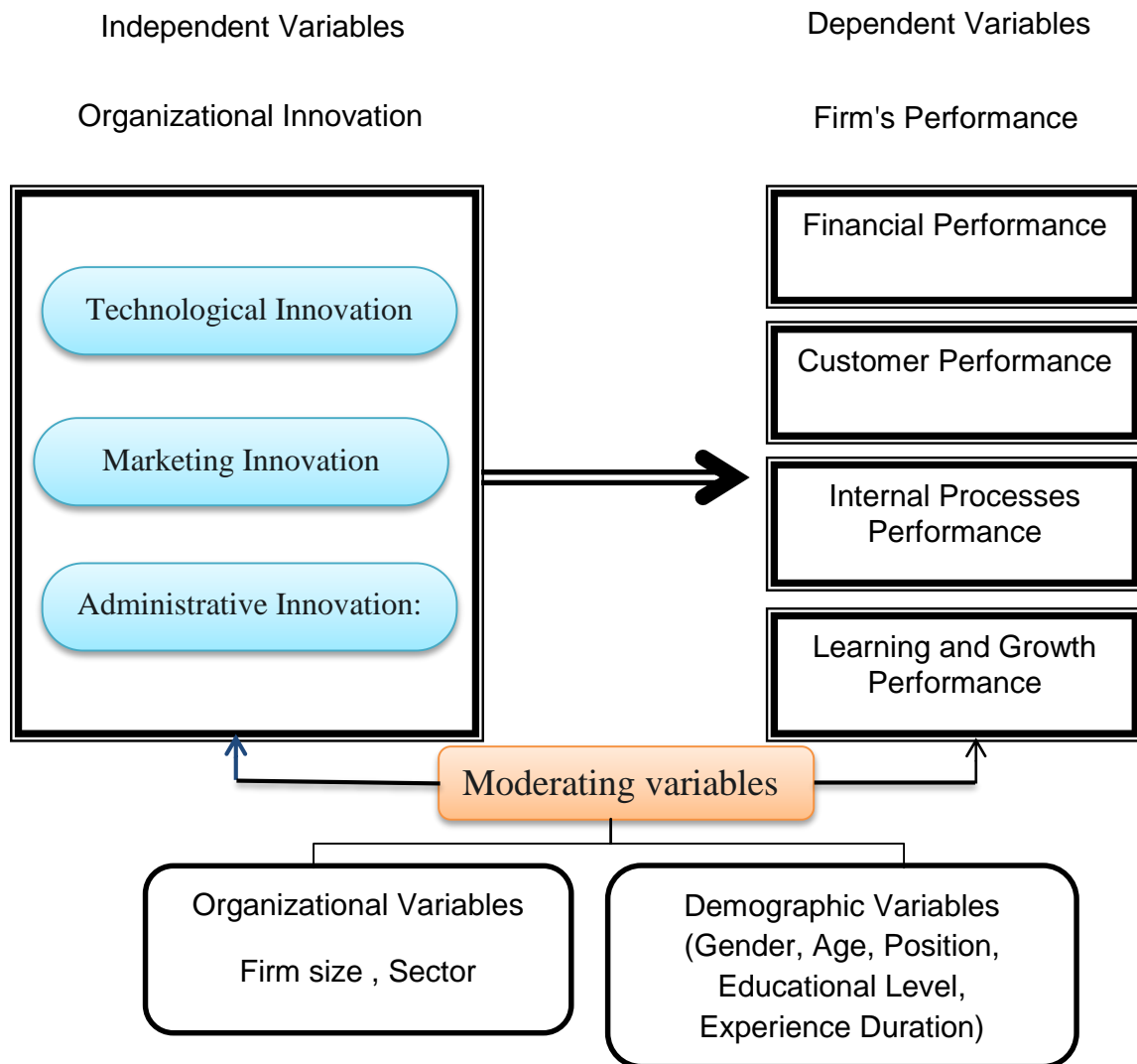


Fig1.1 the Study Model.

Study model: prepared by the researcher based on a series of studies and perhaps the most important: ( Salim & Sulaiman , 2011) , ( Gurhan, et al. , 2011), ( Maldonado, et al.,2012)

Figure 1.1 shows the study model which includes two main variables that represent the first (independent variable) in organizational innovation represented by (technological innovation, marketing innovation, Administrative innovation) and the dependent variable represents the firm's performance that adopted the Balanced Scorecard which represented by (financial performance, customer performance, Internal Processes performance, Learning and Growth performance).

## **Operational Definitions :**

To test the proposed research hypotheses, multi-item scales adopted from previous studies were used for every dimension of the dependent and independent variables. They are operationalized as follows:

### **Independent Variables**

Organizational innovation refers to the creation or adoption of an idea, or a new behavior of the organization changes or improvement a product or process, or service and the implementation method of a new organizational business practices, or implementation of new ways of marketing and organizing the workplace or foreign relations, which are created by the administration to adopt innovation strategies to achieve competitive advantage.

In order to measure innovation, this study adopts three dimensions: technological innovation, marketing innovation, administrative innovation. which are clarified as following :

Technological Innovation: the degree of the Changes (or improvements) new technological innovations embodied within the goods (products or services) innovation or process innovations

Marketing Innovation: the degree of the enhancing components of the marketing mix, represented by product, price, place, and promotion. Therefore, any act of distinctive and unique in the field of marketing makes the organization different from others in the market is a marketing innovation.

Administrative Innovation: the degree of the changes that occur in the organizational structure, organizational culture, and strategy.

### **Dependent Variable.**

Firm's performance will be measured in this study by using Balanced Scorecard as a tool to measure the performance of the firm, focusing on performance measures derived from the vision and strategy of the firm, so there are four perspectives underlying Balanced Scorecard, namely:

Financial Performance Perspective: Scale summarized the financial results of economic measures taken, and measured the extent of the implementation of the corporate strategy and achieve financial goals through indicators of profitability (reflect the usage of materials, labor and money and natural resources), and return on investment (by increasing profits, sales growth, and cost reduction) in the Jordanian industrial firms.

Internal Processes performance Perspective: A scale for the internal processes to measure the extent of outperform the operation of the industrial firms through the following indicators (machines stopped , time of production, the quality of the product , and the rate of run machines).

Customer Performance Perspective: specific customer scale measured the extent to which company's customer satisfaction through indicators of market share, retain customers, and acquire new customers.

Learning and Growth Performance Perspective: a scale to determine the infrastructure that industrial firms must train and continually improve. It can be measured through indicators ( knowledge transfer, staff satisfaction, and information systems used).

### **Organization of the Thesis :**

This thesis includes five chapters, references, and appendix, and they organized as following:

**Chapter One:** Includes the introduction in which an overview in terms of research problem, Research importance.

**Chapter Two:** presents the literature review in which is a comprehensive description of prior and latest studies.

**Chapter Three:** describes the methodology in which the research theoretical framework and hypotheses are explaining the independent and dependent variables and how data will be gathered, measured, and clarified , also the limitation of the study will be included.

**Chapter Four:** Includes the data analysis.

**Chapter Five:** Shows the discussion conclusions and suggests recommendations and specifies future research.

## Chapter Two : Literature Review and Previous Studies

### Literature Review :

#### Definition of innovation.

One of the main difficulties in innovation is that there is not a single definition agreed upon between researchers. The dictionary definition of innovation “something new (a new method, idea, product, etc.) that has been introduced” but this does not help to understand the nature of innovation sufficiently.

Concept of innovation started in 1934 and was based on Schumpeter's studies (Schumpeter, 1934), who emphasized significant role of innovation in economic development stimulate economic growth and create a business in the industrial and service sectors, and improving the social welfare ( Piroozfar, et al.,2012).

The term ‘innovation’ is usually confused with the term ‘creativity’. Creativity is defined in the dictionary, as “the ability to make or produce new things, especially using skill or imagination”, (The Oxford Dictionary, 2006, p.183). Where that Amabile stated that: "All innovation begins with creative ideas, innovation as the successful implementation of creative ideas within an organization." (Amabile, et al. 1996) Likewise Byrd and Brown confirmed that creativity is that the ability to develop new ideas whereas innovation is act of introducing something new, resulting in introduce new product and add important value to the organization. (Byrd & Brown, 2003, p12).

Research shows that innovation is associated with the ideas of creation, acceptance, including implementation of new ideas, processes, products and services (Salim & Sulaiman,2011 ) According to the report of department of trades and industry in UK (Dti) the innovation is defined as “the successful exploitation of new ideas” (Dti ,2003,p8), new ideas may be completely in the market, or include those ideas in production or operations or management and include the creation of new designs, concepts and ways of doing things.

The Organization for Economic Cooperation and Development (OECD) has defined the innovation in the different versions of the OECD Manual, in 1992, defined innovation as product and process innovation. A few years later OECD produced another version of the Manual which although kept the definitions of technological product and process innovations, and entered the organizational and the non-technological innovations. In 2005, OECD defined innovation as “the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations.”

Table 2.1: Definitions of Innovation According to the Literature Review

Author (s)	Definitions
Amabile et al., (1996)	“An innovation begins with creative ideas ,successful implementation of new programs, new product introductions, or new services depends on individuals or a team having good idea is a starting point for innovation”
Afuah, (1998, p369)	“Use of new knowledge ( technical or market ) to offer new products or services that customers wants”
Boer and During (2001)	Suggest that innovation is "the creation of a new product market-technology-organization combination (PMTO-combination)".
Linder et al. , (2003)	Innovation is defined as “implementing new ideas that create value”
Haddad et al. , (2004)	A new idea, a new practice or a new expression for an individual who has adopted
Fischer, ,p114, (2006)	Innovation refers to both the object and the process view where object view refers to a novel product or practice which is made available for application , with commercial success while process view refers to process of using , applying and transforming scientific and technical knowledge in the solution of practical problem .
Gunday, et al. ,( 2011)	“Developments and new applications for launching newness into economic area”

Table 2.1 is Prepared by the researcher with refer to study (Piroozfar, et al.,2012)

For the purposes of this study, innovation in the private sector has been defined as the generation and implementation of a new ideas and practices and converts them into products or services , processes, new marketing methods, or new organizational method that are new to the firm or make it better significantly.

## **Organizational Innovation:**

Organizational innovation becomes the main factor in the existence of the firm in a competitive environment where considered that the introduction of new products successfully are the lifeblood of most organizations (Tohidi and Jabbari, 2012).

While Afuah (1998) sort the organizational innovation into three categories: first is technological including product, services and processes; second is market including Product, Price, Place and Promotion and the third one is administrative organizational including Strategy, Structure, Systems, People

(Edquist et al., 2001, p15) Define organizational innovations as 'new ways to organize business activities such as production or R&D' and as innovations that 'have to do with the coordination of human resources'.

From an organizational viewpoint, "innovation was often clarified as the successful introduction of a new idea or procedure or model, combination, or synthesis of knowledge in original, relevant, valued new products, processes, or services" (Luecke and Katz, 2003).

Bernouti focuses on that Organization Innovation is produced by an organization and not a specific individual, it has become essential product of modern organization that need to continue to grow (Bernouti, 2004, p395).

(Schilling, 2011) confirmed that organizational innovation deals with the main business activities of the organization and changes the social system. Innovations include modified market operations of the organization, and systems to increase the efficiency or effectiveness of producing and delivering products or services to customers.

Whereas (Aboa, 2006, p 128) pointed to organizational innovation in that provide a new product in the form of a good or service or in the process of renewal of production or distribution of these goods or services.

Based on literatures, the organizational innovation is described in terms of its nature as a new product, service, production process, plan or program, structure or administrative system, the policy, which has been obtained or generated internally (Nicolás and Cerdán , 2011).

Innovation may take place in every aspect of the organization's operations, so organizational innovation can be classified according to function: management innovation, technological innovation, process innovation, product innovation and market innovation (Kasper and Muehlbacher, 2012) .

Literature presents different classifications of organizational innovation. Such as, Subramanian and Nilakanta (1996) sort the organizational innovation into two categories; the first is technological innovation, including product, services, and processes; and the second is administrative innovation, including organizational structure, administrative process, and programs.

According to OECD, organizational innovation is clarified as the implementation of a new organizational method in the firm's business practices, workplace organization or external relations. Organizational innovation has a trend to increase firm performance by reducing administrative and transaction costs, improving work-place satisfaction (and this will help in labor productivity), gaining access to non-tangibles assets (such as knowledge) or reducing costs of supplies (OECD Oslo Manual, 2005).

An organizational innovation is also including modifications in internal organizational structure and procedures that help the organizational to change and growth. These modifications could be caused by adoption of both radical and incremental innovations (Damanpour and Aravind, 2011).

Organizational innovations including supply chains and other external relations, business and workplace techniques like business process reengineering and new methods of decision making (Tsekouras et al, 2011).

For the purposes of this study, researcher defines organizational innovation within the private sector as the creation or adoption of associate internally created or a new behavior of the organization changes can be organized, manage & implementation associated with new organizational practices, improve a product or service and process or new ways in which of marketing, that they are supported by the administration in line with technological developments aimed at creating value based on renewable knowledge to the customer . And thus, it can be measured based on technological innovation, marketing innovation and administration innovation.

### **Technological Innovation :**

Based on literatures, Innovation is the process of converting technology to create products / process for marketable purposes in a competitive market

Schumpeter pointed that innovation consists of the development of new products, processes and/or markets (Schumpeter, 1934). Whereas Freeman (1982) said "Innovation is a set of technical, industrial and commercial operations". He pointed out that Industrial innovation includes the technical style , producing, management and commercial actions concerned within the marketing of a new or enhanced product or primary exploitation commercially new or enhanced process( Freeman,1982) .



Afuah, referring to technological innovation, is defining the element and therefore linking between the elements and processes, ways and techniques that enter into a product or service. ( Popadiu and Choo, 2006).

(Edquist et al., 2001, p14) pointed out technological process innovations are “units of real capital (material goods) which have been improved through technical change”.

According to OECD, “Technological innovations comprise new products and processes and significant technological changes of products and processes. An innovation has been implemented if it has been introduced on the market (product innovation)”. OECD Frascati Manual, 2005).

There have been several definitions in different literatures for innovation concept, stated as follows:

“Technological innovation encompasses product, service and process innovations. Product innovation indicates improvements or changes of a product features, a product function, modeling, material quality and packing. While Process innovation relates to operational processes of a firm, such as process reengineering, process reduction or combination, and innovative production.” (Lin and Chen, 2007,p132)

Technological innovations are directly related to the primary work activity of the organization and produce changes mainly in its operating systems (Damanpour and Aravind, 2011).

Technologic innovation, is the process of changing the new idea to the goods (product, service) or a new process.( Tohidi and Jabbari ,2012 ).

Technological innovation involves each the product innovation and process innovation these two aspects of innovation may be actively managed as totally different but correlated entities.

For the purposes of this study, researcher defines technological innovations, as Changes (or improvements) new technological innovations embodied within the goods (products or services) innovation or process innovations.

### **Product Innovation :**

A product innovation is the introduction of a good, service that's new or significantly improved concerning its characteristics or supposed uses, as well as important enhancements in technical specifications, parts and materials, incorporated software package, user friendliness or alternative functional characteristics (OECD oslo Manual, 2005).

identified product innovations embrace each material product innovations in producing and also the primary sectors and intangible services that are typically consumed at the same time to their production and satisfy non-physical wants of the users.

Damanpour and Aravind outlined Product innovations as new products or services introduced to fulfill an external user want, and process innovations are outlined as new components introduced into a firm's production or service operation to provide a product or render a service (Damanpour and Aravind, 2011).

Product innovation is introduction of a good service that's new or improved in characteristics like technical specifications, parts and material, user outcast or alternative purposeful specifications (Piroozfar, et al.,2012).

Product Innovation includes roaring exploitation of a replacement knowledge .And so it depends on tow conditions: Freshness and usefulness. Product innovation could be a process which has industrial style, management, research and development , production and economic activities associated with marketing or improved product.(Tohidi and Jabbari ,2012).

For the purposes of this study, Product Innovation identified whereas to provide products based on the tested technology, understood knowledge and environmentally friendly technology, through the allocation of sufficient budget to be spent on research and development .The quality of their products is higher than the quality of the products of its competitors .Taking advantage of the learning curve to reduce the time is needed to launch new products and work to reduce price.

### **Process innovation :**

In literature research, process innovation concerns with introducing new parts into associate organization's operations like input materials, task specifications, work and data flow mechanisms, and instrumentality accustomed turn out a product or render a service (Damanpour & Evan, 1984)

According to OECD, process innovation is that the implementation of a brand new or considerably improved production or delivery technique. This includes important changes in techniques, instrumentality and or package. Process innovations will be meant to decrease unit prices of production or delivery, to extend quality, or to supply or deliver new or considerably improved product (Piroozfar, et al.,2012) describes process innovation is implementation of new improved production or delivery strategies, like modifying techniques, equipment's and/or package. Process innovation encompasses a cost-cutting nature.

confirmed that process innovations together with the assembly associated with delivery technique and with also the use of an existing process during a new context.

For the purpose of this study, the researcher defined process innovation as the implementation of new production strategies or improved production processes. A rise in production, or service capabilities through the supply of the required resources to remodel new concepts into new product increase their ability to update the technology in their production method. Dispensing activities; that don't add worth in production processes, and improving production techniques response to technological changes, and make certain operational price reduction within the production processes.

### **Marketing Innovation :**

(Piroozfar, et al.,2012) confirmed that Market innovation includes implementation of latest promoting ways and creates changes in product style and packaging, distribution , promotion and pricing marketing innovation aims to meet customer needs better, and to increase market share.

Popadiuka and Choob ,(2006) suggest that technology and marketing innovation are the most two common dimensions definitions of innovation; technology dimension determines the extent to which the technology involved in a new product or somehow different from previous technologies, but the marketing dimension determines the extent to which the new product fulfills to customer needs better than existing ones. He also, declared that market innovation refers to the new knowledge embodied in distribution channels, product, and applications, still as customer expectations, preferences, needs, and wants.

OECD Oslo Manual specifies that marketing innovation concerns the implementation of a new marketing method relating to activities with the launching of a new product, important changes in packaging, product placement, product promotion or pricing. The main purpose is the enhancement of the elements of the marketing-mix which are well-known as product, price place, and promotion (OECD Oslo Manual, 2005).

Gunday et al.,( 2011, p663 ) pointed out marketing innovations targeted to meet the needs of customers better, and open new markets, or newly positioning the product for the company in the market in order to increase the company's sales. Marketing innovations strongly associated with the marketing mix embodied in pricing strategies, and the characteristics of the product package design, product placement and promotion.

Market innovations are concerned with ways to purchase and deliver services and revenue generation, and the produce of market pricing. While technological innovations associated with changes in physical equipment, techniques and operation process. (Walker et al., 2007).

Gupta and Amphora (2013) Innovation in marketing was studied as creativity in marketing required by firms to sustain their position, therefore satisfying customer's need with not solely novel products but additionally the way during which corporations communicate concerning products so as to tell, educate and excite them. Marketing innovations can refer to any marketing method (product design/ packaging, placement, pricing, promotion) as long as it is used for the first time by the firm.

Where Atalay et al.,(2013) pointed out that marketing innovation is the implementation of a new marketing method including significant changes in product design or packaging, product placement, product promotion or pricing. Marketing innovations are targeted at better addressing customer needs, opening up new markets.

For the purposes of this study, the researcher described that the marketing innovation focuses on the marketing activity concerned with enhancing components of the marketing mix, represented by product, price, place, and promotion. Therefore, any act of distinctive and unique in the field of marketing makes the organization different from others in the market is a marketing innovation.

### **Marketing innovation in product design :**

Henderson and Clark (1990) argue that the demand for building products two types of knowledge: knowledge of components of the product and knowledge of know the links between components. The product or service innovation must be new products or services designed to meet some of the needs of the market .

(Tushman and O'Reilly. 1997, p157) described that the architectural innovation that can be create new markets based on incremental improvement in the field of technology thus, product development, based on the knowledge about the components of the product and how it may be linked together is an important source of innovation that can be used to reshape the component lead to new products for new markets.

(Efi; V., 2009) pointed, that marketing innovations may include significant changes in product design. These changes refer to the form and the appearance of the product and they do not alter any functional or user characteristics. The goal of such marketing innovations is to give products a distinctive look and appeal to a new market segment.

Marketing innovation in product design may include: implementation of a significant change in the design of a product to give it a new look and widen its appeal, implementation of a fundamentally new design intended to give the product a distinctively exclusive look

For the purposes of this study, product innovation in terms of marketing is to make a change or improve the appearance outside of the product without changing its basic features and so by adding the benefits of new product continuously provide safety and security in their products, diversification in the introduction of new products on the market.

### **Marketing Innovation in Pricing :**

(Kotler, et all. 2005, P34) defined Price as the amount of money exchange for the service, product, or the values that customers exchange for the benefits of having or using the product or service Pricing is very important and essential part of marketing mix. The price of the product or service may portray it being a quality item or a desirable one pricing of the product is used to get competitive advantage in the competitive market.

Innovation in pricing involves the employment of recent pricing ways to promote the firm's product or services. Pricing innovation is also included: a new technique that permits customers to settle on desired product specifications on the firm's web site and so see the price for the desired product. New pricing ways whose sole purpose is to differentiate costs by customer segments don't seem to be considered innovations. (Efi, 2009).

### **Marketing Innovation in Placement :**

Place includes company activities that create the product on the market to focus on customers. (Kotler, et all., 2005, P 110).

Place within the marketing mix cares with distribution channels, market intermediaries and consumer service levels. It offers the insight to the approach and availability of product and service to the customers. New marketing methods in placement primarily involve the introduction of new sales channels. Sales channels here refer to the methods used to sell products and services to customers.

For the purposes of this study, marketing innovations in product placement would be considered as the time of delivery of the product, conception for product presentation, styles and the ways of obtaining products, products distribution outlets, and the commitment to deliver products accurately.

### **Marketing Innovation in Promotion :**

Promotion is all activities that relate to your product or service, which is focused on the target customers and persuade them to buy (Kotler, et al., 2005, P34) .

The marketing now a days depends on methods in product promotion using new concepts for promoting products or services, the innovation promotion may be used of a significantly different media or technique , or using of trademarks, and also new brand symbol help the firm's product intending a position on a market. (Efi, 2009).

For the purposes of this study, marketing innovation in promotion refers to new concepts for promoting a firm's goods and services by using diversity of promotional methods taking advantages of social networking and new technologies.

### **Administrative Innovation :**

Administrative innovations relate to innovations that concern to the organizational structure and administrative processes. It is often specifically associated with strategies, structure, policies, or people within the organization (Popadiuk and Choo, 2006).

Harem,(2004, P346 ) explained that most of the areas covered by the organizational innovation through his administrative innovation as includes changes in organizational structure, business design, and the organization's operations, policies and new strategies, and new control systems.

Birkinshaw, et al. (2008,P825) define management innovation as "the generation and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals".

(Damanpour and Aravindm, 2011) pointed out that the administrative innovations are new organizational structures, administrative systems, management practices, processes, and techniques that could create value for the organization. He clarified that the administrative innovations are indirectly related to the organization's primary work activity and affect mainly its management systems.

### **Innovation Culture :**

Dobni,(2008) pointed out that the culture of innovation has been defined as a multi-dimensional context includes the intent to be innovative and the infrastructure to support innovation, and attitudes the necessary operational level to influence the market value of the orientation, and the environment for the implementation of innovation.

Lapreze, (2002,P37) pointed out that organization culture is a system of communication skills and beliefs within an organization that determines how employees communicate and response. Where organizations with strong cultures used their recruitment efforts and socialization practices to build employee commitment and that are allied with high organizational performance.

Leskovar-Spacapan, & Bastic,( 2007, P537) define corporate culture as “a set of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration—that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems”.

Brettel et al.,( 2012) pointed out that the Organizational Culture is not unknown phenomenon and almost all managers are aware of the important effect of it.

Robbins and Judge, (2013) Organizational culture refers to a system of shared meaning that believed by members that distinguishes the organization from alternative organizations. During a strong culture, the organization’s core values are both intensely held and widely shared.

For the purposes of this study, Innovation culture refers to the creation of new technologies within the organization where puts strong emphasis on values and norms related to innovation by means of making innovation culture core competencies through Focusing on continuous learning and activation of sharing knowledge among their employees, via obtaining the suggestions that contribute to solving problems and encouraging workers to acquire renewable knowledge.

### **Organizational Structure :**

Organizational structure can play an important role in an organization’s success .There has been considerable work on the situational and psychological factors corroboratory of innovation in organizations.

A firm’s structure can impact its rate and probability of innovation. Some structures might foster creativeness and experimentation; others might enhance potency and coherence across the firm’s development activities Structural dimensions of the firm together with formalization, standardization, and centralization, which conjointly have an effect on the firm’s propensity to initiate its effectiveness at innovation. (Schilling, 2011)

Lee and Yang (2010) pointed out that the organizational structure may range between the mechanism of organic mechanization organizations that tend to be more organizational levels, high centralized, more formal rules, a narrower control, and greater reliance on vertical instruction in the field of communications.

In contrast, organic structures contain a smaller number of classes in the hierarchy, and greater decentralization, less formal rules, and the control group on a larger scale, and landscape mode of communication. They suggest important relations between organization structure and performance measurement.

Hao, et al.,( 2012 ) described that organizational structure is a way that firm management follow taking in consideration the responsibility, where the power is allocated, and job procedures are carried out among staff .

For the purposes of this study, Organization structure refers to the system of tasks, workflows, reporting relationships, and communication channels that link together diverse individuals and groups through Adopt organizational structures style of self-managed work teams; an organization structure characterized by a low degree of formalization and standardization.

### **Organizational strategy:**

Olson et al., (2005) pointed out that innovation involves formulating strategies that may efficiently deliver value as per the wants of the customers in an exceedingly manner that leaves the customer in an exceedingly happy state of mind.

Lin and Chen,( 2007, P132) described that :“Strategic innovation is concerned with organizational strategies which exert continuous competitive advantages for companies. The components of strategic innovation include alliances with competitors, alliances across industries, alliances with suppliers, outsourcing, and relocation of a firm’s core competence.”

While Neely et al.,(2001) found in their study that innovative companies had a strong culture, a clear sense of mission and purpose, a well thought-out strategy and business philosophy of continuous improvement.

Adams, et.al, (2006) clarified that innovation strategy is a regular sequence of internally consistent and conditional resource allocation decisions that are designed to fulfill an organization’s objectives. Activities should be according to a main organizational strategy that suggests that management should be aware of decisions concerning innovation goals.

For the purposes of this study, organizational strategy refers to Long-term plan based on depth understanding of the dynamics of innovation, well-crafted innovation strategy. A Well-designed processes for implementing the innovation strategy, anywhere a firm’s innovation strategy ought to align with its resources and objectives, leverage its core competencies and may facilitate the firm succeed its strategic intent through building strategic alliances to realize a balance between efficiency and flexibility at work.



## **Firm's Performance :**

Performance may be clarified as the final outcome result of the firm activities .Managers are worried about organizational performance, that refer to the accumulated end results of all the organization's efforts, action work, processes, and activities. (Lapreze, 2002, P 318)

The company is multi-dimensional. It conceives the overall overview for the company's performance that is not only a financial perspective, but in addition to others it is an observation value. With this focus is the development of some of the methodologies, and being familiar about the Balanced Scorecard (Kaplan & Norton, 1996).

Salim & Sulaiman, (2011) pointed that innovation is the important factor which affects the firm performance as a result of the regression of the economic environment. Innovation can enhance market share, more production efficiency, productivity growth, and improved profit.

According to Zahra, et.al (2000), innovation helps firms to get better variety of differentiated products that can improve financial performance.

Three dimensions will be used to value innovation contribution to corporate performance: financial performance, which encompasses market performance (profitability, growth and customer satisfaction); process performance, which refers to quality and efficiency; and internal performance, which relates to individual capabilities (employees' qualification, satisfaction and creativity). (Nicolás and Cerdán , 2011).

Chancy et al.,(1991) studied the relationship between innovation and performance using financial indices such as stock prices and earnings. They concluded that product innovation has a positive effect on performance. Cohen, and Levinthal,( 1989) have found similar results for process innovation.

Many researchers have found that improved technology reduces cost per unit and therefore improves performance. These findings suggest that organizational performance is related to organizational innovation. However, the relationship between each of the variables of organizational innovation and competitive strategy is little understood or examined.

OECD pointed out the effects of innovations on firm performance differs in a wide range from sales, market share and profit ability to productivity and efficiency, and OECD clarified that organizational innovation has an important effect on organization performance by improving the quality and efficiency of work (OECD Oslo Manual, 2005).

Atalay et al.,(2013) defined Firm performance as a multidimensional perception whose pointers can be referred to multi firm departments which they may be referred to production, finance, marketing or may be referred to firm growth and profit or return of investment ,which can be measured by objective or subjective pointers.

Tjader et al., (2013) The balanced scorecard (BSC) reflects a balance between short/long term purposes, financial and non-financial measures, and cover and chief pointers. It highlights concerning and line up multiple measures to strategic objectives. The BSC weighs an organization from four perspectives: financial, customer, internal process, and firm learning and growth.

For the purposes of this study, the researcher explores organizational innovations and their effects on firm performance by using balanced scorecard (BSC) approach as performance control tool where BSC is a performance measurement tool that cares of four areas : financial , customer , internal process, Learning and Growth , that give a share in to a firm's performance , ( Lapreze , 2002, p321)

#### **Financial performance :**

Jiang and Li ,( 2008 ) measured firm financial performance in terms of improvements in sales, profitability, return on asset ( ROA), and return on investment (ROI). Where (Salim & Sulaiman, 2011) measured firm financial performance in terms of market share, profitability, return on investment, and total sales growth. They found that there was a positive relationship between firm innovation and performance. While Gunday et al. (2011) found that innovation perform in manufacturing firms in turkey has a positive and significant effect and it improves firm performance specially in financial performance

#### **Customer Performance.**

Tjader et al., (2013) showed that customer's perspective covered: the quality, flexibility, reliability of response, delivery time, service quality, customer satisfaction, and complaints index.

#### **Internal Processes Performance.**

Tjader et al.,( 2013 ) clarified that the internal process performance can be measured by an improvement in core business processes, and increase operating efficiency by reducing routine maintenance and basic infrastructure is in the field of information technology, the company can apply the internal resources to meet changing business conditions, and speed up the restructuring, and improve response time.

For the purposes of this study internal process performance can be measured by achieving the following: an improvement in reducing the rate of stops machines, improvement in raising the efficiency of the use of specialized human resources, improvement in increasing operation time improvement in reducing the rate of unit cost productivity, and improvement in reducing the proportion of the cost of raw materials to the total costs.

### **Learning and Growth performance..**

Goedhuys, et al.,(2012) pointed that firm growth is seen as a learning process where firms discover their true efficiency levels. where Tjader et al.,( 2013 ) measured learning and growth by The competency of the firm's employees , the satisfaction level of employees based on salary or promotions of management expertise and other know-how to enable innovation and learning, and Technology research and development strength and success.

For the purposes of this study, Learning and Growth performance can be measured by achieving the following: good training and increasing the employees creative skills, motivating employees in order to continue to learn, working to promote networking between the branches and the center for the exchange of information efficiently, building knowledge base based on firm experience, and finally by increasing the level of employees satisfaction.

### **Organizational Variables :**

#### **Firm size.**

Pauwels et al.,(2004) pointed that more innovation expected in the industrial firms related to the larger firm size where Schilling, (2011) claimed that a firm's size will impact its rate and likelihood of innovation. Where Schumpeter, said that large firms would be more effective innovators, better able to obtain financing better able to spread costs of R&D over large volume.

For the purposes of this study, firm size measured as a capital of the firm.

#### **Industrial Sector.**

Laforet, (2012) pointed out that there are significant differences in the efforts and the types of innovations that exist between firms due to the difference between sizes and sectors and he clarified that the success of innovation can vary between firms with respect to the characteristics of the sector that lead to the creation of a successful return to the ability of firms in certain sectors to use a specific set of resources internal and external. Referring to Amman Stock Exchange the industrial firms categorized in eleven sectors according to the Nature of the work. As mentioned in appendix A.

## **Innovation in the private sector.**

Innovation in the private sector tends to focus on new product development (Borins, 2002).

Innovation has been considered to be a core factor for firm competitiveness. However, most research has concentrated on innovation in the manufacturing industry or for technologically advanced products (Tether ,2005).

Also Innovation in the private sector is driven to achieve competitive advantage and added value in terms of higher revenues (Bommert, 2010).

## **Previous Studies**

In this section, the researcher presented the important local and western studies concerning the innovation in private sector and its effect on organizational performance are identified.

### **Arabic Studies :**

Sarhan, (2005): "The Role of Marketing Innovation and Creativity in Achievement of Competitive Advantage of Jordanian Commercial Banks."

This study aimed to develop a model aiming to show the impressive role which marketing innovation and creativity might play in achieving the competition advantage and to show the role of marketing information to serve marketing innovation and creativity for Jordanian Commercial Banks.

The researcher used two questionnaires to gather data about the subject matters investigated in the study .The 1<sup>st</sup> questionnaire was distributed to the customers; the 2<sup>nd</sup> questionnaire was distributed to banks managers and other employees. The sample contained (16) Jordanian banks; 221 respondents to the 1<sup>st</sup> questionnaire and 227 respondents to the 2<sup>nd</sup> questionnaire.

The study found moderate significant statistical relationship between marketing innovation and creativity in banking services and product & creativity in prices & creativity in distribution.

Sarhan (2005), showed that the importance of carrying out continuous assessment for innovation of its services, products, prices, promotions, distributions and assuring the quality.

The importance to appoint team to develop new ideas. The importance of adopting the idea of creating a marketing intelligence to follow up new ideas.

Abbas, (2005):" Innovation and Organization Culture the Case of IT Companies in Jordan"

This study aimed to identify the innovation and organizational culture in the IT Companies in Jordan.

The researcher used two questionnaires to gather data about the subject matters investigated in the study .The first questionnaire was distributed to high and middle level managers to obtain the information related to innovation. The second questionnaire was aimed at identifying the organizational culture; it was administered to technical employees who engaged in software development activities. The sampled contained 48 companies; only 38 companies returned to the questionnaire.

The study found that positive significant relationships between innovation inputs and outputs, and innovation management and outputs. The study found no significant relationship between size and age of companies and their level of innovation, also there was a significant relationship between company's nationality and its level of innovation.

The study concluded that it is possible to increase innovation through the application of a series of initiatives behavioral, structural and cultural ties with the possibility that differs from one institution to another.

The researcher considered the result of this study as a reference to be compared with.

Jassim, (2011) : "The Impact of Core Competences in the Process of Product Innovation and Operations( an Empirical Study in the Company for the Tire Industry in Babel)".

The study aimed to explore the impact of core competencies which is presenting as one of the knowledge network elements, and its role in the Development of process of innovation of new products.

Population of the research is the Public General Company for Tires industry - Babble, a simple random sample of (75) respondents were taken to be analyzed. As result of hypothesis testing, analyzing, and discussing of the results.

The study found that there is positive relationship between Core Competencies and Innovation of new products and Processes; there is an impact of core competences on Technological strategy of such organizations. The study also found that core competencies had the most impact on the Innovation of new products, then Market eventually continuous improvement of products and processes.

Jassim study, (2011) showed that Increase the level of cooperation and coordination between the service Organizations and the Universities as well as the specialized scientific centers in the field of research and development. He recommended making continually enhancing the data bases in order to meet the requirements of different uses and tasks.

Al-Kesbeh, (2012): "Factors affect innovation in public sector: Evidence from Jordan"

This study aims to diagnose all factors that may influence innovation in the public sector, and to explain why some entities have a greater capacity to innovate than the other. It also introduces some types of innovation, and addresses their effect on organization performance.

The study population was (67) public sector entities in Jordan, this study examines the relationship between innovation and seven of its potential factors: leadership, strategic planning, organization culture, human resources, partnership, other resources, systems, structures and processes and examines the effect of innovation on performance measured by customer, employee, process and financial performance. The researcher built the structural model.

The study found that there was a positive and significant relationship between innovation and human resources, partnership, systems, structures and processes. Also the innovation affects customer, process and financial performance of organization. Furthermore the results show that the level of Jordanian public entities is very good in applying innovation factor and indicate to the tendency of these entities towards applying innovation.

### **Foreign Studies :**

Yamin, et al. (1997): "A Study of Competitive Strategy, Organizational Innovation and Organizational Performance among Australian Manufacturing"

This study aimed to recognize the nature of competitive strategy organizational innovation and organizational performance, and explored the relationships among organizational performance; organizational innovation and competitive strategy in these companies. The researcher used the questionnaire as an empirical testing model and data collecting method. The questionnaire was sent to 39 selected Australian manufacturing companies, and 22 responses were received,

The study showed that cost leadership, administrative innovation and process innovation are more closely related to organizational performance than other constructs ,and the findings suggest that organizational innovation has as much an impact on organizational performance as does cost leadership or competitive strategy.

Yamin, et al study, (1997) showed the nature of competitive strategy, organizational innovation and organizational performance in the Australian manufacturing industry. He suggest that there is a strong relationship between cost leadership, administrative innovation, process innovation and performance, also this study showed that administrative innovation is strongly related to both product and process innovation which suggest an important role for senior management in innovation.

Li and Atuahene-Gima, (2001): "Product Innovation Strategy and the Performance of New Technology Ventures (NTV) in China".

The purpose of this study was to investigate the effect of product innovation strategy on performance of new technology ventures in China.

The study population was 500 firms in the Beijing Experimental Zone then 300 NTVs selected as a sample, the study collected the data through questionnaire, 202 respondents.

The study found that product innovation strategy has a positive relationship with NTV performance, the results suggest that institutional support and environmental turbulence enhance the effectiveness of NTVs' product innovation strategy , also the results show NTVs are more likely to be successful with product innovation strategy in turbulent environments.

The results suggest that relationship-based strategies do not improve the effectiveness of the NTV's product innovation strategy. Also the study suggests the need of the simultaneous consideration of environment and relationship-based strategy factors as moderators.

The study indicates that the strategic alliances for product development appear to hamper the positive effect of product innovation strategy on the NTV's performance.

Leskovar-Spacapan, and Bastic, 2007: (Differences in Organizations' Innovation Capability in Transition Economy: Internal Aspect of the Organizations' Strategic Orientation"

This study aimed to find out whether strategic orientation of Slovenian companies is supported by important internal capabilities which enable them to achieve innovation success and sustained competitive advantage.

The study used a mail survey to obtained information pointed at 1000 randomly selected Slovenian manufacturing organizations, 254 questionnaires were returned from top managers.

In this study the organizational innovation capability was measured by innovation intensity (products, process, organizational and marketing innovations) and by innovation advantage (the extent of the advantages achieved by the company's innovations: financial and market advantage)

The results show that innovations in companies with innovation strategic-orientation helped these companies to gain some advantage over competitors by entering new markets and by increasing return on investment.

The study found that the differences in innovation capability and sustained competitive advantage are caused by differences in internal organizational capabilities represented in our research by innovation culture, entrepreneurship and market orientation.

Salim and Sulaiman,(2011):"Organizational Learning, Innovation and Performance"

This study aimed to explore the effect of organizational learning on innovation also the impact of innovation on company performance. Data was collected by electronic questionnaire from 320 small and medium enterprises operating in the ICT industry in Malaysia. The study administered 200 survey questionnaires. 102 valid responses were returned.

The study results indicate that commitment to learning has the greatest impact on technological innovation among the remaining types of innovation. And the statistical results show all variables of organizational learning (Commitment to learning, Shared vision, Open mindedness, and Intra-organizational Knowledge sharing) are significant to the administration innovation, so the most important of which is commitment to learning.

The study approves the positive relationship between firm innovation capability and its performance, which found that innovation is positively related to firm performance as well as the study showed that technological (product and process) innovation and market innovation are two critical factors on both financial and market performance.

Salim and Sulaiman, (2011) suggested that understanding the relationship between performance and innovation may help firms develop better competitive strategies.

Gunday et al., (2011): "Effects of Innovation Types on Firm Performance".

The purpose of this study was to explore the effects of the organizational, process, product and marketing innovations on the different aspects of firm performance, including innovative, production, market and financial performances in Turkey Manufacturing firms.



The data for this study was collected through a questionnaire distributed to the study sample. The target respondents were top and middle managers, where the sample consisting of 184 firms of manufacturing firms drawn from six main manufacturing sectors within Turkey is representative of the population according to sectors and firm size.

The results found the positive and significant impact of innovations on firm performance in manufacturing industries and improve firm performance in production, market and finance.

Gunday et al., study (2011) suggest that managers need to pay more attention to organizational innovations.

López-Nicol Carolina , (2011): "Strategic knowledge management, innovation and performance".

This study aimed to find out the consequences of knowledge management (KM) strategies on firm's innovation and corporate performance. The data for this study was collected through a/989 structured questionnaire, which were distributed to 317 Spanish organizations were 310 valid responses obtained from different industries (response rate nears 80%).

Results showed that both KM strategies (codification and personalization) impacts on innovation and organizational performance directly and indirectly. López-Nicol Carolina et al., (2011) suggested that the study may help academics and managers in designing KM strategic programs in order to achieve higher innovation, effectiveness, efficiency and profitability.

Verdu, et al., (2012):" The Moderating Effect of Environmental Uncertainty on the Relationship between Real Options and Technological Innovation in High-Tech Firms"

The aim of this study is to analyze the extent to which perception director of real options (it is an approach to enhancing strategic flexibility in the firm) in his organization will have positive consequences for technological innovation, the uncertainty environmental variable of moderation.

The data for this study was collected through a questionnaire distributed to high technology sectors within the European Union (EU). 204 useful questionnaires were received, representing a 10.42% response rate.

The theory of real options, in which the option is a real asset, is derived from theories originally developed in finance to account for the value of financial options contracts (Black and Scholes, 1973).

The results from the hierarchical regression analysis found that greater use of real options reasoning means greater product/process technological innovation in firms. Also the relationship between strategic real options and product/ process technological innovation is moderated by environmental uncertainty

Environmental instability increases positively on the relationship between real options operative and product / process of technological innovation.

This study suggests that this model could be used to develop a systematic but qualitative options evaluation instrument that could still play an important role in developing – or even precede – a future quantitative analysis.

Maldonado, et al., (2012): "Managing Innovation in Small High-technology Firms: A Case Study in Brazil"

The purpose of this study was to implement an innovation management system to help high technology firms to understand their strength and weakness in order to establish action plan to achieve higher performance.

This study was undertaken within a small digital communication solution manufacturer in Brazil, which was identified by the authors as benchmark in innovation practices, confirmed by several awards the firm received from national science and technology agencies. The firm went through the diagnosing, benchmarking, action plan proposal, and then implementation phase.

The results have corroborated the firm's positive operation outcomes. It supported the fact that innovation management measurement has proven to be an effective initiative for improving firm performance.

Maldonado, et al., (2012) suggested that the need for companies to focus on innovation and to design, implement and manage innovation activates as a core competency inside the firm. The necessity for a process of organizational change enhances significantly the performance of such initiatives.

Hao, et al.,( 2012 ) : " How does organizational structure influence performance through learning and innovation in Austria and China".

The aim of this study was to investigate the relationship between organizational structure and performance, especially through organizational learning and innovation, based on evidence from Austria and China.

The data for this study was collected through questionnaire and sample of about 90 Austrian and 71 Chinese samples. Partial least squares were used in the analysis and the results are tested by bootstrap methods.

The findings support the important infrastructure position of organizational structure on performance. First, organizational structure has more effects on organizational learning than on innovation; organizational learning has an indirect effect on performance through innovation, except the direct effect of structure on performance. Second, both managerial and technical innovation influence performance. Third, in a hi-technology or knowledge intensive industry, organizational structures affect organizational performance mainly through innovation and organizational learning. But in traditional industry, such as labor- or capital-intensive industry, organizational structure impacts organizational performance mainly through innovation. Fourth, for younger firms, learning is important in the relationship of organizational structure with performance, but in older firms, innovation is the mediator for structure on performance.

The study showed that innovation was a more important mediating variable in the influence of organizational structure on performance. Innovation needs to be encouraged at the strategy level instead of at the implication level.

Grisseemann, et al., (2013): "Enhancing business performance of hotels: The role of innovation and customer orientation"

The aim of this study was to explore the relationship between innovation, customer orientation, and business performance pointers in Alpine hotels.

The data from hotels in the Alpine tourism industry for this study was collected through questionnaire and sample of about of 2608 questionnaires we sent out, 205 were returned, yielding a response rate of 7.9% . Two models were proposed and tested in the framework of Alpine hotels.

The findings indicate that the direct effect of customer orientation on financial success is comparable to the effect of innovation on financial success. Also the result found that both customer orientation and Innovativeness influences a hotel's innovation behavior. Financial performance and retention are influenced by the hotel's innovation behavior the study also pointed that strategies focusing on customers' needs significantly and positively influence hotels' innovation behavior.

There is indication that customer orientation and innovation are beneficial for hotels' business performance.

Atalay et al., (2013): " The Relationship between Innovation and Firm Performance: An empirical evidence from Turkish automotive supplier industry."

The purpose of this study was to examine the relationships between innovation (product and process and marketing) and firm performance in the Turkish automotive supplier industry.

The study population was 240 automotive supplier firms located in Konya, 113 valid questionnaires were obtained for the analysis.

The result pointed that only product and process innovation positively and significantly affects firm performance. The insignificant effect of marketing innovation on firm performance may be due to the fact that marketing innovation is not well recognized by these firms. The insignificance of organizational innovation on firm performance can similarly be explained with the fact that most of the firms in the sample were family owned. The study found that firms need to enter the market early or to introduce new products with high levels of novelty in order to derive more sales from innovations.

### **Comparison with Previous Studies :**

What characterizes this study from previous studies is as follows:

In terms of dimensions and variables that have been focusing on the organizational innovation and its impact on the performance of industrial companies where the researcher used the Balanced Scorecard for the purpose of measuring the performance in strategic and comprehensive perspective where the Balanced Scorecard is working on measuring performance through the movement of the balance between the four dimensions.

Previous studies addressed organizational innovation from one or more dimensions, while the current study included all the dimensions of organizational innovation (according to previous studies); which are they (technological innovation, marketing innovation, administrative innovation) and that have not been applied to the Jordanian environment before.

The study will be applied on the Jordanian industrial sector because of its importance in the national economy in terms of organizational innovation, and it will be tested its impact on the Jordanian industrial companies, while most previous studies had been done in foreign or Arab communities.

For more detail of previous studies see Appendix A4.

## Chapter Three : Methodology

In order to achieve research purposes the following methodology is presented in the following flowchart as in figure 3.1.

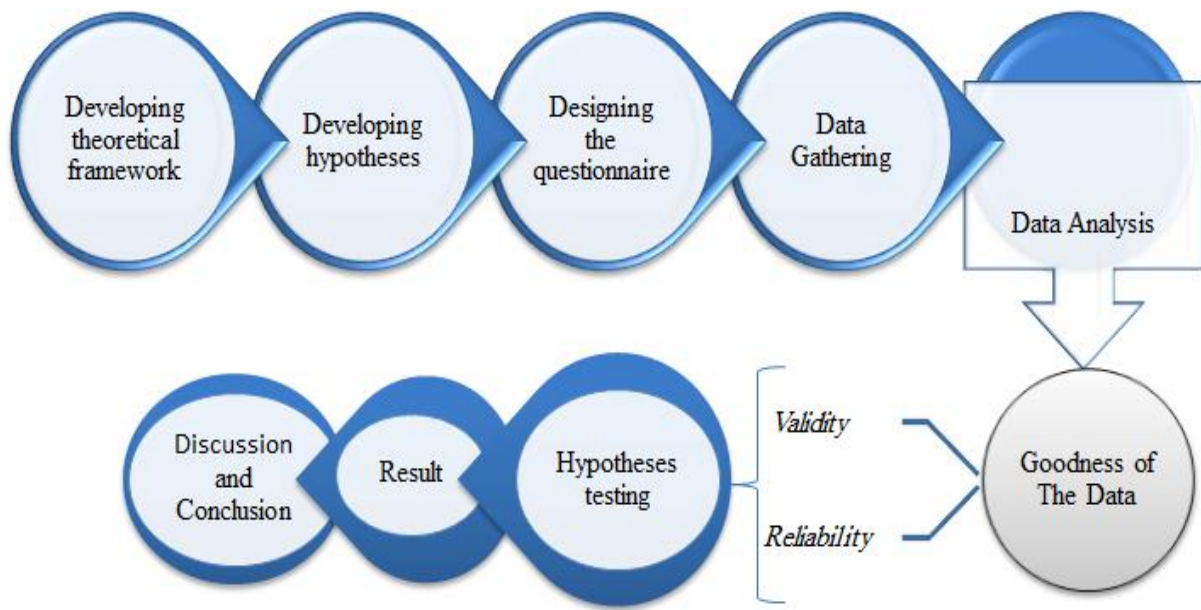


Figure 3.1: Methodology Flowchart

### Research Methodology :

The methodology includes the following topics : research setting , population, sample unit, data collection methods , data analysis method, Distribution, this research uses two scientific approaches, descriptive analysis to describe the characteristics of the variables , and to get general idea about the level of organizational innovation and firm's performance. The statistical analysis is used to test the research hypotheses .The validity and reliability of the study is also examined.

The independent and dependent variables of this study were operationalized through a questionnaires distributed personally. The population was the Jordanian industrial firms listed in Amman stock exchange as shown in appendix A1. In each questionnaire, the invitation to participate in this study identified the study purpose and assured the confidentiality of the participator's responses.

## **Research Background :**

This research is conducted through a questionnaire to study the effect of organizational innovation on firm's performance .A statistical analysis was conducted to test the hypotheses stated in chapter one of this study. The questionnaire was submitted to the population. And a reminder was sent. Then the responses were collected .The collected data was examined using SPSS v.19.0.

## **Research Population :**

For the purpose of this study, the population consisted of managers and heads of departments districts at 55 Jordanian industrial firms listed in Amman Stock Exchange .So the population size consist of 225 in total form (45) firms whom accepted to answer the questionnaire selected from 55 industrial firms. The study addresses the organizational innovation on its firm performance; the organizational innovation is of particular importance. Therefore, the top and the middle levels of management were the focus of primary data collecting through employing a questionnaire targeting the Jordanian industrial firms.

Jordanian industrial firms sector was chosen in this study because it is one of the main economic sectors in Jordan and organizational innovation is now one of important driver of competitive success for the firm's survival and growth.

The information on the variables collected in primary study carried by questionnaire. The questionnaire respondents were top and middle managers with titles of the deputy, assistant of Chief Executive Officer (CEO's), managers, and heads department.

The fieldwork was undertaken between March 2013 - May 2013 .The questionnaires were sent to all the industrial firms making up the population. A total of 179 questionnaire responses were obtained, where 169 were accepted to be analyzed.

## **Sampling unit :**

The used sample is Data were collected by questionnaire administered to the deputy, assistant of CEO's, managers, and heads department in the industrial firm. Includes (55) firms ranging from sub-industrial sectors as shown in table 3.1 .The total number of questionnaires was estimated at (225) questionnaires drawn from (45) out of 55 Jordanian industrial firm.

Table 3.1: Demonstrate the Industrial Sectors listed in Amman Stock Exchange.

<b>Industries Sector</b>	<b>No. of Companies</b>
Pharmaceutical and Medical Industries	6
Chemical Industries	8
Paper and Cardboard Industries	3
Printing and Packaging	2
Food and Beverages	8
Tobacco and Cigarettes	2
Mining and Extraction Industries	10
Engineering and Construction	7
Electrical Industries	4
Textiles, Leathers and Clothing's	3
Glass and Ceramic	2
<b>Total</b>	<b>55</b>

Source: Amman Stock Exchange Web site ([www.ase.com.jo](http://www.ase.com.jo)), 2013

### **Data Collection Methods.**

Data and information were collected through questionnaire which states the research context. About (225) questionnaires were distributed in these firms. However, (179) questionnaires were received from (45) industrial firms; where respondent rate about 79.6%, as shown in figure 3.2.

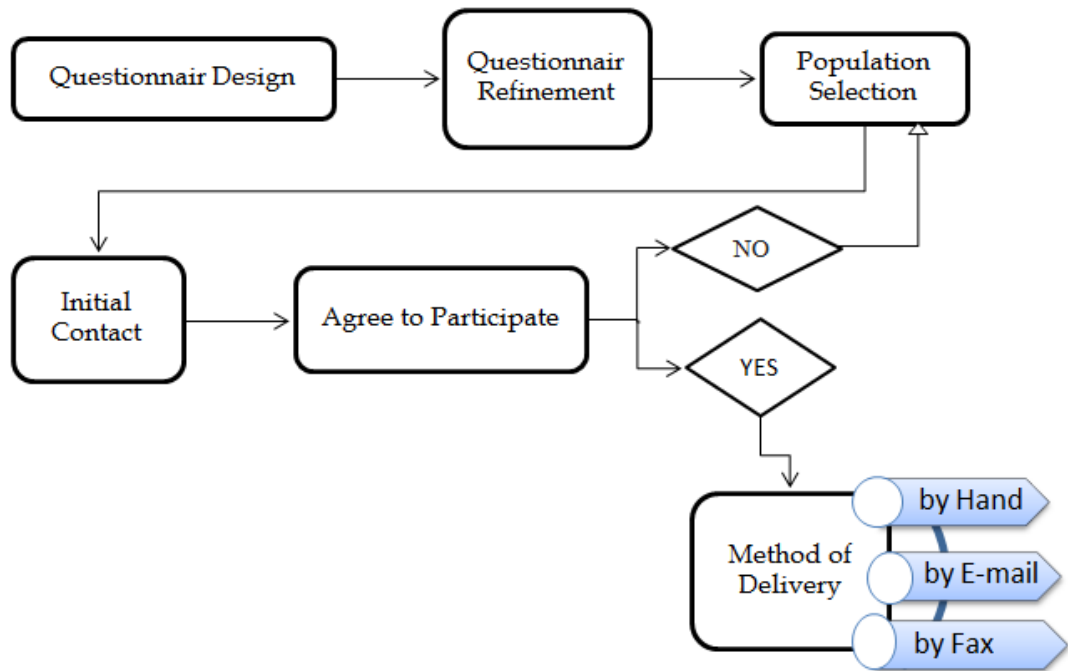


Figure 3.2: Data Gathering Flowchart

### Secondary Data.

This study has obtained the data from firm's records, books, journals articles and websites.

### Primary Data.

The primary data needed for this study has been gathered by the Questionnaires that were designed based on the theoretical analysis and hypothesis to measure the independent, dependent, moderating variables. The Questionnaires was distributed to industrial firms sector.

### Data Collection Instrument (The Questionnaire).

The questionnaire consists of three parts: the first part relates to demographic(position, gender, age, level of education, experience duration) questions concerning the manager who answered the questionnaire, the second part of the questionnaire relates to questions concerning firm's characteristic (firm's size, sector, certificate), and the third part relates to question measuring Organizational Innovation and firm's performance. The questionnaire utilizes a five-point Likert scale with the following main constructs:



### **Moderating Variables :**

Demographic variables ( position, gender, age ,level of education, experience )

Organizational variables ( firm size , sector , certificate).

### **Independent Variables.**

Technological innovation which measured through (13) paragraphs as following :

Process innovation measured through (1-5) paragraphs

Product innovation measured through (6-13) paragraphs

Marketing innovation which measured through (22) paragraphs as following :

Promotion innovation measured through (14-19) paragraphs

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Place innovation measured through (20-24) paragraphs

Pricing innovation measured through (25-29) paragraphs

Market Product innovation measured through (30-35) paragraphs

Administrative innovation which measured through (17) paragraphs as following :

Innovation culture measured through (36-40) paragraphs

Innovation Strategy measured through (46-52) paragraphs.

### **Dependent variable.**

Based on the literature review, firm's performance is examined using balance scrod card with four aspects which measured through (20) paragraphs as following:

Financial Performance measured through (53-57) paragraphs.

Customer Performance measured through (63-67) paragraphs.

Learning and Growth Performance measured through (68-72) paragraphs.

The study also used the Items associated with these variables employ five-point Likert-Type Scales ranging from 1 to 5; as the following:

After the questionnaire was developed data collection, it was assisted and evaluated prior distribution to respondents by a number of key specialists of professional in business and industrial engineering.

Afterworld the paragraphs within the questionnaires rearrangement randomly , the questionnaires were finally distributed in Arabic language by person visiting the firm or sent by fax or email after making all required modifications. A copy of Questionnaire is attached in the appendix A2. The researcher followed up the questionnaires completion through phone calls and sites visited. After one month period 169 questionnaires were collected.

### **Data Analysis Method.**

After data were collected; completed questionnaire were checked, edited and coded before the data were entered in. The statistical package for social science (SPSS v.19.0) software was utilized for statistical analysis. The researcher used different methods of statistical techniques to analyze data which are descriptive analysis used to describe the sample characteristics, Cronbach's alpha coefficient to test the reliability of the data measured. Multiple regression test was used to test the main research hypotheses in addition to step wise regressions analysis , and One-WayAnova tests were used to test the sub-hypotheses tables and graphs were generated to develop a better understanding of findings.

### **Questionnaire Distribution:**

225 Questionnaires have been distributed to (45) firms out of 55 total industrial firms, 179 returned; where respondent rate about 79.6%. 10 questionnaires were excluded, 169 questionnaires were actual valid with respondent rate about 75.1%. The table 3.2 below demonstrates the actual and respondent number of companies for each sector.

Table 3.2: Actual and Respondent number of Firms per Sector.

No.	Industries Sector	Number of Firms per Sector	Firms Delivered	Number of Questionnaire per Sector			
				Delivered	Responded	Valid Responded	Percentage of Valid Responded
1	Pharmaceutical and Medical Industries	6	6	30	25	25	14.8
2	Chemical Industries	8	6	30	19	19	11.2
3	Paper and Cardboard Industries	3	1	5	0	0	0.0
4	Printing and Packaging	2	1	5	0	0	0.0
5	Food and Beverages	8	7	35	35	30	17.8
6	Tobacco and Cigarettes	2	1	5	5	5	3.0
7	Mining and Extraction Industries	10	9	45	40	35	20.7
8	Engineering and Construction	7	7	35	30	30	17.8
9	Electrical Industries	4	4	20	15	15	8.9
10	Textiles, Leathers and Clothing's	3	2	10	10	10	5.9
11	Glass and Ceramic Industries	2	1	5	0	0	0.0
	Total	55	45	225	179	169	100.0
Percentage of Responded for all Sectors							79.6
Percentage of Valid Responded for all Sectors							75.1

From the table 3.2, it can be noticed; that 45 firms responded to the Questionnaire, with response rate 79.6%. Also it can be noticed that the largest percentage of respondent firms are within the following sectors respectively: Mining and Extraction Industries, Engineering and Construction, Food and Beverages, and Pharmaceutical and Medical Industries.

### Validity of Data Collection

The validity of the data collection tools has been checked and ensured by using Face Validity concept (Does the instrument look like it will measure what is supported to measure). Fourteen arbitrators of the faculty members at Amman Arab University, the University of Jordan, and Mutah University, also a number of high knowledge of other outside the university from specialists to verify the appropriateness and clarity of measuring variables, as shown in appendix A3. Their notes and suggestions have been taking into consideration when preparing the final form, the questionnaire was approved by the arbitrators on the paragraphs of the questionnaire to the dimensions of the study with a change in the wording of some paragraphs. Each of the above measures confirms the truth of the performance of the study that has been used to study.

## Model Content Validity.

### Inter-item Consistency Reliability

The reliability of the different scales was measured by examining Cronbach's coefficient alpha tests. Referring to sekaran, 2003, the Cronbach's alpha is "a reliability coefficient that the items in a set are positively correlated to one another, the closer Cronbach's alpha is to 1, the higher the internal consistency reliability ". The higher the coefficient the better the measuring instrument.

Table 3.3: The Result of the Reliability tests

Variables	No. of items	Cronbach's alpha
Organizational Innovation	52	.928
Firms Performance	20	.905
Technological Innovation	13	.781
Marketing Innovation	22	.838
Administrative Innovation	17	.886
Financial Performance	5	.810
Internal process Performance	5	.763
Customer Performance	5	.704
Learning and growth Performance	5	.794
All Variables	72	.952

The results shows that: organizational innovation ( Cronbach's alpha = .928); for the firms performance ( Cronbach's alpha = .905) ; for total variables is .952 . The closer the reliability coefficient gets to 1, the higher correlated the items. This indicates that our measurement had good reliability and highly internal consistency that ensure the items measuring the same variable; they must be correlated with each other. So it's valid and acceptable statistically.

### **Study Limitations :**

The study was implemented and completed during the period 2012-2013.

The study was based on a limited number of Arabic references.

Some managers refused to answer the questionnaire, since they were too busy.

Some industrial firms refused receiving the questionnaire, because of their policies.

The Financial Crises.

The Arab Spring Revolutions.

## Chapter Four : Data analysis

### Introduction:

This chapter presents the results of statistical data analysis and explanation of the result that is important to know as mentioned in chapter 3, the population size was 55 firms which are listed in Amman Stock Exchange. The researcher delivered 225 questionnaires to the respondents by email, fax, and hand. The total returned questionnaire which is acceptable to the analysis is 169 form 179 respondents' questionnaires. These results include linear regression analysis (both simple and multiple linear regressions). All statistical analysis was performed using SPSS version 19.0

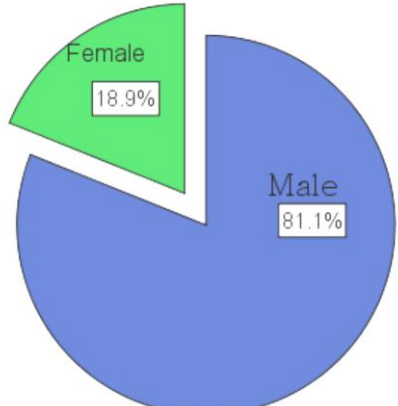
### The Characteristics of Study's Respondents.

In this section, the frequency distribution was used to describe the characteristics of study's respondents (Demographic Variables), and the organizational variables (firm size, sector, quality certificate) of industrial firms.

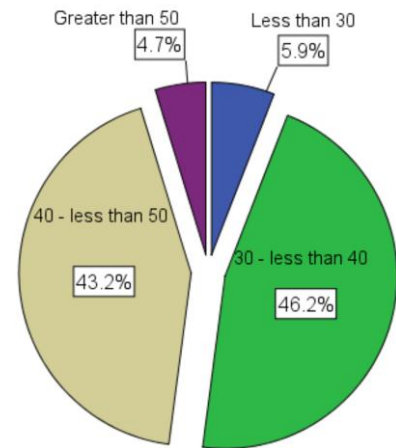
### Demographic Variables

The Demographic variables that were investigated in this research are (position, Gender, Age, Educational Level, Experience duration), as shown in table 4.1.

Table 4.1 Distribution of respondents according to Demographic Variables (the characteristics of study's respondents)

Names and Interval	Frequency	Percent %	Graph
<b>Gender</b>			
<b>Male</b>	137	81.1	
<b>Female</b>	32	18.9	
<b>Total</b>	169	100	

Age		
Less than 30 years	10	5.9
30-less than 40 years	78	46.2
40-less than 50 years	73	43.2
Greater than 50	8	4.7
<b>Total</b>	<b>169</b>	<b>100.0</b>

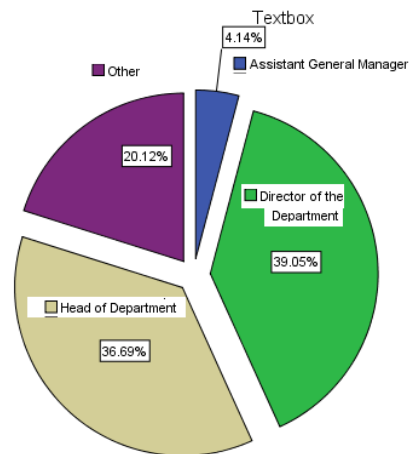


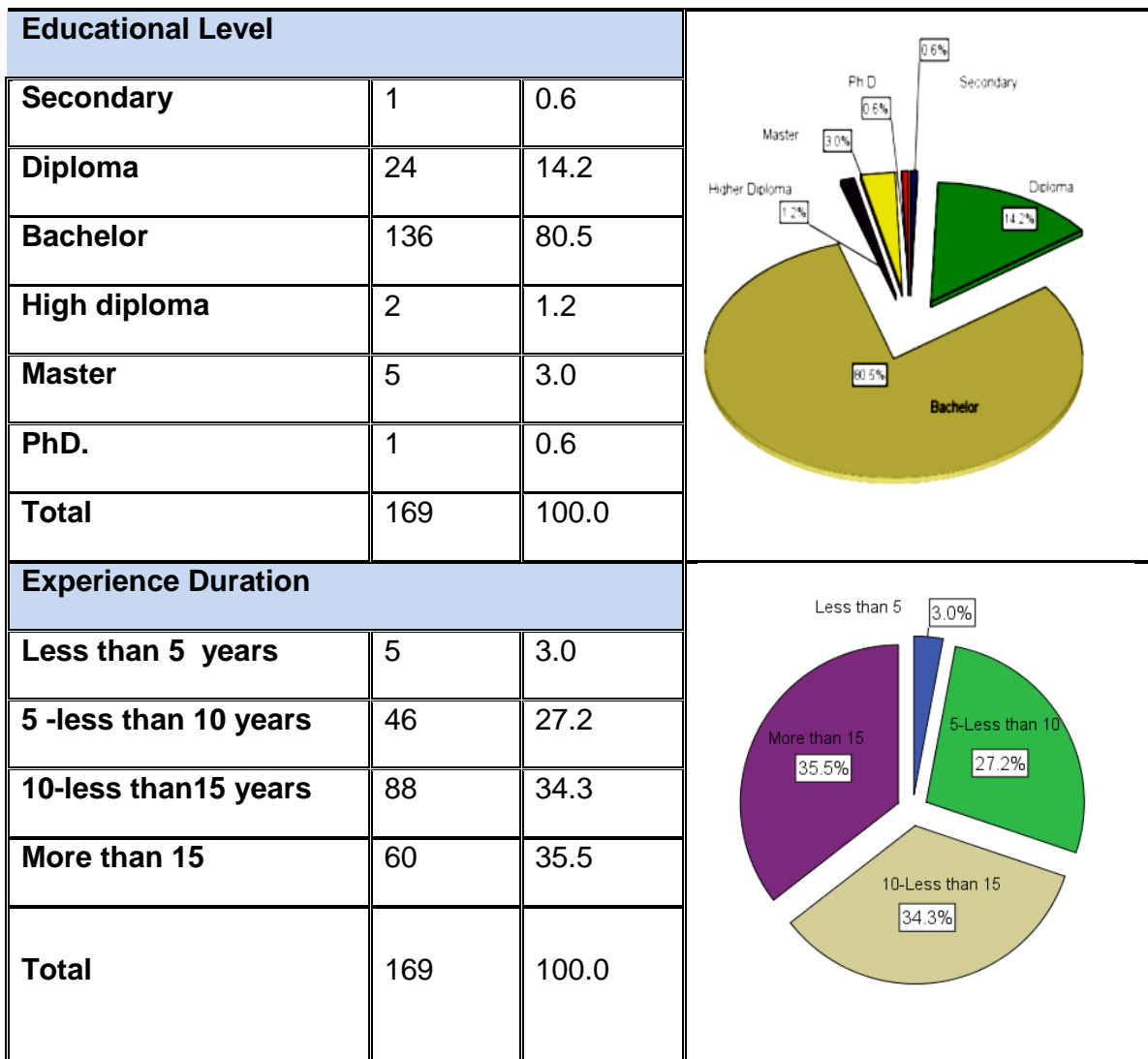
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Names and Interval	Frequency	Percent %
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Graph

Position		
General Manager	0	0
Assistant General Manager	7	4.1
Director of the Department	66	39.1
Head of section	62	36.7
Others	34	20.1
<b>Total</b>	<b>169</b>	<b>100</b>





According to results shown in Table 4.1:

Distribution of respondents according to Gender.

Male respondents' percent (81.1%) compared to (18.9%) female, according to Jordanian Department of Statistic (DOS), 2009 which state that 89.9 % is the percentage of Jordanian male work force compared with the percentage of 16.1 of female.

Distribution of respondents according to Age:

The majority of respondents' ages are between 30-40 years and 40-50 years, because most companies prefer to employ young persons. On the other hand, there is a high percent of young people in the Jordanian community, which mains that Jordan is a young society.



Result showed that 169 questionnaires were completed by 73 from top level management (Assistant General Manager, Director of the Department) who represent 43.2%, 66 from Middel level management ( Head of section ) who represent 36.7% ,and 34 from others who represent 20.1% .

Distribution of respondents according to Educational Level:

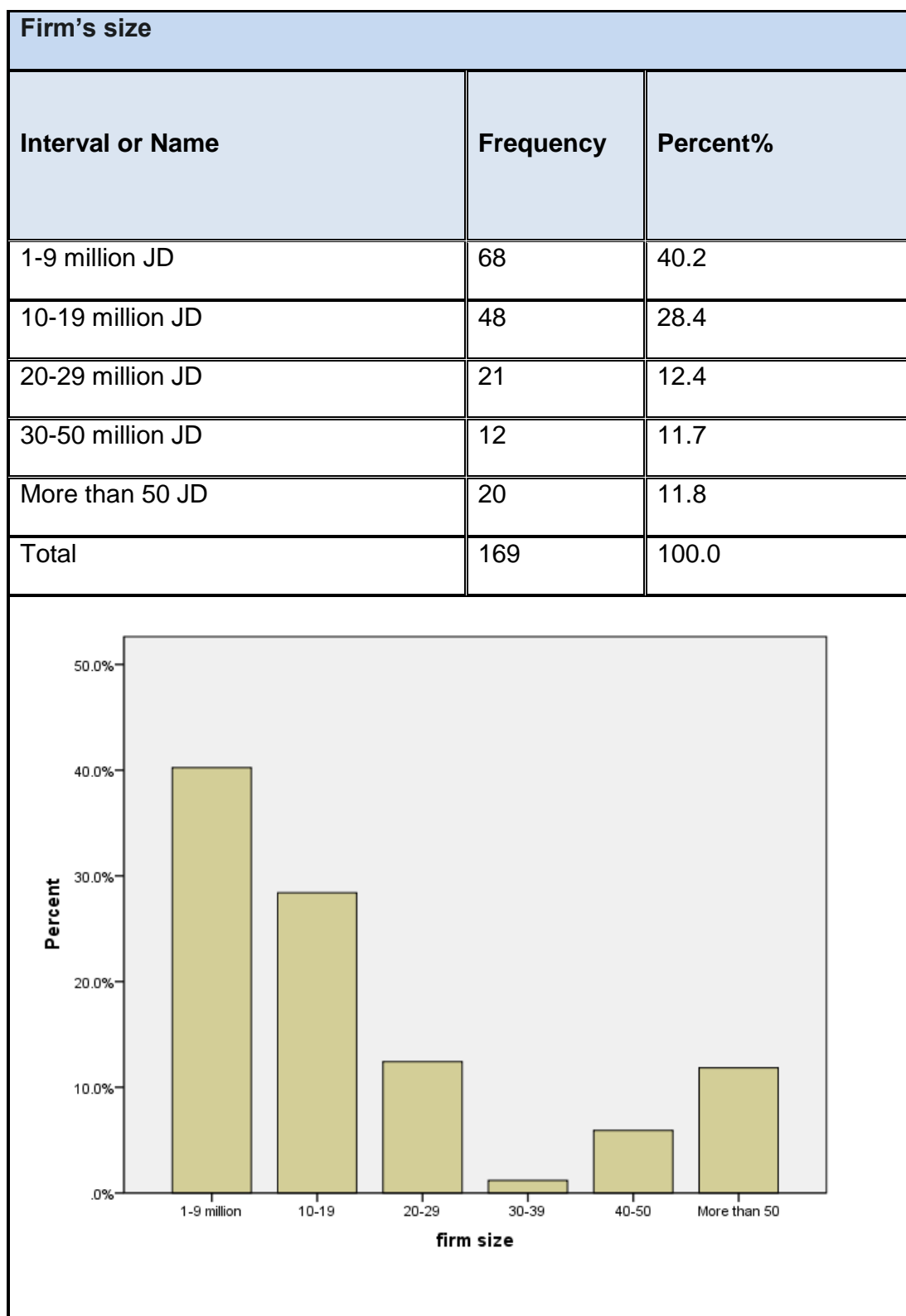
Result showed that 169 questionnaires were completed by 136 who have bachelor degree with represent of 80.5%, 24 who have deploma degree with percent of 14.2% ,and 6 who have master degree and PhD degree with percent of 3.6% . The result shows that the industrial firms paying attention to employees education level, and it is avialble in the Jordianin market work .

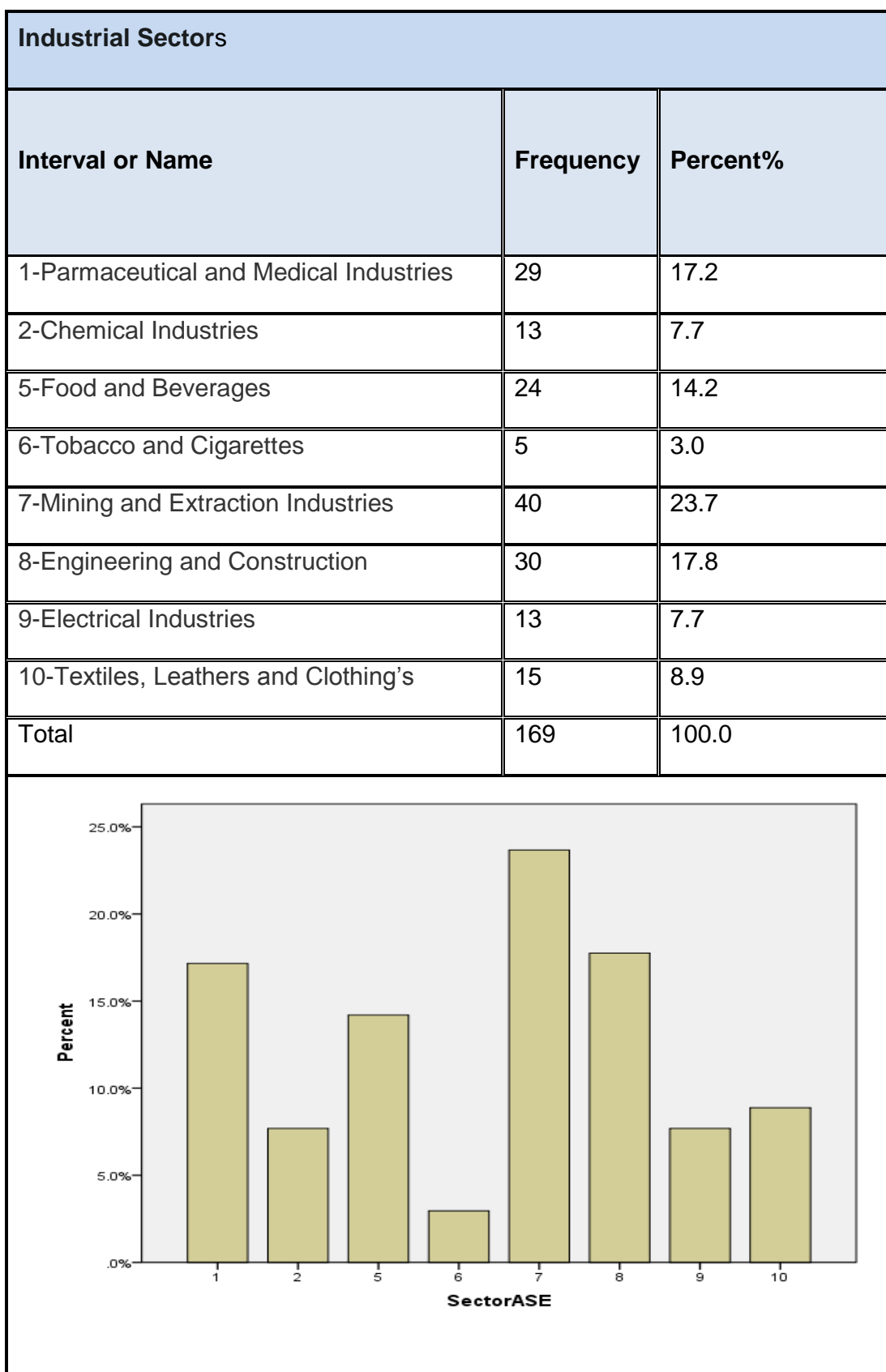
Distribution of respondents according to Experience duration: Table 4.1 showed that most managers have good experience, 60 of the respondents have experience more than 15 years who represent 35.5%, and 58 of respondents between 10 to 15 years of experince who represent 34.3% ,the result shows that the industrial firms have to try to keep and build stuff with Cumulative experience .

### **The Characteristics of Organizational firms.**

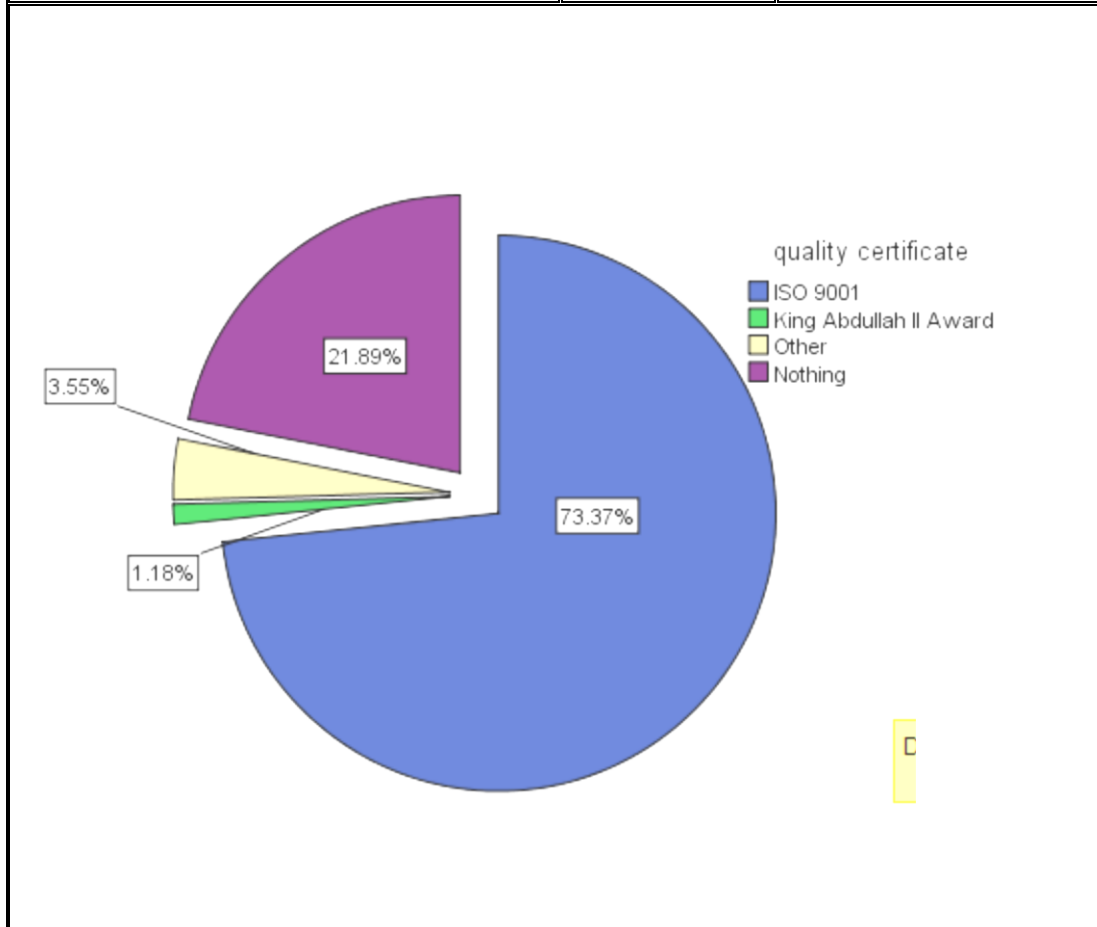
The Organizational variables that were investigated in this research are (firm size, sector, and quality certificate) as shown in table 4.2.

Table 4.2: Distribution of industrial firms according to Characteristics of Organizational firms referring to Amman Stock Exchange





Quality Certificate		
Interval or Name	Frequency	Percent%
ISO certification	127	73.4
King Abdullah II Award	2	1.2
Other	6	3.6
Nothing	37	21.9
Total	169	100.0



According To Results shown in Table 4.2:

Distribution of respondents according to firm's size (capital).

Result showed that most of industrial firms have a capital less 10 million JD that 68 firms which represent 40.2% in total ,followed by 48 firms with capital of 10-19 million JD which represent 28.4% , and 20 firms with capital of more than 50 million which represent 11.8 % .

Distribution of respondents according to Sector:

According to Amman stock exchange the industrial firms distributed in 11 different sectors as shown in appendix A1. Result showed that 169 questionnaires were completed by 40 from Mining and Extraction Industries sector which represent 23.7%, 30 from Engineering and Construction sector which are represent 17.8% , 24 from Food and Beverages which represented 14.2% followed by 29 from Parmaceutical and Medical Industries which represent 17.2% .and 46 from others sectors which represent 27.3% .

Distribution of respondents according to Quality Certificate.

Result showed that most of industrial firms have different type of Quality Certificate , 124 have ISO certification which are represent 73.4% , followed by 8 have special certificate according to manufacturing requirements which represent 4.8%, and 37 have no certificate which are represent 21.9% .

### **Descriptive Analysis :**

This section presents and discusses the descriptive analysis for the collected data. According to the table 3.2, it can be noticed that 45 firms responded to the questionnaire from 55 firms in industrial sector are listed in Amman Stock Exchange .The valid response rate is 75.1%. Also it can be noticed that the largest percentage of respondent firms are within the following sectors respectively: Mining and Extraction Industries, Engineering and Construction, Parmaceutical and Medical Industries, and Food and Beverages.

### **Central Tendency and Validation Measures**

The descriptive analysis for the main variables included statistical information for each item in the used scales through mean and standard deviation. The average level for each item was evaluated according to the following classification. The level range =  $(5-1)/3=1.33$

Table 4.3: The Level Range.

1 - 2.33	2.34 - 3.67	3.68 - 5
Low	Moderate	High

Table 4.4 Mean average score and Standard deviations of Study variables.

Type of variable	Variables	Mean	Std. deviation	Level
Independent	<b>Technological innovation</b>	<b><u>3.72</u></b>	.358	<u>High</u>
	<i>Product innovation</i>	3.58	.444	Moderate
	<i>Process innovation</i>	3.85	.356	High
	<b>Marketing innovation</b>	<b><u>3.59</u></b>	.359	<u>Moderate</u>
	<i>Promotion innovation</i>	3.43	.536	Moderate
	<i>Place innovation</i>	3.66	.428	Moderate
	<i>Pricing innovation</i>	3.39	.447	Moderate
	<i>Market Product innovation</i>	3.88	.452	High
	<b>Administrative innovation</b>	<b><u>3.58</u></b>	.429	<u>Moderate</u>
	<i>Innovation culture</i>	3.68	.430	High
	<i>Organizational structure</i>	3.52	.492	Moderate
	<i>Organizational strategy</i>	3.53	.522	Moderate
Dependent	Financial performance	3.61	.577	Moderate
	Internal Processes performance	3.76	.464	High
	Customer Performance	3.88	.426	High
	Learning and Growth performance	3.76	.548	High

Tables 4.4 demonstrate the overall mean, standard deviation, and the level (high, moderate, low) of the independent and dependent variables.

## Independent Variables:

**Technological Innovation:** consists of product innovation and process innovation.

Process Innovation was measured by paragraphs 1-5 in the questionnaire .

Table 4.5 demonstrate the average mean scores, Standard deviations, and level (high, moderate, low) for process innovation.

Item	Paragraph	Mean	Std. deviation	Level
P4	The company management cares about improving its productivity for new technological changes	4.12	.514	High
P5	The company management cares about the decrease in the cost of its productive processes	4.04	.527	High
p2	The company management cares about increasing its ability for modern technology in its productive lines	3.95	.606	High
P3	The company management cares about avoiding all activities that will not increase the value of its productive processes	3.78	.640	High
P1	The company management affords essential resources for converting new ideas into new products	3.36	.760	moderate

Table 4.5: Mean and Std. Deviation, n=169

The table 4.5 showed that all average responses for most items of process innovation scale were high except P1is moderate level, it means that most respondents of industrial firms claimed that their firms are highly innovated in process .The highest mean value of process innovation is for P4 with a value of 4.12, comparing to process innovation with mean value of (3.85) as shown in table 4.4; this showed that the industrial firms concern on reflecting the latest technology in the process operation. On the other hand, the lowest mean value is for P1 with a mean value of 3.36, comparing to process innovation with mean value of (3.85).

Product innovation was measured by Paragraphs 6-13 in the questionnaire .

Table 4.6 demonstrate the average mean scores, Std. deviations, and level for product innovation.

Item	Paragraph	Mean	Std. deviation	Level
P7	The company management eagers on its products quality to be more than of its competitive	3.94	0.829	High
P8	The company management cares about introducing products that depend on tested technology	3.89	0.578	High
P13	The company management eagers on introducing products that depend on technology which could be safe on the environment	3.69	0.772	High
P11	The company management exploits its aggregate education for decreasing the period necessary for releasing new product	3.56	0.644	Moderate
P12	The company management exploits its aggregate education to decrease the price of its products	3.51	0.609	Moderate
P10	The company management affords essential funds and budgets for research and development programs	3.51	0.874	Moderate
P9	The company management eagers on making products that depend on internal knowledge of which the competitors might not imitate	3.43	0.785	Moderate
P6	The company management eagers on introducing products that depend on technology which could be safe on the environment	3.12	0.912	Moderate



The table 4.6 showed that all average responses for most items of Product innovation scale were moderate except P8 ,P7, and P13 are high level, it means that most respondents of industrial firms claimed that their firms are moderate in product innovation .The highest mean value of product innovation is for P7with a value of 3.94 comparing to product innovation with mean value of (3.58 ) as shown in table 4.4 , this showed that the industrial firms concern on using tested technology in their production line . On the other hand, the lowest mean value is for P6 with a mean value of 3.12 comparing to product innovation with mean value of (3.58).

**Marketing innovation:** consists of Promotion innovation, Place innovation, pricing innovation, and Market Product innovation

Promotion innovation was measured through paragraph (14-19)

In the questionnaire .Table 4.7 demonstrate the average mean scores and Std. deviations for Promotion innovation.

Table 4.7: Mean and Std. Deviation, n=169

Item	Paragraph	Mean	Std. deviation	Level
P15	The company management cares about using different methods in its promotional marketing	3.72	0.717	High
P19	The company uses efficient promotional methods	3.57	0.67	Moderate
P18	The company makes continuous updates of its web site	3.5	0.749	Moderate
P14	The company management eagers on increasing its promotional funds compared to its competitors	3.43	0.871	Moderate
P17	The company sells its products through the internet	3.22	0.864	Moderate
P16	The company management eagers on exploiting the social network (Facebook, Twitter ).in its promotional marketing	3.15	0.924	Moderate

The table 4.7 showed that most of responses for items of Promotion innovation scale were moderate except P15 is high; it means that most respondents of industrial firms claimed that their firms are moderate in promotion innovation. The highest mean value of promotion innovation is for P15 with a value of 3.72 comparing to promotion innovation with mean value of (3.43) as shown in table 4.4; this showed that the industrial firms concern on using diversification in promotional technique. On the other hand, the lowest mean value is for P16 with a mean value of 3.15 comparing to promotion innovation with mean value of (3.43).

Place innovation was measured through paragraphs (20-24) in the questionnaire. Table 4.8 demonstrates the average mean scores and Std. deviations for place innovation.

Table 4.8: Mean and Std. Deviation, n=169

Item	Paragraph	Mean	Std. deviation	Level
P20	The company management is looking for decreasing the time for the product delivery to the client	3.98	0.494	High
P24	The company management is peculiar in its precise delivery of its products on time	3.88	0.569	High
P23	The company management re-evaluates its products distribution outlets continuously	3.78	0.595	High
P21	The company management cares about exhibiting its products through the internet	3.54	0.879	Moderate
P22	The company facilitates the sale of its products through the internet	3.13	0.961	Moderate

The table 4.8 showed that most average responses for items of Place innovation scale were high except P21 and P22 are moderate level, it means that most respondents of industrial firms claimed that their firms are moderate in place innovation. The highest mean value of place innovation is for P20 with a value of 3.98. On the other hand, the lowest mean value is for P22 with mean value of 3.13 comparing to place innovation with mean value of (3.66) as shown in table 4.4, this showed that the industrial firms commitment on decreasing the average time of delivering the products to customers, while enabling their customers to order products through website not supported enough. Pricing innovation was measured through paragraphs (25-29) in the questionnaire.

Table 4.9 demonstrates the average mean scores and Std. deviations for pricing innovation.

Item	Paragraph	Mean	Std. deviation	Level
P27	The prices of the products reflects its value by the Customers	3.83	0.542	High
P25	The company management cares about the variability in its strategy of pricing	3.65	0.734	Moderate
P26	The company management cares about granting the Customer financial facilities to get the product	3.51	0.901	Moderate
P29	The company management uses a strategy of market scraping(high value)when selling new product	3.15	0.745	Moderate
P28	The company management affords paying for products by credit cards	2.83	0.959	Moderate

The table 4.9 showed that all average responses for most items of pricing innovation scale were moderate except P27 is high level; it means that most respondents of industrial firms claimed that their firms are moderate in pricing innovation. The highest mean value of pricing innovation is for P27 with a value of 3.83, while the lowest mean value is for P28 With a mean value of 2.83 comparing to pricing innovation with mean value of (3.39) as shown in table 4.4, this showed that the industrial firms reflecting the actual value of product in customer point of view, while providing the customers an option to pay by credit cards was not supported.

Market Product innovation was measured through paragraphs (30-35) in the questionnaire.

Table 4.10 demonstrates the average mean scores and Std. deviations for pricing innovation.

Item	Paragraph	Mean	Std. deviation	Level
P33	The company management cares about affording safety precautions in its products	4.03	0.667	High
P34	The company management cares about variations in marketing new products	3.96	0.591	High
P35	The company management cares about a continuous adding of new additional characteristics and benefits for its new products	3.93	0.695	High
P32	The company management cares about improving the post-sale services	3.92	0.702	High
P31	The company management cares about keeping up its marketing research	3.74	0.701	High
P30	The company management cares about renewing the external outlook for its products without affecting its essential characteristics	3.7	0.844	High

The table 4.10 showed that all responses for items of Market Product innovation scale were high, it means that all respondents of industrial firms claimed that their firms are high in market product innovation, the highest mean value of market product innovation is for P33 with a value of 4.03, on the other side the lowest mean value is for P30 With a mean value of 3.70 comparing to market product innovation with mean value of (3.88) as shown in table 4.4. This showed that the industrial firm's management was ensured to renew the external appearance of the product without compromising basic features, improve after-sales services, and provide safety and security in their products, and added benefits of new product continuously.

**Administrative Innovation:** consists of Innovation culture, Organizational structure, Innovation Strategy.

Innovation culture was measured through paragraphs (36-40) in the questionnaire.

Table 4.12 demonstrates the average mean scores and Std. deviations for Promotion innovation.

Item	Paragraph	Mean	Std. deviation	Level
P43	The company management cares about all workers to be able to solve instant problems that they might face during work	3.88	.647	High
P42	The internal infrastructure of the company is able to take benefit of all new technology	3.65	.665	Moderate
P44	The infrastructure of the company is unique in its organization and flexibility	3.44	.739	Moderate
P41	The company management authorizes its employees on making important decisions	3.32	.875	Moderate
P45	The infrastructures of the company adopt an auto managed method by its working teams	3.31	.802	Moderate

The table 4.12 showed that most of responses for items of organizational structure scale were moderate except P43 was high; it means that most respondents of industrial firms claimed that their firms administration are moderately working to delegate decision-making authority for workers, organizational structure is characterized by the company's ability to use modern techniques, they were also moderately adopted organic structures (flexible), and self-managed work teams. The highest mean value of Organizational structure is for P43 with a value of 3.88, on the other side the lowest mean value is for P45 with a mean value of 3.31 comparing to organizational structure with mean value of (3.52) as shown in table 4.4; that's seemed to be that the firm administrative highly trying to empowerment their employees to solve the problems that they were faced, while they were the adopting a self-managed work team's organizational structures style was not supported

Table 4.13 demonstrate the average mean scores and Std. deviations for innovation strategy.

Item	Paragraph	Mean	Std. deviation	Level
P52	The company management ascertains on making a balance between efficiency and flexibility during work	3.7	0.704	High
P51	The company management cares on new and modern strategies in managing its human resources	3.69	0.757	High
P50	The company management cares evaluating its innovation strategy continuously	3.62	0.681	Moderate
P49	The company management cares on inventing processes that could execute its innovational strategy	3.53	0.764	Moderate
P47	The company management cares about strategic coalition or compromise with other companies	3.51	0.867	Moderate

The table 4.13 showed that most of responses for items of innovation strategy scale were moderate except P52 and P51 were high. The results obtained in table 4.4 shows that the innovation strategy has total mean value (3.53). The highest mean value of innovation strategy is for P52 with a value of 3.70; it reflected that firm administrative is concerned to adopt modern strategies in the human resource management. While P48 has lowest mean value with 3.33, which showed that industrial firms has no deeply understanding for dynamic of innovation.

#### **Dependent Variables:**

Based on the literature review, performance of firm is examined using balanced Scorecard with four aspects which measured through (20) paragraphs as following: Financial Performance was measured through paragraphs (53-57) in the questionnaire.

Table 4.14 demonstrates the average mean scores and Std. deviations for financial Performance.

Item	Paragraph	Mean	Std. deviation	Level
P53	The company inventions have achieved an advantage over the competitors in new markets	3.78	0.738	High
P56	The company inventions achieved in the annual market portfolio compared with competitors	3.76	0.666	High
P55	The company inventions achieved an increase in the annual sale compared with other competitors	3.6	0.797	Moderate
P54	The company inventions helped in increasing the outcome in investment	3.48	0.772	Moderate
P57	The company inventions achieved an increase in its profit percentage compared to what the competitors did	3.45	0.845	Moderate

The table 4.14 showed that most of responses for items of financial Performance scale were moderate except P52 and P51 were high. The results obtained in table 4.4 shows that the financial Performance has total mean value (3.61). The highest mean value of financial Performance is for P53 with a value of 3.78; that is the financial Performance was moderated and there is attitude to enhancing the performance by trying to interring new markets. While P57 has lowest mean value with 3.45, which showed that industrial firm had no increasing in profit or in return on investment comparing to compotators.

Internal process Performance measured through paragraphs (58-62).

Table 4.15 demonstrates the average mean scores and Std. deviations for internal process performance.

Item	Paragraph	Mean	Std. deviation	Level
P62	The company achieved an improvement in reducing in the percentage of the cost of the raw materials to the whole cost of the product	3.81	0.607	High
P59	The company achieved an improvement in increasing the quality in using the specialized human resources	3.8	0.639	High
P58	The company achieved a reduction in average of machine breakdown	3.73	0.615	High
P61	The company achieved an improvement in decreasing the average cost for each productive unit	3.72	0.656	High
P60	The company achieved an improvement in increasing the machine functionality	3.72	0.717	High

The table 4.15 showed that all of responses for items of internal process performance scale were high. The results obtained in table 4.4 shows that the internal process performance has total mean value (3.76); it means that all respondents of industrial firms claimed that their firms achieved an improvement in reducing the rate of stops machines, in raising the efficiency of the Employment of specialized Human Resources, in reducing the cost of raw materials to the total costs, in increase the proportion of operating machinery, and in reduction in average unit cost of production. Customer Performance measured through paragraphs (63-67) .



Table 4.16 demonstrates the average mean scores and Std. deviations for customer Performance.

Item	Paragraph	Mean	Std. deviation	Level
P65	The company management cares about customer satisfaction through an immediate response of introducing good services	4.12	0.452	High
P66	The company had achieved an increase in the duration of its Customer retention	3.95	0.6	High
P64	The company management cares about approval and execution of innovational Customer s suggestions	3.92	0.602	High
P63	The company achieved an increase in customer satisfaction through its unique product charastertics	3.76	0.668	High
P67	The company had achieved an increase in its ability in obtaining new customers	3.67	0.777	Moderate

The results obtained in table 4.4 which shows that the customer performance has total mean value (3.88). The table 4.16 showed that most items of five of average responses for items of customer performance scale were high; it means that most respondents of industrial firms claimed that their firms concerned of customer satisfaction through high response in the providing services, achieved increasing duration of customer retention as it is to accept customers with innovative suggestions for implementation. On the other side the lowest mean value is for P67 with a mean value of 3.67; that's seemed to be the industrial firms were moderately in increasing their ability to get new customers.

Learning and Growth Performance measured through paragraphs (68-72).

Table 4.17 demonstrates the average mean scores and Std. deviations for learning and growth performance.

Item	Paragraph	Mean	Std. deviation	Level
P68	The company management cares on workers training to increase their innovational skills	3.86	0.714	High
P70	The company management consolidates the network linking between its branches and center for efficient information exchange	3.85	0.817	High
P71	The company management cares about building informational deposits through what it has in its information basis	3.8	0.787	High
P69	The company management stimulates the workers in order to get a continuous educational programs	3.68	0.888	High

The table 4.17 showed that four items of five of average responses for items of customer performance scale were high, compare to the results obtained in table 4.4 which shows that the learning and growth performance has total mean value (3.76); it means that the respondents of industrial firms claimed that their firms concerned to train the employees to increase their creative skills, also to support networking between the branches and the center for the exchange of information efficiently, and to motivate employees to continue to learn.

### **Hypothesis Testing Result.**

Hypothesis testing involves testing the null hypothesis (denoted by H0) which are assumed to be the true but tested for possible rejection. The probability value (p- value) obtained from the statistical hypostasis test is considered the decision rule for rejection the null hypothesis, if the p- value is less than or equal to a predetermined level of significance ( $\alpha$  – level) the null hypothesis will be rejected and the alternative hypothesis will be supported.

It is important to discuss the fit of the model of the research as a preliminary procedure to test the acceptability of the main hypothesis of the study, and then each of sub hypotheses will be tested.

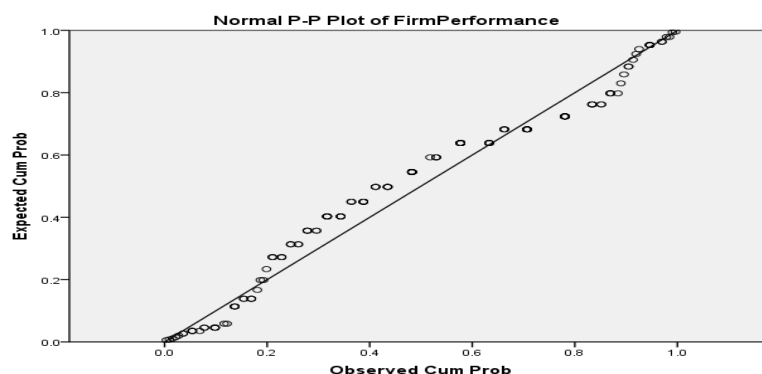
### Normality Test .

When testing for normality, we are mainly interested in the Tests of Normality by using Kolmogorov-Smirnov (K-S) test and the Normal P-P Plots, our numerical and graphical methods to test for the normality of data, respectively

#### Kolmogorov-Smirnov (K-S) test

The Kolmogorov–Smirnov test (K–S test) is a nonparametric test.

The table above shows that the “Firm Performance” is normally distributed. Because of the Sig. value of the Kolmogorov-Smirnov Z Test is greater than 0.05, the data is normal. In order to determine normality **graphically**, we can use the output of a normal P-P Plot. If the data are normally distributed, the data points will be close to the diagonal line. If the data points stray from the line in an obvious non-linear fashion, the data are not normally distributed. As we can see from the normal P-P plot below, the data normally distributed



### Multicollinearity.

Multicollinearity is the undesirable situation where the correlations among the independent variables are strong. And to assess multicollinearity, you can use the Variance Inflation Factor (VIF) that measures multicollinearity in the mode. Variance inflation factors (VIF) measure how much the variance of the estimated coefficients is increased over the Case of no correlation among the independent variables. If no two Independent variables are correlated, and then all the VIFs will be 1.

If VIF for one of the variables is around or greater than 5, there is collinearity associated with that variable. The easy solution is: If there are two or more variables that will have a VIF around or greater than 5,

one of these variables must be removed from the regression model.

To ensure that the results were not affected by problems of multicollinearity, the factor of FIV were calculated in all of the regressions. In all cases, levels much lower than those recommended were obtained.

$VIF=1/(1-R^2)$  where R: regression coefficient

Table 4.18 showed that VIF values less than 5, indicating that the results are not affected by possible multicollinearity, so it is acceptable.

### The Main Primary Hypothesis

**H<sub>01</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no impact on firm performance (financial, Internal Processes, Customer, Learning and Growth) of industrial companies at significance level ( $\alpha$ )

Table 4.18 : Correlations and Variance Inflation Factor Analysis

		Technological Innovation	Marketing Innovation	Administrative Innovation
Technological Innovation	R coefficient	1	.638	.780
	VIF		1.68	2.55
Marketing Innovation	R coefficient	.638	1	.573
	VIF	1.68		1.49
Administrative Innovation	R coefficient	.780	.573	1
	VIF	2.55	1.49	

=

The results of testing of main hypothesis are demonstrated in the following tables.

**Table 4.19: Statistics of Regression.**

**Model Summary <sup>b</sup>**

Model	R (Regression)	R <sup>2</sup> (Effect)	Adjusted R Square	Std. Error of the Estimate
1	.813 <sup>a</sup>	.662	.660	.2429

a. Predictors: (Constant), Organizational innovation

b. Dependent Variable: Firm Performance

According to table 4.19, the results of applying the linear simple regression analysis to test the impact of organizational innovation on firm performance showed that the correlation coefficient between organizational innovation and firm performance was  $R = 0.813$ ; which is enough to indicate that there is a strong positive correlation between organizational innovation and firm performance; this mean that the independent variables and dependent variables change in the same direction. And 66.2% of the total variance in firm performance is explained by the linear regression model.

**Table 4.20: Demonstrate the ANOVA.**

**ANOVA <sup>b</sup>**

Model		Sum Squares	DF (degree of freedom)	Mean Square	F (Variance)	Sig.
1	Regression	19.271	1	19.271	326.629	.000 <sup>a</sup>
	Residual	9.853	167	.059		
	Total	29.124	168			

a. Predictors: (Constant), Organizational Innovation

b. Dependent Variable: Firm Performance

**Table 4.21: Coefficients of Regression.**

**Coefficients <sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.104	.203		.513	.609
Organizational Innovation	1.005	.056	.813	18.073	.000

a. Dependent Variable: Firm Performance

$$\text{Innovation (x)} : \hat{y} = B_0 + B_1 x$$

The result indicates that the increase in one unit of variable organizational innovation affected in increasing the firm performance by value (1.005).

It also indicates that the value of B coefficient (1.005) was direct correlation relationship between the independent variable organization innovation and the dependent variable firm performance.

This is an indication on the increase achieved by industrial firms in their performance as a result of increased concern in organizational innovation.

**The Sub-Hypothesis :**

In this part the researcher has concerned of stepwise regression analysis with testing the impact of each predictor included in the model of independent variables (Technological, Marketing, and Administrative Innovation) on the dependent variables firm performance (Financial, Internal Processes, Customer, Learning and Growth) of industrial firms. By using the value of Beta coefficient and  $\alpha$  significant level, the researcher can infer of sub-hypothesis and the extent of application of each predictor.

**H<sub>01.1</sub>:** Organizational Innovation (Technological, Marketing, and Administrative innovation) has no impact on financial performance at significance level ( $\alpha = 0.05$ ).

**Table 4.22: Multiple Regression by Stepwise.**

**Model Summary <sup>c</sup>**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate
1- Technological Innovation	.486 <sup>a</sup>	.236	.231	.506
2- Technological, marketing innovation	.536 <sup>b</sup>	.287	.279	.490

c. Dependent Variable: Financial Performance

**Table 4.22a: ANOVA - Financial Performance**

**ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	16.102	2	8.051	33.489	.000
Residual	39.909	166	.240		
Total	56.011	168			

Predictors: (Constant), Technological Innovation, Marketing Innovation

Dependent Variable: Financial Performance

Table 4.22a examines the significant regression model where the significant ( $\alpha=0.000$ ); the ANOVA table shows how you explain the regression model of data, and large value of F-value indicates that the regression model explains a large part of the data and a few random variations.

**Table 4.22b: Coefficients of Regression.**

**Coefficients <sup>a</sup>**

Model	B	Std. Error	Beta	t	Sig.
(Constant)	.125	.428		.291	.771
Technological Innovation	.479	.137	.297	3.490	.001
Marketing Innovation	.475	.137	.295	3.469	.001

a. Dependent Variable: Financial Performance

**Table 4.22c: demonstrate the Excluded Variables.**

**Excluded Variables <sup>c</sup>**

Model	Beta In	t	Sig.
Administrative Innovation	.085 <sup>b</sup>	.893	.373

b. Predictors in the Model: (Constant), Marketing Inn, Technological Inn

c. Dependent Variable: Financial Performance

As shown in tables ( 22b, 22c), (0.001 < 0.05) is significant for the technological innovation, and the value of t calculated is 3.490 which is greater than t tabulated (1.95), (0.001 < 0.05) is significant for marketing innovation, and the value of t calculated is 3.469 which is greater than t tabulated (1.95), and for administrative innovation (0.373 > 0.05) was not significant, and the value of t calculated is .893 which is lower than t tabulated (1.95); this means that technological innovation and marketing innovation have an impact on financial performance, while administrative innovation has no impact on financial performance.



The tables above (4.22b and 4.22c) shows that multiple regression analysis is concerned with testing the impact of each predictor included in the model (beta  $\beta$ ) independent variables (Technological, Marketing, and Administrative innovation) on the dependent variable (financial performance). By using the value of B and  $\alpha$  significant level, the equation of multiple regression takes this form.

$$\hat{y} = B_0 + B_1X_1 + B_2X_2$$

Where  $\hat{y}$  is financial performance,  $X_1$  is Technological innovation, and  $X_2$  is Marketing innovation.

The result indicates that the increase in one unit of variables technical innovation and marketing innovation affects in increasing the firm financial performance by two values of B coefficient (0.479, 0.475).

It also indicates that the value of B coefficients (0.479, 0.475) was a direct correlation relationship between the independent variables technical innovation, and marketing innovation against the dependent variable firm financial performance.

This is an indication of the increase achieved by industrial firms in their financial performance as a result of increased concern in Technological and Marketing innovation.

**Table 4.23: Multiple Regression by Stepwise.**

**Model Summary <sup>d</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.654 <sup>a</sup>	.428	.425	.323
2	.704 <sup>b</sup>	.495	.489	.304
3	.718 <sup>c</sup>	.515	.506	.299

a. Predictors: (Constant), Technological Innovation

b. Predictors: (Constant), Technological Inn, Marketing Inn

c. Predictors: (Constant), Technological Inn, Marketing Inn, Administrative Inn

d. Dependent Variable: Customer Performance

**Table 4.23: ANOVA - Customer Performance**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	15.685	3	5.228	58.467	.000
Residual	14.755	165	.089		
Total	30.440	168			

Predictors: (Constant), Technological , Marketing , Administrative Innovation

d. Dependent Variable: Customer Performance

Table 4.23a examines the significant regression model where the significant ( $\alpha=0.000$ ); the ANOVA table Shows how much you explain the regression model of data, and large value of F-value indicates that the regression model explains a large part of the data and a few random variations.

**Table 4.23b: Coefficients Regression.**

**Coefficients <sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
3 (Constant)	.524	.261		2.007	.046
Technological Inn	.333	.111	.280	2.995	.003
Marketing Inn	.366	.085	.308	4.320	.000
Administrative Inn	.226	.087	.228	2.601	.010

a. Dependent Variable: Customer Performance

As shown in table 23b, for the technological innovation the significant is .003 less .005, and the value of t calculated is 2.995 which is greater than t tabulated (1.95). For marketing innovation, the significant is .000 less .005, and the value of t calculated is 4.320 which is greater than t tabulated (1.95), and for administrative innovation the significant is .010 less .005, and the value of t calculated is 2.601 which is greater than t tabulated (1.95); this was mean that technological innovation, marketing innovation, and administrative innovation has an impact on customer performance.

The conclusion that there is significant impact of technological innovation, marketing innovation, and administrative innovation at level of ( $\alpha = 0.05$ ) on customer performance.

The table 4.23b above shows that multiple regression analysis is concerned with testing the impact of each predictor included in the model, independent variables (Technological, Marketing, and Administrative innovation) on the dependent variable (customer performance). By using the value of B and  $\alpha$  significant level, the equation of multiple regression takes this form.

$$\hat{y} = B_0 + B_1X_1 + B_2X_2 + B_3X_3$$

Where  $\hat{y}$  is customer performance,  $X_1$  is technical innovation, and  $X_2$  is marketing innovation, and  $X_3$  is administrative innovation.

The result indicates that the increase in one unit of variables Technological, Marketing, and Administrative innovation affect the increase in the firm customer performance by value of B coefficients (0.333, 0.366, and 0.226).

It also indicates that the value of B coefficients (0.333, 0.366, 0.226) was direct correlation relationship between the independent variables technological, marketing, and administrative innovation against to the dependent variable firm customer performance.

This is an indication of the increase achieved by industrial firms in their customer performance as a result of increased concern in technological, marketing, and administrative innovation.

**H<sub>01.3</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no impact on Internal Processes performance at significance level ( $\alpha = 0.05$ ).

**Table 4.24: Multiple Regression by Stepwise**

**Model Summary <sup>b</sup>**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate
1	.718 <sup>a</sup>	.516	.513	.324

a. Predictors: (Constant), Technological Innovation

b. Dependent Variable: Internal Process Performance

**Table 4.24a: ANOVA - Internal Processes performance**

ANOVA

Model	Sum Squares	df	Mean Square	F	Sig.
Regression	18.682	1	18.682	177.915	.000
Residual	17.536	167	.105		
Total	36.218	168			

Predictors: (Constant), Technological Inn

Dependent Variable: Internal Processes performance

Table 4.24a examines the significant regression model where the significant ( $\alpha=0.000$ ); the ANOVA table Shows how much you explain the regression model of data, and large value of F-value indicates that the regression model explains a large part of the data and a few random variations.

**Table 4.24b: Coefficients of Regression.**

**Coefficients <sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.293	.261		1.124	.263
Technological Inn	.931	.070	.718	13.338	.000

a. Dependent Variable: Internal process Performance

**Table 4.24c: Demonstrate the Excluded Variables.**

**Excluded Variables <sup>b</sup>**

Model	Beta In	t	Sig.
Marketing Inn	.026 <sup>a</sup>	.367	.714
Administrative Inn	.121 <sup>a</sup>	1.408	.161

a. Predictors in the Model: (Constant), Technological Innovation

b. Dependent Variable: Internal process Performance

As shown in tables (24b, 24c), for the technological innovation the significant is .000 less .005, and value of t calculated is 13.338 which is greater than t tabulated (1.95), for marketing innovation the significant is .714 greater than .005, and value of t calculated is .367 which is lower than t tabulated (1.95), and for administrative innovation the significant is .161 greater than .005, and value of t calculated is 1.408 which is lower than t tabulated (1.95); this was mean that technological innovation has an impact on financial performance, while administrative innovation and marketing innovation have no impact on internal process performance.

The tables above (4.24b and 4.24c) shows that multiple regression analysis is concerned with testing the impact of each predictor included in the model, independent variables (Technological, Marketing, and Administrative innovation) on the dependent variable). By using the value of B and  $\alpha$  significant level, the equation of multiple regressions takes this form.  $\hat{y} = B_0 + B_1X_1$

The result indicates that the increase in one unit of variable Technological innovation affects in increasing the firm internal process performance by value (0.931)

It also indicates that the value of Beta coefficient (0.931) was direct correlation relationship between the independent variable technical innovation and the dependent variable firm internal process performance.

This is an indication on the increase achieved by industrial firms in their internal process performance as a result of increased concern in technological innovation.

**H<sub>01.4</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no impact on Learning and Growth performance at significance level ( $\alpha = 0.05$ ).

**Table 4.25: Multiple Regression by Stepwise.**

**Model Summary <sup>c</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784 <sup>a</sup>	.615	.613	.341
2	.811 <sup>b</sup>	.658	.654	.322

a. Predictors: (Constant), Administrative Inn

b. Predictors: (Constant), Administrative Inn, Technological Inn

c. Dependent Variable: Learning & Growth Performance

**Table 4.25a: ANOVA - Learning and Growth performance**

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	33.147	2	16.574	159.555	.000
Residual	17.243	166	.104		
Total	50.390	168			

Predictors: (Constant), Administrative Inn, Technological Inn

Dependent Variable: Learning and Growth performance

Table 4.25a examines the significant regression model where the significant ( $\alpha=0.000$ ); the ANOVA table Shows how much you explain the regression model of data, and large value of F-value indicates that the regression model explains a large part of the data and a few random variations.

**Table 4.25b: Coefficients of Regression.**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-.523	.259		-2.014	.046
	Administrative Inn	.672	.093	.527	7.261	.000
	Technological Inn	.505	.111	.330	4.544	.000

a. Dependent Variable: Learning & Growth Performance

**Table 4.25c: Demonstrate the Excluded Variables.**

**Excluded Variables <sup>c</sup>**

Model	Beta In	t	Sig.
Marketing Inn	.062 <sup>b</sup>	1.035	.302

b. Predictors in the Model: (Constant), Administrative Inn, Technological Inn

c. Dependent Variable: Learning & Growth Performance

As shown in tables (25b, 25c), for the technological innovation the significant is .000 less .005, and value of t calculated is 4.544 which is greater than t tabulated (1.95), for marketing innovation the significant is .302 greater than .005, and value of t calculated is 1.035 which is lower than t tabulated (1.95), and for administrative innovation the significant is .000 less than .005, and value of t calculated is 7.261 which is greater than t tabulated (1.95); this means that technological innovation and administrative innovation have an impact on Learning & Growth Performance, while marketing innovation has no impact on Learning & Growth Performance.

The tables above (4.25b and 4.25c) shows that multiple regression analysis is concerned with testing the impact of each predictor included in the model; independent variables (Technological, Marketing, and Administrative innovation) on the dependent variable (Learning & Growth performance). By using the value of B and  $\alpha$  significant level, the equation of multiple regression takes this form.

$$\hat{y} = B_0 + B_1X_1 + B_2X_2$$

The result indicates that the increase in one unit of variables technical innovation and administrative innovation affected the increase in the firm Learning & Growth performance by two values of B coefficients (0.505, 0.672).

It also indicates that the value of B coefficients (0.505, 0.672) was direct correlation relationship between the independent variables Technological innovation, and Administrative innovation against to the dependent variable firm Learning & Growth performance.

This is an indication of the increase achieved by industrial firms in their Learning & Growth performance as a result of increased concern in Technological innovation, and marketing innovation.



## Second Main Hypotheses:

**H<sub>02</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to the Moderating variables (Firm size and Industrial sectors).

There is no significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to Industrial Sector.

**Table 4.26: Demonstrate one way ANOVA difference between means of Organizational Innovation adopted by industrial firms due to Industrial Sector.**

	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	2.622	7	.375	3.668	.001
Within Groups	16.443	161	.102		
Total	19.065	168			

Table 4.26 shows that F calculated is 3.688 which is greater than f tabulated (2.009) with significance of (0.001); this indicates that there is significant difference of organizational innovation on industrial firms related to industrial sectors. The null hypothesis is rejected, and the alternative hypothesis is accepted which indicates that there is a significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to Industrial sectors.

There is no significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to firm size.

**Table 4.27: Demonstrate one way ANOVA difference between means of Organizational Innovation adopted by industrial firms due to firm size.**

**ANOVA**

Organizational Innovation

	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	2.422	5	.484	4.745	.000
Within Groups	16.643	163	.102		
Total	19.065	168			

Table 4.27 shown that F calculated is 4.745 which is greater than f tabulated (2.214) with significance of (0.000) ,The null hypothesis is rejected, and the alternative hypothesis is accepted which indicates that there is no significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to firm size.

**H<sub>03</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to the Moderating variables (Firm size and Industrial sectors).

There is no significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to Industrial Sector.

**Table 4.28: Demonstrate one way ANOVA difference between means of the firm's performance adopted by industrial firms due to Industrial Sector.**

ANOVA- Firm Performance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.975	7	.568	3.635	.001
Within Groups	25.149	161	.156		
Total	29.124	168			

Table 4.28 shows that F calculated is 3.635 which is greater than f tabulated (3.841) with significance of (.001); this indicates that there is a significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to Industrial Sector. The null hypothesis is rejected, and the alternative hypothesis is accepted which indicates that there is a significant difference between means of the firm's performance adopted by industrial firms due to Industrial Sector.

There is no significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to firm size.

**Table 4.29: Demonstrate one way ANOVA difference between means of the firm's performance adopted by industrial firms due to firm size.**

### ANOVA

Firm Performance

	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	1.880	5	.376	2.250	.052
Within Groups	27.244	163	.167		
Total	29.124	168			

Table 4.29 shows that F calculated is 2.250 which is greater than f tabulated (2.214) with significance of (0.0520); this indicates that there is no significant difference between means of the firm's performance adopted by industrial firms due to firm size. The null hypothesis is accepted, between means of the firm's performance adopted by industrial firms due to firm size.

**H<sub>04</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to the demographics variables (position, gender, age, education level, experience duration).

**Table 4.30: Demonstrate one way ANOVA difference between means of Organizational Innovation adopted by industrial firms due to the demographics variables**

Demographic variables	DF	F calculated	F tabulated	Sig.	Conclusion
Position	3	1.180	2.604	.319	no significant difference
Age	3	1.381	2.604	.250	no significant difference
Gender	1	0.697	3.840	.405	no significant difference
Education level	3	1.698	2.214	.138	no significant difference
Experience Duration	3	4.188	2.604	.007	significant difference

The table 4.30 shows that F calculated is lower than F tabulated for demographics variables (position, gender, age, education level), while F calculated is greater than F tabulated for demographics variable (Experience Duration). This indicates that there is no significant difference between means of Organizational Innovation adopted by industrial firms due to the to demographic variables (position, gender, age, education level), the null hypothesis is partially accepted, while there is a significant difference between means of Organizational Innovation adopted by industrial firms due to the demographics variables (experience duration); so the null hypothesis is partially rejected for demographic variable (experience duration), which indicates that there is a significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to the demographics variable (experience duration).

**H<sub>05</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to the demographic variables (position, gender, age, education level, experience duration).

**Table 4.31: Demonstrate one way ANOVA difference between means of the firm's performance adopted by industrial firms due to the demographic variables.**

Demographic variables	DF	F calculated	F tabulated	Sig.	Conclusion
Position	3	2.725	2.604	.046	significant difference
Age	3	0.854	2.604	.466	no significant difference
Gender	1	0.419	3.840	.518	no significant difference
Education level	3	0.396	2.214	.851	no significant difference
Experience Duration	3	5.303	2.604	.002	significant difference

The table 4.31 shown that F calculated is lower than F tabulated for demographic variables (Gender, Age, Education Level), while F calculated is greater than F tabulated for demographic variables (Position, Experience Duration); this was indicated that there is no significant difference between means of the firm's performance adopted by industrial firms due to the demographic variables (Gender, Age, and Education Level). The null hypothesis is partially accepted; which mean that there is no significant difference between means of the firm's performance adopted by industrial firms due to the demographic variables demographic variables (gender, age, education level), while there is a significant difference between means of the firm's performance adopted by industrial firms due to the demographic variables (position and experience duration). The null hypothesis is partially rejected for demographic variable (position and experience duration).

## Chapter five : Discussion, Conclusion, Recommendations

### Discussion :

This chapter concerned about presenting and discussing the research results according to what have been explored within chapter four, and then representing the recommendations and suggestions what built upon the research findings.

### Research findings and results

This section is concerned about answering and discussing the research problem. This study aims to test the organizational innovation and its impact on the performance of industrial enterprises in Jordan. As shown in tables 4.4 which demonstrated the overall mean standard deviation, and the level (high, moderate, low) of the independent and dependent variables. The descriptive analysis indicates that there is a strong positive tendency toward in process innovation with mean value (3.85) and Std. deviation (0.356) , market Product innovation(  $3.88 \pm 0.452$ ),and innovation culture ( $3.68 \pm 0.430$ ), also the firms have achieved high level in the internal processes performance with mean value 3.76 and Std. Deviation 0.464 and Customer Performance ( $3.88 \pm 0.426$ )

The industrial firms were keen on to improving the response speed of production techniques to technological changes , and adopting new technology in their production, and they were trying to reduce the operational cost; that might be explained why industrial firms had high level in internal process performance, and all above helped the firms to get good result in customer performance.

### Hypothesis Result.

**H<sub>01</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no effect on firm performance (financial, Internal Processes, Customer, Learning and Growth,) of industrial companies at significance level ( $\alpha = 0.05$ ).

The result shows that the correlation coefficient between organizational innovation (the independent variables) and the firm's performance (the dependent variable) was 0.813, which indicates to a strong positive correlation of organizational Innovation and firm's performance.

Figure 5.1 shows that R<sup>2</sup> (coefficient of determination) is 0.662 which indicates that 66.2% of the variance in the firm's performance variable can be explained and predicted by organizational innovation variables. Consequently Organizational Innovation (Technological, Marketing, Administrative innovation) has positive statistical significant impact on firm performance.

This result is consistent with previous studies such as results of Yamin, et al. (1997) who found that administrative innovation and process innovation are more closely related to firm's performance, also Salim and Sulaiman, (2011) , Gunday et al., (2011) , Hao, et al.,( 2012 ), Nicolás and Cerdán ,( 2011), they found that innovation is positively related to firm performance.while Atalay et al.,( 2013) found that only technological innovation has significant and positive impact on firm performance .

**H<sub>01.1</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no effect on financial performance at significance level (  $\alpha = 0.05$ ).

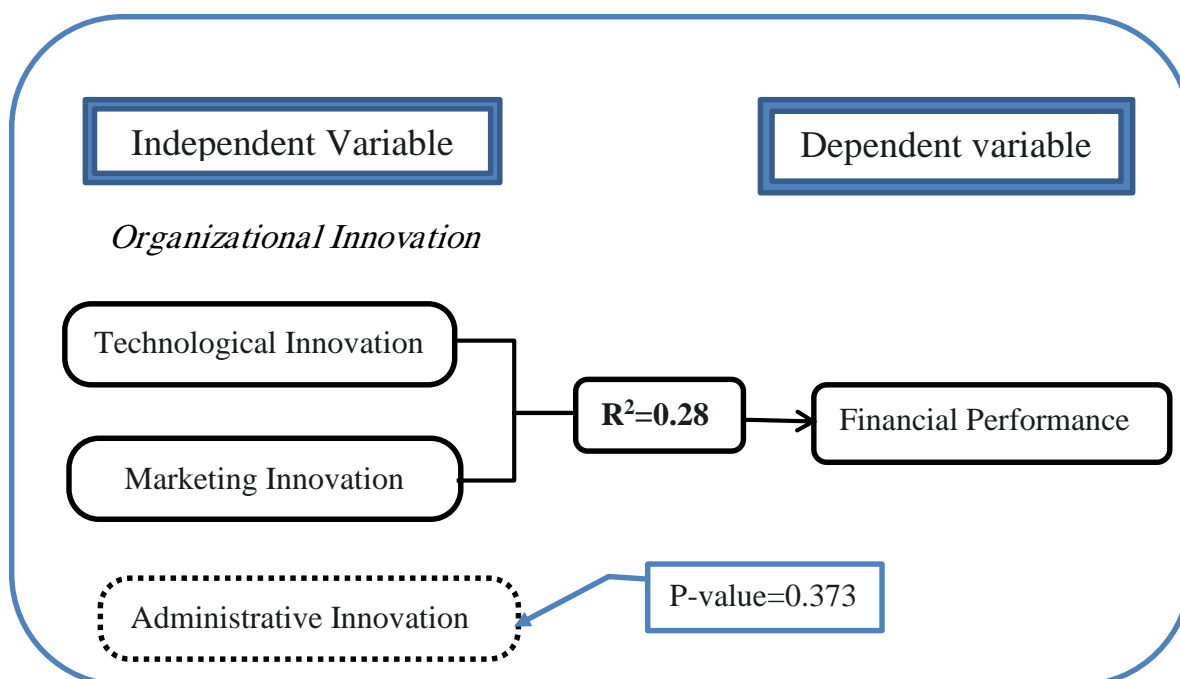


Figure 5.1: The First Sub- Hypothesis Result

Figure 5.1 showed that Technological Innovation and Marketing Innovation jointly explain 28.7% of the variance in financial performance while administrative Innovation has no significant effect on firm performance. This result is consistent with previous studies such as Al-Kesbeh,(2012), Similarly Grisseemann, et al.,( 2013 ),and (Dunk,2011) who found that product innovation positively influences a firm's financial performance , where Salim and Sulaiman, (2011) found that the most influencing factor for financial performance is technological innovation .Also López-Nicol Carolina , (2011) found a positive impact of KM through an increase on innovation on financial performance .

**H<sub>01.2</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no effect on Customer performance at significance level ( $\alpha = 0.05$ ).

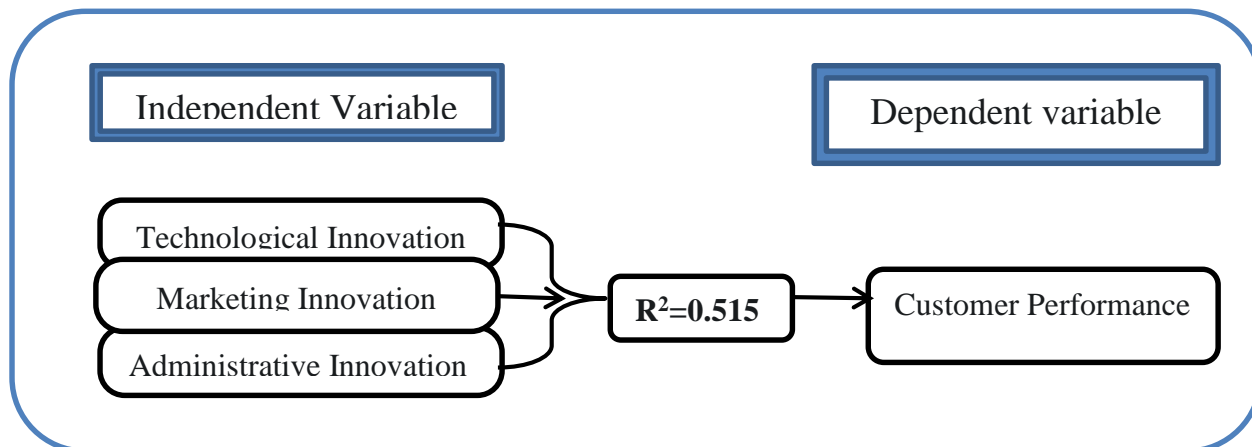


Figure 5.2 shows that R<sup>2</sup> is 0.515 which indicates that 55.1% of the variance in the Customer performance variable can be explained and predicted by Technological, Marketing, Administrative innovation variables. Consequently Technological, Marketing, Administrative innovation has a positive statistical significant effect on Customer performance. This results consistent with previous studies such as Al-Kesbeh,(2012). Where Salim and Sulaiman, (2011) shows that technological innovation and market innovation are two critical factors on market performance

**H<sub>01.3</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no effect on Internal Processes performance at significance level ( $\alpha = 0.05$ )

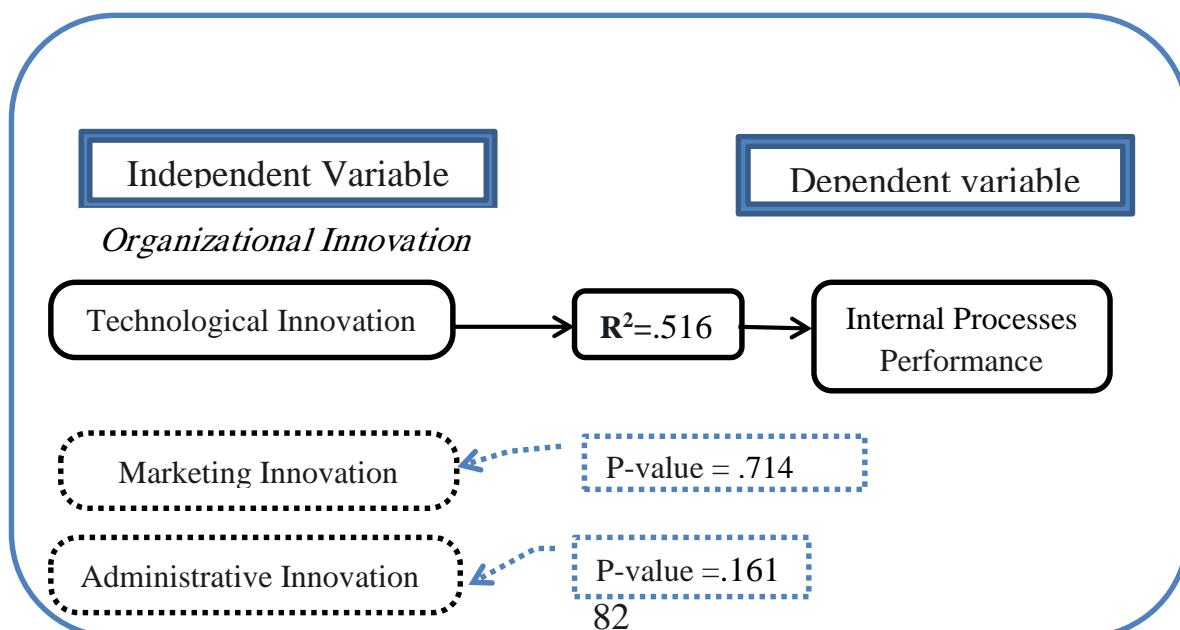


Figure 5.3: The Third Sub- Hypothesis Result



Figure 5.3 shows that Technological Innovation explains 51.6% of the variance in Internal Processes Performance, while Marketing Innovation and administrative Innovation have no significant effect on firm performance. This result is consistent with previous studies such as Al-Kesbeh,(2012)

**H<sub>01.4</sub>:** Organizational Innovation (Technological, Marketing, Administrative innovation) has no effect on Learning and Growth performance at significance level ( $\alpha = 0.05$ ).

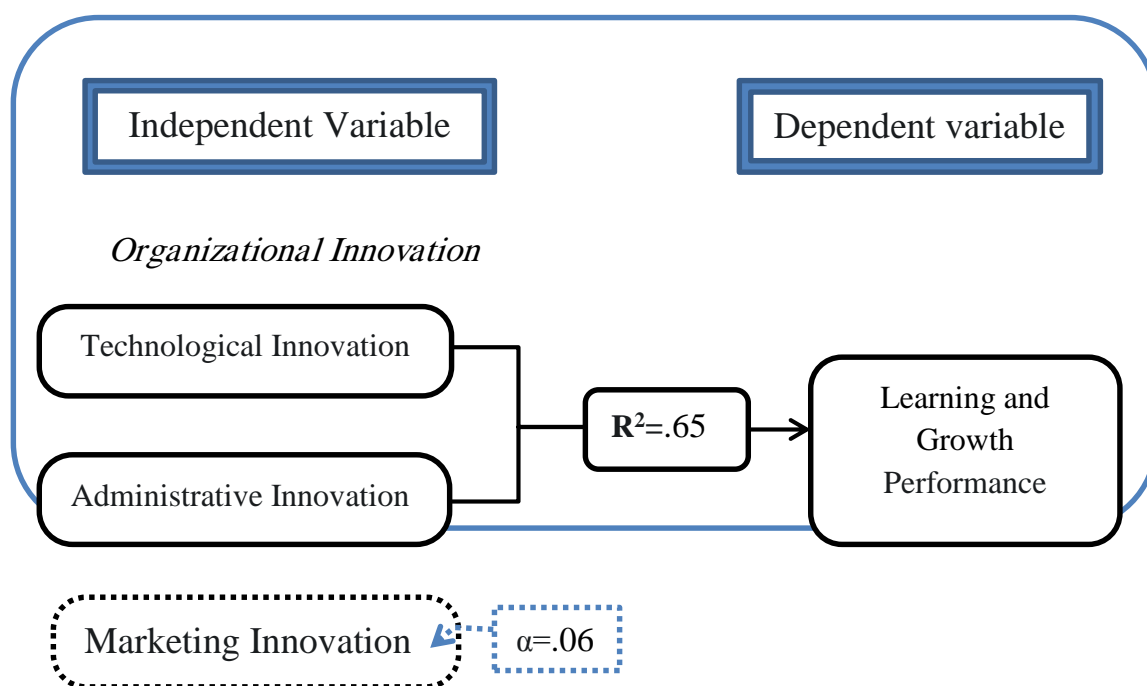


Figure 5.4: The Fourth Sub- Hypothesis Result

Figure 5.4 shows that Technological Innovation and administrative Innovation jointly explain 65.8% of the variance in Learning and Growth Performance, while Marketing Innovation has no significant effect on Learning and Growth Performance .This result is consistent with previous studies such as Goedhuys and Veugelers,(2012)

**H<sub>02</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to the Moderating variables (Firm size and Industrial sectors).

Based on the result shown in table 4.26, there was a significant difference at level of ( $\alpha = 0.05$ ) for Organizational Innovation on industrial firms related to the Moderating variable Industrial sectors.

Also as shown in table 4.27, there was significant difference at level of ( $\alpha = 0.05$ ) for Organizational Innovation on industrial firms related to the Moderating variable firm size.

Laforet, (2012) pointed out that there are significant differences in the efforts and the types of innovations that exist between firms due to the difference between sizes and sectors and clarified that the success of innovation can vary between firms with respect to the characteristics of the sector that leads to the creation of a successful return to the ability of firms in certain sectors to use a specific set of internal and external resources.

**H<sub>03</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to the Moderating variables (Firm size and Industrial sectors).

As shown in table 4.28, the result shows that there is a significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to industrial sectors. While table 4.29 shows that there is no significant difference between means of the firm's performance adopted by industrial firms due to the Firm size .

This result is not consistent with (Abbas, 2005).It shows that there was no significant relationship between firm size and their level of innovation.

**H<sub>04</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of Organizational Innovation adopted by industrial firms due to the demographics variables (position, gender, age, education level, experience duration).

The result in table 4.30 shows that there is a significant difference between means of Organizational Innovation adopted by industrial firms due to the demographic variable (experience duration). On the other hand, there is no significant difference between means of Organizational Innovation adopted by industrial firms due to the demographic variables (position, gender, age, education level).

**H<sub>05</sub>:** There is no significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to the demographic variables (position, gender, age, education level, experience duration).

The results in table 4.31 shows that there is no significant difference between means of the firm's performance adopted by industrial firms due to demographic variables (Gender, Age, and Education Level). While there is a significant difference at level of ( $\alpha = 0.05$ ) between means of the firm's performance adopted by industrial firms due to demographic variables (position and experience duration).

## Conclusion

In this research, the researcher examines the impact of organizational innovation on firm's performance, research used three main measures for organizational innovation: Technological, Marketing, and administrative innovation.

The findings highlight that there is an approach to moderate level of adoption of organizational innovation within selected firms and there is a statistically significant impact of organizational innovation on firm's performance. As well as, technological and marketing innovation have a statistically significant impact on financial performance ,and technological, marketing and administrative innovation have a statistically significant impact on customer performance. Only a technological innovation has a statistically significant impact on internal process performance , while technological and administrative innovation have a statistically significant impact on Learning and Growth Performance. The findings also indicate that there are significant differences between means of organizational innovation, and firms performance adopted by industrial firms due to industrial sectors. Also, the findings indicate that there are significant differences between means of organizational innovation adopted by industrial firms due to firm size , while there are no significant differences between means of firm's performance adopted by industrial firms due to firm size .

## Recommendations

In the light of the findings of the study, a number of recommendations were proposed to help the firms to enhance the organizational innovation:

Industrial firms should be more careful about providing enough resources in order to transform new ideas in new products.

Firm's management should assign a sufficient budget for research and development.

Firm's management should be more diversity in pricing strategies.

Firm's management should use an effective promotion method and take advantage of internet capabilities.

Firm's management should use organic structure with more flexibility.

Government and nongovernment institutions have to work on changing the mentality and the value system, raising the importance of creativity, knowledge, and innovativeness not only in institutions and companies, but in the whole of society needed.

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## Appendices

## Appendix A1

The industrial Firms distributed per Sector as listed in Amman Stock Exchange

Industrial Sectors			
No .	Company's Name	Questionnaire	
		Delivered	Responded
<b>1</b>	<b>Pharmaceutical And Medical Industries</b>		
1	Middle East Pharma. & Chemical Ind. & Medical Appliances	5	0
2	The Jordanian Pharmaceutical Manufacturing	5	5
3	Hayat Pharmaceutical Industries Co.	5	5
4	Philadelphia Pharmaceuticals	5	5
5	Dar Al Dawa Development & Investment	5	5
6	Arab Center For Pharm.& Chemicals	5	5
<b>2</b>	<b>Chemical Industries</b>	<b>30</b>	<b>25</b>
1	The Arab Pesticides & Veterinary Drugs Mfg. Co.	0	0
2	Intermediate Petrochemicals Industries Co. Ltd.	5	0
3	The Industrial Commercial & Agricultural	5	3
4	Jordan Chemical Industries	5	5
5	Universal Chemical Industries	5	3
6	Industrial Industries & Match/Jimco	5	0
7	National Chlorine Industries	5	3
<b>3</b>	<b>Paper And Cardboard Industries</b>	<b>35</b>	<b>19</b>
1	Pearl- Sanitary Paper Converting	0	0
2	Arab Company For Investment Projects	0	0
3	Jordan Paper And Cardboard Factories	5	5

<b>4</b>	<b>Printing And Packaging</b>	<b>5</b>	<b>5</b>
1	Al-Ekbal Printing And Packaging	0	0
2	Union Advanced Industries	5	0
<b>5</b>	<b>Food And Beverages</b>	<b>5</b>	<b>0</b>
1	National Poultry	0	0
2	Nutri Dar	5	5
3	Jordan Vegetable Oil Industries	5	5
4	First National Vegetable Oil Industries Co.	5	5
5	Siniora Food Industries	5	5
6	Jordan Poultry Processing & Marketing	5	5
7	Jordan Dairy	5	0
8	Universal Modern Industries	5	5
<b>6</b>	<b>Tobacco And Cigarettes</b>	<b>35</b>	<b>30</b>
1	Union Tobacco & Cigarette Industries	5	5
2	Al-Eqbal Investment Company Ltd	0	0
<b>7</b>	<b>Mining And Extraction Industries</b>	<b>5</b>	<b>5</b>
1	National Aluminum Industrial	5	5
2	Travertine Company Ltd	5	5
3	Jordan Marble Company P.L.C.	5	0
4	General Mining Company Plc	5	5
5	Sheba Metal Casting	5	5
6	Northern Cement Co.	5	5
7	Arab Aluminum Industry /Aral	0	0
8	Jordan Phosphate Mines	5	5
9	The Jordan Cement Factories	5	5
10	The Arab Potash	5	5

<b>8</b>	<b>Engineering And Construction</b>	<b>45</b>	<b>40</b>
1	Ready Mix Concert And Construction Supplies	5	5
2	Rum Aladdin Industries	5	5
3	The Jordan Pipes Manufacturing	5	0
4	Arabian Steel Pipes Manufacturing	5	5
5	Al-Quds Ready Mix	5	5
6	Al-Januob Filters Manufacturing	5	5
7	Jordan Wood Industries / Jwico	5	5
<b>9</b>	<b>Electrical Industries</b>	<b>35</b>	<b>30</b>
1	Arab Electrical Industries	5	5
2	Middle East Complex For Eng., Electronics	5	5
3	United Cable Industries	5	5
4	National Cable & Wire Manufacturing	0	0
<b>10</b>	<b>Textiles, Leathers And Clothings</b>	<b>15</b>	<b>15</b>
1	Arab Weavers Union Company P.L.C	0	0
2	Jordan Clothing Company P.L.C	5	5
3	The Jordan Worsted Mills	5	5
<b>11</b>	<b>Glass And Ceramic Industries</b>	<b>10</b>	<b>10</b>
١	International Ceramic Industries	5	0
٢	Jordan Ceramic Industries	0	0
		<b>5</b>	<b>0</b>
	<b>Total Of Questionnaires</b>	<b>225</b>	<b>179</b>
	<b>Excluded</b>		<b>10</b>
	<b>Accepted Questionnaires</b>		<b>169</b>

## Appendix A2.1

### Questionnaire

His Excellency the Manager General

Greetings

The researcher conducted a study entitled "organizational innovation and its impact on the performance of industrial companies" (An Empirical Study on the Industry sector of Jordan listed on the Amman Stock Exchange) as a complement to the requirements for obtaining a master's degree specialization Administration - College of Business - Amman Arab University, and to achieve the objectives of the study are designed resolution by adopting a measure Descartes quintet for the purpose of data collection that require study in terms of your view and your site career, so I request to answer all the paragraphs of resolution note that the results will be saved of the study parked on the credibility of the answer paragraphs, and any information you will be making them will be treated confidentially and for the purposes of scientific research.

And we will provide you with the results of the study and its recommendations if you wish to do so.

Please mark (X) in the field that represents your point of view. Researcher can answer your questions and inquiries for questionnaire by.

Researcher

Safa' a Ashour

Supervisor

Dr. Gasan Issa AlOmari

Company Name (For documentary purposes only, and will not be published) : -----				
1. Please specify your Job Title in the Firm	General Manager	Assistant General Manager	Director of the Department	Head of Department
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				Other <input type="radio"/>
2. Please fill out the following personal information				
Gender	Male <input type="radio"/>	Female <input type="radio"/>		
Age	Less than 30 <input type="radio"/>	30 - less 40 <input type="radio"/>	40- less 50 <input type="radio"/>	More than 50 <input type="radio"/>
Education level	High School <input type="radio"/>	Diploma <input type="radio"/>	Bachelor <input type="radio"/>	Higher Diploma <input type="radio"/>
Experience Duration	Less than 5 <input type="radio"/>	5 – less 10 <input type="radio"/>	10 – less 15 <input type="radio"/>	More than <input type="radio"/>
3. The size of the company in terms of capital in Jordanian Dinars (million)				
1-9 <input type="radio"/>	10-19 <input type="radio"/>	20-29 <input type="radio"/>	٢٩ – ٢٠ <input type="radio"/>	30-39 <input type="radio"/>
				40-50 <input type="radio"/>

No	Paragraph	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
<b>Technological Innovation</b>						
<b>Process innovation</b>						
1	The company management affords essential resources for converting new ideas into new products					
2	The company management cares about increasing its ability for modern technology in its productive lines					
3	The company management cares about avoiding all activities that will not increase the value of its productive processes					
4	The company management cares about improving its productivity for new technological changes					
5	The company management cares about the decrease in the cost of its productive processes					
<b>Product Innovation</b>						
6	The company management encourages the workers on getting new patents					
7	The company management eagers on its products quality to be more than of its competitive					
8	The company management cares about introducing products that depend on tested technology					



9	The company management eagers on making products that depend on internal knowledge of which the competitors might not imitate					
10	The company management affords essential funds and budgets for research and development programs					
11	The company management exploits its aggregate education for decreasing the period necessary for releasing new product					
12	The company management exploits its aggregate education to decrease the price of its products					
13	The company management eagers on introducing products that depend on technology which could be safe on the environment					
<b>Marketing Innovation</b>						
<b>Marketing Innovation in promotion</b>						
14	The company management eagers on increasing its promotional funds compared to its competitors					
15	The company management cares about using different methods in its promotional marketing					
16	The company management eagers on exploiting the social network (Facebook, Twitter ).in its promotional marketing					
17	The company sells its products through the internet					
18	The company makes continuous updates of its web site					
19	The company uses efficient promotional methods					

<b>Marketing Innovation in placement</b>						
20	The company management is looking for decreasing the time for the product delivery to the Customer					
21	The company management cares about exhibiting its products through the internet					
22	The company facilitates the sale of its products through the internet					
23	The company management re-evaluates its products distribution outlets continuously					
24	The company management is peculiar in its precise delivery of its products on time					
<b>Marketing Innovation in Pricing</b>						
25	The company management cares about the variability in its strategy of pricing					
26	The company management cares about granting the Customer financial facilities to get the product					
27	The prices of the products reflects its value by the Customers					
28	The company management affords paying for products by credit cards					
29	The company management uses a strategy of market scraping(high value)when selling new product					
<b>Marketing Innovation in Product Design</b>						
30	The company management cares about renewing the external outlook for its products without affecting its essential charastertics					
31	The company management cares about keeping up its marketing research					

32	The company management cares about improving the post-sale services					
33	The company management cares about affording safety precautions in its products					
34	The company management cares about variations in marketing new products					
35	The company management cares about a continuous adding of new additional characteristics and benefits for its new products					
<b>Administrative Innovation</b>						
<b>Cultural Innovation</b>						
36	The company management cares about activation of knowledge sharing among employees					
37	The company management seeks on getting suggestions that might solve labor problems					
38	The company management ascertains on the value of the continuous educational programs to workers					
39	The company management cares about acquiring renewal of knowledge to all workers ,as part of its organizational policy					
40	The company management ascertains on the innovational policy to be the core basis for high quality achievement					
<b>Organizational Structure Innovation</b>						
41	The company management authorizes its employees on making important decisions					
42	The internal infrastructure of the company is able to take benefit of all new technology					

43	The company management cares about all workers to be able to solve instant problems that they might face during work					
44	The infrastructure of the company is unique in its organization and flexibility					
45	The infrastructures of the company adopt an auto managed method by its working teams					
<b>Strategic Innovation</b>						
46	The company management cares on the concordance among its three strategic levels					
47	The company management cares about strategic coalition or compromise with other companies					
48	The company management ascertains on deep understanding of its strategic innovational dynamics					
49	The company management cares on inventing processes that could execute its innovational strategy					
50	The company management cares evaluating its innovation strategy continuously					
51	The company management cares on new and modern strategies in managing its human resources					
52	The company management ascertains on making a balance between efficiency and flexibility during work					

<b>Financial Performance</b>						
53	The company inventions have achieved an advantage over the competitors in new markets					
54	The company inventions helped in increasing the outcome in investment					
55	The company inventions achieved an increase in the annual sale compared with other competitors					
56	The company inventions achieved in the annual market portfolio compared with competitors					
57	The company inventions achieved an increase in its profit percentage compared to what the competitors did					
<b>Operation Performance</b>						
58	The company achieved a reduction in average of machine breakdown					
59	The company achieved an improvement in increasing the quality in using the specialized human resources					
60	The company achieved an improvement in increasing the machine functionality					
61	The company achieved an improvement in decreasing the average cost for each productive unit					
62	The company achieved an improvement in reducing in the percentage of the cost of the raw materials to the whole cost of the product					

<b>Customers Performance</b>						
63	The company achieved an increase in customer satisfaction through its unique product characteristics					
64	The company management cares about approval and execution of innovational Customer s suggestions					
65	The company management cares about customer satisfaction through an immediate response of introducing good services					
66	The company had achieved an increase in the duration of its Customer retention					
67	The company had achieved an increase in its ability in obtaining new customers					
<b>Learning &amp; Growth Performance</b>						
68	The company management cares on workers training to increase their innovational skills					
69	The company management stimulates the workers in order to get a continuous educational programs					
70	The company management consolidates the network linking between its branches and center for efficient information exchange					
71	The company management cares about building informational deposits through what it has in its information basis					
72	The company management cares about increasing its level of its employee satisfaction					

## Appendix A2.2

Questionnaire in Arabic (this version has been submitted to companies)

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

إِسْتَبْانَة

حضرة / سعادة المدير العام المحترم

تحية طيبة وبعد

تقوم الباحثة بإجراء دراسة بعنوان " الابتكار التنظيمي وأثره على أداء الشركات الصناعية "

( دراسة تطبيقية على قطاع الصناعات الأردنية المدرجة في سوق عمان للأوراق المالية) وذلك استكمالاً لمتطلبات الحصول على درجة الماجستير تخصص الإدارة - كلية الأعمال- جامعة عمان العربية، ولتحقيق أهداف الدراسة صُممت هذه الاستبانة بإعتماد مقياس ليكرت الخماسي ولغرض جمع البيانات التي تتطلبها الدراسة من حيث وجهة نظركم وموقعكم الوظيفي ، لذا أرجو التفضل بالاجابة على جميع فقرات الاستبانة علماً بان النتائج التي ستخلص اليها الدراسة متوقفة على مصداقية الاجابة عن الفقرات ، واية معلومات ستدلون بها ستعامل بسرية تامة ولاغراض البحث العلمي .

وسيتم تزويدكم بنتائج الدراسة وتوصياتها اذا رغبتكم بذلك .

يرجى وضع علامة (x) في الحقل الذي يمثل وجهة نظرك .وباستطاعة الباحثة الاجابة على استلتكم واستفساراتكم الخاصة بالاستبانة من خلال الاتصال بالرقم ٠٧٧٧٤٩٠٧٩٢ او البريد الالكتروني [asshoursafa@gmail.com](mailto:asshoursafa@gmail.com)

الباحثة

اسم المشرف

صفاء محمد عاشور

الدكتور غسان عيسى العمري

				(لأغراض توثيقية : اسم الشركة فقط ، و لن يتم نشرها		
رئيس قسم	مدير دائرة	مساعد المدير العام	مدير عام	١. الرجاء تحديد موقعك الوظيفي في الشركة لطفا		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
2 . الرجاء تعبئة المعلومات الشخصية التالية: 2						
انثى <input type="radio"/>		ذكر <input type="radio"/>		الجنس :		
اكبر من ٥٠	٤٠ - اقل ٥٠	٣٠ - اقل ٤٠	اقل من ٣٠	العمر (سنة) :		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
دبلوم عالمي	بكالوريوس	دبلوم متوسط	ثانوية	المستوى العلمي :		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		دكتوراه	ماجستير			
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
اكثر من ١٥	١٠ - اقل ١٥	٥ - اقل ١٠	اقل من ٥	عدد سنوات الخبرة العملية (سنة):		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
حجم الشركة من حيث راس المال بالدينار الاردني ( مليون) :. ٣						
اكثر من ٥٠	٤٠ - ٥٠	٣٠ - ٣٩	٢٠ - ٢٩	١٠ - ١٩	١ - ٩	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
4 : اسم القطاع حسب تصنيف سوق عمان المالي (. القطاع الصناعي الذي تمثله شركتكم 4						
الادوية	الهندسة	النسيج والملابس	الاذنية والمعلبات	الكهربائية	الكيمائية	التبغ والسجائر
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
التعدين						
<input type="radio"/>						
5. اختر نوع شهادات وجوائز التميز او الجودة التي حصلت عليها الشركة :						
	لا شيء	جائزة الملك عبد الله الثاني للتميز	ISO1400	ISO 9001		
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
في حال رغبتكم بالحصول على نتائج الدراسة وتوصياتها نرجو تزويدنا بريدكم الالكتروني						



التسلسل	الفقرات	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
		1	2	3	4	5
	الابتكار التكنولوجي					
	ابتكار العملية					
1	توفر إدارة الشركة الموارد اللازمة من أجل تحويل الأفكار الجديدة إلى منتجات جديد .					
2	تحرص إدارة الشركة على زيادة قدرتها في تحديث التكنولوجيا في عملياتها الانتاجية .					
3	تحرص إدارة الشركة على الاستغناء عن الأنشطة التي لا تضيف قيمة في عمليات الإنتاج.					
4	تحرص إدارة الشركة على تحسين سرعة استجابة تقنيات الانتاج للتغيرات التكنولوجية					
5	تحرص إدارة الشركة على خفض التكلفة التشغيلية في عمليات الانتاج .					
	ابتكار المنتج من الناحية التقنية					
6	تشجع إدارة الشركة العاملين على الحصول على براءات اختراع جديدة .					
7	تحرص إدارة الشركة لأن تكون جودة منتجاتها أعلى من جودة منافسيها .					
8	تحرص إدارة الشركة على تقديم منتجات تعتمد على تقنية مختبرة .					

					9	تحرص إدارة الشركة على تقديم منتجات تعتمد على المعرفة الضمنية والتي يصعب على المنافسين تقليدها .
					10	تخصص إدارة الشركة ميزانية كافية للانفاق على البحث و التطوير.
					11	تستفيد إدارة الشركة من تراكمية التعلم بتقليل الفترة الزمنية اللازمة لاطلاق منتجات جديدة .
					12	تستفيد إدارة الشركة من تراكمية التعلم الذي يؤدي الى انخفاض السعر .
					13	تحرص إدارة الشركة على تقديم منتجات تعتمد على تكنولوجيا صديقة للبيئة .
						الابتكار التسويقي
						ابتكار ترويجي
					14	تحرص إدارة الشركة على زيادة مخصصات نفقات الترويج مقارنة بالمنافسين.
					15	تحرص إدارة الشركة على استخدام اساليب ترويجية متنوعة .
					16	تحرص إدارة الشركة على الاستفادة من شبكات Facebook, التواصل الاجتماعي في عملية الترويج ( Twitter.)
					17	تروج الشركة منتجاتها من خلال موقعها على الانترنت .
					18	تقوم ادارة الشركة بتحديث موقعها الالكتروني بشكل مستمر
					19	تستخدم الشركة اساليب ترويج فاعلة .

					ابتكار توزيعي	
					تسعى إدارة الشركة الى تقليل معدل وقت تسليم المنتج للعميل .	20
					تحرص إدارة الشركة على عرض منتجاتها على موقعها الالكتروني على شبكة الانترنت	21
					تمكن الشركة الزبائن من طلب المنتجات من خلال موقعها الالكتروني	22
					تقيم إدارة الشركة منافذ توزيع منتجاتها باستمرار .	23
					تمتاز إدارة الشركة بدقة الالتزام بتسليم منتجاتها في الوقت المحدد.	24
					إبتكار سعري	
					تحرص إدارة الشركة على التنوع في استراتيجيات التسعير .	25
					تحرص إدارة الشركة على منح العميل تسهيلات مالية في الدفع للحصول على المنتج .	26
					توفر إدارة الشركة لزبائها امكانية الدفع بواسطة البطاقات الائتمانية.	28
					تستخدم إدارة الشركة استراتيجية كشط السوق ( طرح المنتج بسعر مرتفع ) عند طرحها منتجها الجديدة .	29
					ابتكار المنتج من الناحية التسويقية	
					تحرص إدارة الشركة لتجديد المظهر الخارجي للمنتج دون المساس بميزاته الاساسية .	30
					تحرص إدارة الشركة على اقامة البحوث التسويقية .	31
					تحرص إدارة الشركة على تحسين خدمات ما بعد البيع .	32

					33	تحرص إدارة الشركة على توفر السلامة والامان في منتجاتها
					34	تحرص إدارة الشركة على التنوع في طرح منتجات جديدة للأسواق.
					35	تحرص ادارة الشركة على اضافة مزايا ومنافع جديدة للمنتج باستمرار .
الابتكار الإداري						
ثقافة الابتكار						
					36	تحرص إدارة الشركة على تفعيل تشاركية المعرفة بين العاملين لديها.
					37	تسعى إدارة الشركة للحصول على الاقتراحات التي تساهم في حل مشكلات العمل.
					38	تؤكد إدارة الشركة على قيمة التعلم المستمر للعاملين
					39	تحث إدارة الشركة على اكتساب العاملين للمعرفة المتجددة كجزء من ثقافتها التنظيمية .
					40	تؤكد إدارة الشركة على جعل ثقافة الابتكار اساس جداراتها الجوهرية
الهيكل التنظيمي						
					41	تعمل إدارة الشركة على تفويض العاملين صلاحية اتخاذ القرارات .
					42	يمتاز الهيكل التنظيمي في الشركة بقدرته على استخدام التقنيات الحديثة.
					43	تحرص إدارة الشركة على تمكين العاملين من حل المشكلات الفورية التي تواجههم بالعمل.

					44	يتميز الهيكل التنظيمي بانه من نوعية الهياكل العضوية (المرونة)
					45	تتبنى الهياكل التنظيمية في الشركة اسلوب فرق العمل المدارة ذاتيا
استراتيجية الابتكار						
					46	تحرص إدارة الشركة على التناغم بين مستويات استراتيجياتها الثلاث
					47	تحرص إدارة الشركة على التحالفات الاستراتيجية مع شركات أخرى.
					48	تؤكد إدارة الشركة على الفهم العميق لديناميكيات استراتيجيات الابتكار
					49	تحرص إدارة الشركة على تصميم العمليات التي تسعى لتنفيذ استراتيجية الابتكار
					50	تحرص إدارة الشركة على تقييم استراتيجية الابتكار باستمرار .
					51	تحرص إدارة الشركة على اتباع الاستراتيجيات الحديثة في إدارة مواردها البشرية .
					52	تؤكد إدارة الشركة على تحقيق التوازن بين الكفاءة و المرونة في العمل

الأداء المالي					
				53	حققت ابتكارات الشركة ميزة عن المنافسين في دخول أسواق جديدة .
				54	ساعدت ابتكارات الشركة في زيادة العائد على الاستثمار.
				55	حققت الشركة زيادة في المبيعات السنوية مقارنة بما حققه المنافسون.
				56	حققت الشركة زيادة في الحصة السوقية مقارنة بحصة المنافسين .
				57	حققت الشركة زيادة في نسبة ربحيتها مقارنة بحصة المنافسين.
أداء العمليات الداخلية					
				58	حققت الشركة تحسناً في تخفيض معدل توقف الآلات
				59	حققت الشركة تحسناً في رفع كفاءة استخدام الموارد البشرية المتخصصة.
				60	حققت الشركة تحسناً في زيادة نسبة تشغيل الآلات
				61	حققت الشركة تحسناً في تخفيض معدل تكلفة الوحدة الانتاجية .
				62	حققت الشركة تحسناً في تخفيض نسبة تكلفة المواد الأولية الى اجمالي التكاليف .
العملاء					
				63	حققت الشركة زيادة في رضا العميل وذلك من خلال مزايا منتجاتها الفريدة .
				64	تحرص إدارة الشركة على قبول مقترحات عملائها الابتكارية لتنفيذها.

					65	تحرص إدارة الشركة على رضا العملاء من خلال سرعة الاستجابة في تقديم خدماتها .
					66	حققت الشركة زيادة مدة الاحتفاظ بالعملاء
					67	حققت إدارة الشركة زيادة قدرتها في الحصول على عملاء جدد.
التعلم و النمو						
					68	تحرص إدارة الشركة على تدريب العاملين لزيادة مهاراتهم الابداعية .
					69	تعمل إدارة الشركة على تحفيز العاملين من اجل الاستمرار في التعلم .
					70	تعمل إدارة الشركة على تعزيز الربط الشبكي بين الفروع والمركز لتبادل المعلومات بكفاءة .
					71	تحرص إدارة الشركة على بناء المخزون المعرفي من قواعد المعرفة لديها .
					72	تحرص إدارة الشركة على زيادة مستوى رضا الموظفين.

شاكرين لكم حسن تعاونكم

وتفضلو بقبول فائق الاحترام

## Appendix A3

### Arbitrators

Arbitrators of the faculty members in Amman Arab University, the University of Jordan, and Mutah University, also a number of high knowledge of other outside the university from specialists.

اسم المحكم	اسم الجامعة
الأستاذ الدكتور ابراهيم الروابدة	الجامعة الاردنية
الاستاذ الدكتور ايمن قطاونه	جامعة مؤتة
الأستاذ الدكتور شوقي ناجي جواد	جامعة عمان العربية
الأستاذ الدكتور عبدالعزيز ابونبعة	جامعة عمان العربية
الأستاذ الدكتور محمد ابو صالح	جامعة عمان العربية
الاستاذ الدكتور محمد ابو يمن	جامعة عمان العربية
الأستاذ الدكتور موسى اللوزي	الجامعة الاردنية
الأستاذ الدكتور نعمة الخفاجي	جامعة عمان العربية
الدكتور رفعت الشناق	الجامعة الاردنية
الدكتور عباس الرفاعي	الجامعة الاردنية
الدكتورة هناء الحنيطي	جامعة عمان العربية
الدكتور عماد مسعود	جامعة عمان العربية
الدكتور يوسف العبدلات	الجامعة الاردنية
السيد خليل ناصر	مركز ايداع الاوراق المالية



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