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Factors Affecting on ERP (Enterprise Resources Planning) System Adoption in The Gaza Strip Manufacturing Firms

العوامل المؤثرة في تبني نظام تخطيط موارد المؤسسات
للمنشآت الصناعية في قطاع غزة

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أنا الموقع أدناه مقدم الرسالة التي تحمل العنوان:

Factors Affecting on ERP (Enterprise Resources Planning)

System Adoption in The Gaza Strip Manufacturing Firms

العوامل المؤثرة في تبني نظام تخطيط موارد المؤسسات

للمنشآت الصناعية في قطاع غزة

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Abstract

Adopting an ERP (Enterprise Resources Planning) system in Gaza Industries can play a good role in the market, but there are various factors that either encourage the adoption or hinder its adoption. This study illustrates better understanding about adoption factors of ERP system for manufacturing firms at Gaza strip based on viewpoint of business owners and CEOs (Chief Executive Officer), Whole population around 1280 firms (PCBS: Economic Surveys Series, 2013) which are geographically distributed from north to south of Gaza strip and from four industrial sectors which are: Food & Beverage Processing, Textile & Garment, Leathers and Wood Industries.

Data collected through questionnaires distributed to a random sample of 300 owners/managers of the firms, Total (222) questionnaires were received and analyzed using descriptive statistics through SPSS program.

The results showed that "Palestinian context" dimension has the first rank in terms of importance with relative weight 85.9%, followed by "The perceived benefits of applying ERP systems" with relative weight 75.4%, "Top management support" with relative weight 73.6% and "technological Impacts" with relative weight 71.8%. "CEO characteristics and attitude towards adoption of IT" with relative weight 71.2% , "ERP system cost" with relative weight 69.3%, "Environmental characteristics" with relative weight 67.6% and " Employees's IS knowledge " with relative weight 64.2% , while "The expected complexities of applying ERP systems" come last with relative weight 61.7%.

The study recommended to all donors and government to exert more care and sponsor manufacturing sectors in way to encourage them applying ERP systems or similar IT systems. In addition, it recommended PFI (Palestinian Federation of Industries) to support business owners of the manufacturing sectors with awareness courses related to ERP system and learn the best ways to apply ERP and benefit from the advantages and capabilities of applying similar IT systems.

الملخص

إن تبني نظام تخطيط موارد المؤسسات في قطاع غزة من الممكن أن يلعب دوراً جيداً في السوق، لكن هناك مجموعة عوامل مختلفة قد تشجع أو تعيق قرار تبني النظام. هذه الدراسة تعطي فهم جيد للتعرف على العوامل التي تساهم في اتخاذ قرار تبني نظام تخطيط موارد المؤسسات حسب وجهة نظر أصحاب الأعمال والمدراء التنفيذيين في مصانع قطاع غزة. مجتمع الدراسة حوالي ١٢٨٠ مصنع (الإحصاء الفلسطيني: سلسلة المسوح الاقتصادية، ٢٠١٣) موزع جغرافياً من الشمال إلى الجنوب في قطاع غزة من أربعة قطاعات صناعية والتي هي: الصناعات الغذائية، الخياطة والنسيج، صناعات الجلدية و الصناعات الخشبية.

وقد تم جمع البيانات من خلال استبيان تم توزيعه على عينة مكونة من ٣٠٠ مدير/صاحب مصنع، تم استرداد ٢٢٠ استبيان ومن ثم تم تحليلها باستخدام الإحصاء الوصفي عن طريق برنامج SPSS.

أظهرت النتائج أن العامل الأكثر أهمية على قرار تبني نظام تخطيط موارد المؤسسات هو الوضع الفلسطيني في قطاع غزة بنسبة ٨٥.٩% و يتبعه الفوائد المرجوة من تطبيق نظام موارد المؤسسات بنسبة ٧٥.٤% ثم دعم الإدارة العليا بنسبة ٧٣.٦% والجوانب التكنولوجية بنسبة ٧١.٨% و يليه خصائص صاحب المصنع / المدير التنفيذي وتوجهاته نحو تكنولوجيا المعلومات بنسبة ٧١.٢% ثم تكلفة تكنولوجيا المعلومات والنظم المتطورة بنسبة ٦٩.٣% والخصائص البيئية بنسبة ٦٧.٦% وكفاءة الموظفين بنسبة ٦٤.٢% بينما التعديات المتوقعة من تطبيق نظام تخطيط موارد المؤسسات تأتي أخيراً بنسبة ٦١.٧%.

أوصت الدراسة لجميع الممولين والمانحين والحكومة لمنح مزيد من الإهتمام والدعم للقطاعات الصناعية بشكل يشجع تطبيق نظام تخطيط موارد المؤسسات أو أنظمة مماثلة. بجانب ذلك أوصت اتحاد الصناعات بدعم وتمكين دورات تعريفية توعوية لأصحاب المصانع عن الأنظمة المتطورة المطبقة في المصانع في العالم ومعرفة الفوائد المرجوة وكيفية الاستفادة منها.

Dedication

Dedicated to ones who gave me life and grew me up,

Those angles who were always my supportive.

I owe them each moments of my life and praise them in every
breath.

Dedicated to the most holy person, **Mother**

And the dearest person, **Father**.

All my beloved ones **sisters, brothers and friends**.

My husband

I could never have done this without your faith, support and
constant encouragement.

Thank you all

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List of Abbreviations

ERP	Enterprise Resources Planning
SMEs	Small and Medium Sized Enterprises
PFI	Palestinian Federation of Industries
MRP	Material Requirement Planning
MRPII	Manufacturing Resource Planning
MPC	Manufacturing Planning & Control
CIM	Computer Integrated Manufacturing
PA	Palestinian Authority
IT	Information Technology
IS	Information System
CRM	Customer relationship management
APS	Advanced Planning and Scheduling
TOE	Technology-Organization-Environment
ES	Enterprise System
SCM	Supply Chain Management
EDI	Electronic Data Interchange
HRM	Human Resource Management
ICT support	Information and communications technology
CEO	Chief Executive Officer
CAD	Computer Aided Design
CAM	Computer Aided Manufacturing
PalTrad	Palestinian Trade Center
PITA	Palestinian Information Technology Association of Companies
PARC	Palestinian Agricultural Relief Committees
PCBS	Palestinian Central Bureau of Statistics
PSC	Palestinian Shippers council
TFP	Trade Facilitation Project
OCHA	UN/Office for the Coordination of Humanitarian Affairs
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
US	United States
USAID	United States Agency for International Development
WFP	World Food Program
MNE	Ministry of National Economy
GDP	Gross Domestic Product
MSMEs	Micro, Small and Medium Enterprises
WIU	Wood Industries Union
SPSS	Statistical Package for the Social Sciences
EERP	Extended ERP
BPR	Business Process Reengineering

Chapter 1

Introduction

Chapter 1

Introduction

1.1 Introduction

ERP system can bring about an essential shift in the way a business functions, moving it from a functional to a process-oriented way of operating. ERP promises to incorporate best business practices, improve coordination and control and link “back-office and front-office operations”(Ram, Corkindale, & Wu, 2013b).

ERP software appeared over the past decade, and is considered to be new generation of material requirements planning (MRP) and manufacturing resource planning (MRP II) (Al-Fawaz, Eldabi, & Naseer, 2010). But is not restricted to estimate needed materials as MRP, Instead it seeks to integrate the complete range of the business processes and functions. Adopting ERP decision can be considered fundamental business decision affecting many aspects of a firm’s business functions (Al-Fawaz et al., 2010).

ERP represents one of such highly developed information technologies that integrate managerial and operational processes within and beyond the traditional boundaries (Hart O Awa, Awa, Ojiabo, & Ojiabo, 2016).

The ERP system is an enterprise information system designed to integrate and optimize the business processes and transactions in a corporation. The ERP is an industry-driven concepts and systems and is generally established by the industry as a practical solution to achieve integrated enterprise information systems (Moon, 2007).

Adoption of ERP system in the developing countries such as African countries and Asia have already been initiated in their industrial organizations (Addo-Tenkorang & Helo, 2011).

Any business needs to study all related adoption constraints and positive drivers to decide to adopt or not, constraints represented through the needed considerable investments in terms of effort, time and money , as well as the related

organizational change the decision to adopt an ERP system is long term commitment (Dwivedi, Papazafeiropoulo, Shiau, Hsu, & Wang, 2009).

In the other hand adoption factors are benefits of applying ERP systems, internal support from top management, current technological infrastructure and CEO or business owner characteristics and attitudes toward adoption of new IT (Grover, 1993). This study examines the factors that affect the decision to adopt ERP in Gaza strip's Manufacturing firms.

1.2 Statement of Problem

ERP research and development could be considered deficient; few journal articles published on the topics such as ERP Trends and perspective's, specific fields like; ERP in SMEs (Small and Medium Sized Enterprises) and ERP in developing countries (Africa and parts of Asia) (Addo-Tenkorang & Helo, 2011).

Based on researcher meeting with Mr. Mamoun Besaiso about this research "Factors Affecting on ERP System Adoption at Gaza Strip Manufacturing Firms" clarify importance of this research for two main reasons , first extending ERP to be applied in Manufacturing firms is interesting area was focused recently in few researches, another reason adopting ERP system could increase resilience of some of manufacturing firms, where firms owners are suffering from repetitive closure of crossings borders and difficulty of selling and marketing their goods and products which make them more suitable for applying new technology, majority of those firms are family business so their prospects for development could be limited, imported goods impose intensive competition with high quality requirements.

The economic nature of Gaza market encourage making studies to understand the possibility of ERP system adoption and the factors that influencing the adoption process, There is particular factors and concerns for any businesses to adopt or not ERP system to maintain the competitive advantage by integrate and support all the major processes. Current situation in Gaza strip obligate the manufacturing firms to work hard to attract and retain competitive advantages.

In order to study the possibility of ERP system adoption in manufacturing firms in Gaza , factors that influencing ERP system acceptance must be studied and understand, most often associated factors inhibit or increase the motivation to adopt are CEO characteristics and his/her attitude towards adoption of IT , Top Management Support, environmental characteristics (Competition intensity – Information intensity –Customer power) , Employees’s IS knowledge, Technological impacts, ERP system cost, ERP characteristics and Palestinian context.

Therefore, this research intends to provide new viewpoints in understanding those factors by studying Gaza manufacturing firms.

The research problem can be concluded in the following question **“What apparent factors that influencing the ERP system adoption in Gaza Strip manufacturing firms?”**

By answering the following questions:

1. What are the available IT infrastructure, resources and support at Gaza strip manufacturing firms?
2. To what extent do “CEO characteristics” support ERP system adoption decisions at Gaza strip manufacturing firms?
3. To what extent does “Top management” support ERP system adoption decision at Gaza strip manufacturing firms?
4. To what extent do “Environmental characteristics” (Competition intensity – Information intensity –Customer power) support ERP system adoption decision at Gaza strip manufacturing firms?
5. To what extent does “Employees’ IS knowledge” support ERP system adoption decision at Gaza strip manufacturing firms?
6. To what extent does “Technological impact” support ERP system adoption decision at’8 Gaza strip manufacturing firms?
7. To what extent does an “ERP system cost” support ERP system adoption decision at Gaza strip manufacturing firms?
8. To what extent do “Perceived benefits and Expected complexities” affect on ERP system adoption decision at Gaza strip manufacturing firms?

9. To what extent does “Palestinian context” influence on ERP system adoption decision at Gaza strip manufacturing firms?
10. What are the future intention of manufacturing firms toward IT and ERP?
11. Are there any significant differences between respondents due to (governorate, job title, establishment year, nature of the business, type of company, type of industrial sector, number of employees, customer type)?

This study illustrates these different viewpoints defined above to provide a richer study to examine the factors that influencing the ERP system adoption in Gaza Strip of the manufacturing firms.

1.3 Research Variables

Figure (1.1) shows the variables of this study and the relationships between them. There is independent variables which are CEO characteristics and his/her attitude towards adoption of IT , Top Management Support ,environmental characteristics (Competition intensity – Information intensity –Customer power) , Employees’s IS knowledge, Technological impacts ,ERP system cost ,ERP characteristics , Palestinian context and dependent variable which is ERP system adoption.

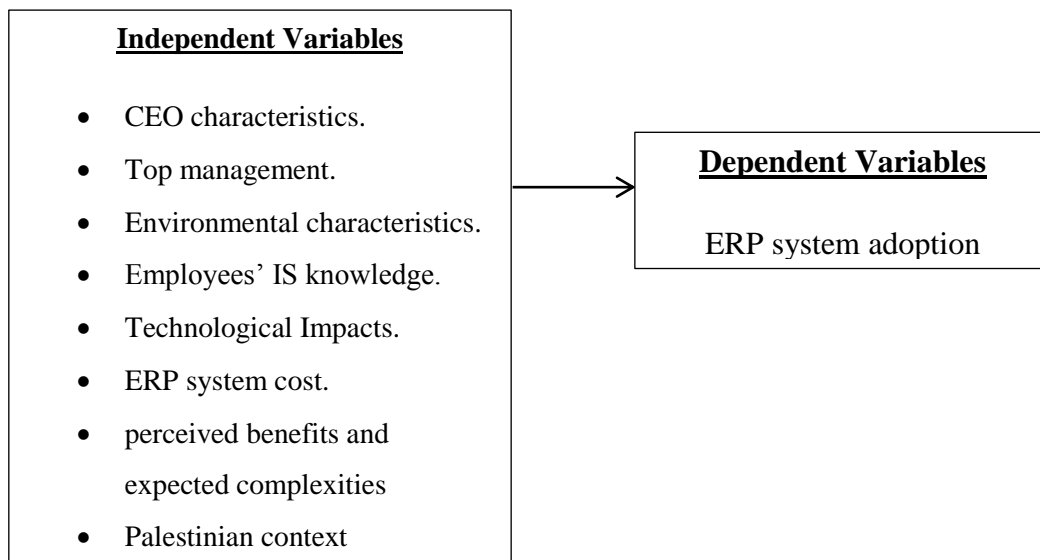


Figure (1.1): Research Model

Source: conceptual model created by researcher (Dwivedi, Papazafeiropulo, Shiau, et al., 2009; Grover, 1993; Thong, 1999; Thong & Yap, 1995).

These variables defined as:

1. CEO characteristics and his/her attitude towards adoption of IT:

CEO is entrepreneur figure who is vital in defining the innovative attitude of a small business (Thong & Yap, 1995).

2. Top Management Support:

Active and enthusiastic support of Top management is important for innovation adoption which will reflect on all levels of the business (Grover, 1993).

3. Environmental Characteristics (Competition intensity – Information intensity –Customer power):

- Under high competitive intensity, greater resource allocations for innovation are likely resulting in greater innovation. Then high competitive industries would be more likely to adopt innovation(Grover, 1993).
- Information intensity can be enhanced through information technology. Greater complexity of product description in a firm or industry, more information is needed to specify the attributes of the product to sell it, so information intensity is important for innovation adoption decision (Grover, 1993).
- It would desirable to introduce new innovation in industries where customers are concentrated, purchase standard products in large volumes, and have little difficulty in changing suppliers, so customer power is important for innovation adoption decision (Grover, 1993).

4. Employees's IS knowledge:

There is empirical evidence that businesses with employees who have more knowledge of the technological innovation are likely to use more of the innovation (Thong, 1999).

5. Technological Impacts:

Technological impact on an enterprise includes newness, complexity , maintenance vendor support, and competitors usage, Technological reasons are the key reasons for reconsidering and installed ERP system (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009).

6. ERP System Cost:

The high costs associated with it and the problems of implementing it have caused business to re-examine their plans for acquiring and implementing enterprise wide systems (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009).

7. ERP Characteristics:

a. Perceived Benefits.

The inventory reduction, data integration and cost reduction are the main justifications of ERP projects because these are the major perceived benefits brought about by on ERP system (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009).

b. Expected Complexities.

Complexity can be defined as the degree of difficulty users experience in understanding or using an innovation. Thus, unless users have high achievement needs, complexity is likely to be negatively related with adoption (Grover, 1993).

8. Palestinian Context:

Palestinian industries face many constraints and obstacles related to lack of raw materials, electricity supply, price hike, existing machinery situation, blockade and political situations. All that could be positive or negative influence on ERP system adoption decision.

ERP System Adoption: the dependent variable is adoption of ERP system. In this study, adoption of ERP is defined as the initial phase when companies decide on investing in an ERP system.

1.4 Research Objectives

The purpose of this study is to investigate the factors affecting on the ERP system adopting among the manufacturing firms in Gaza Strip. Specifically, the study aims at achieving the following objectives:

- Recognize the available IT infrastructure, resources and support at Gaza strip manufacturing firms.
- Identify to what extent CEO characteristics support ERP system adoption decision at Gaza strip manufacturing firms.
- Identify to what extent Top management support ERP system adoption decision at Gaza strip manufacturing firms.

- Identify to what extent Environmental characteristics support ERP system adoption decision at Gaza strip manufacturing firms.
- Identify to what extent Employees' IS knowledge support ERP system adoption decision at Gaza strip manufacturing firms.
- Identify to what extent Technological impact support ERP system adoption decision at Gaza strip manufacturing firms.
- Identify to what extent ERP system cost support ERP system adoption decision at Gaza strip manufacturing firms.
- Identify to what extent Perceived benefits and Expected complexities support ERP system adoption decision at Gaza strip manufacturing firms.
- Identify to what extent Palestinian context support ERP system adoption decision at Gaza strip manufacturing firms.
- Identify the future intention of manufacturing firms toward IT and ERP system.
- Investigate the effect of demographic factors (governorate, job title, establishment year, nature of the business, type of company, type of industrial sector, number of employees, customer type) on ERP system adoption decision.

1.5 Study Hypothesis

- **Ha1:** CEO innovation and his/her attitude towards adoption of IT have a strong and positive relationship with ERP adoption decision.
- **Ha2:** Top management support has a strong and positive relationship with ERP adoption decision.
- **Ha3:** Environmental characteristics of competition intensity, Information intensity and customer power have a strong and positive relationship with ERP adoption decision.
- **Ha4:** Employees's IS Knowledge has a strong and positive relationship with ERP adoption decision.
- **Ha5:** Higher technological impacts have a strong and positive relationship with ERP adoption decision.
- **Ha6:** ERP system cost has a strong and negative relationship with ERP adoption decision.

- **Ha7:** The perceived benefits of applying ERP systems have a strong and positive relationship with ERP adoption decision.
- **Ha8:** The expected complexities of applying ERP systems have a strong and negative relationship with ERP adoption decision.
- **Ha9:** Palestinian context has a strong and negative relationship with ERP adoption decision.

1.6 Importance of the study

This study is important from different perspectives as follow:

First: Theoretical importance:

1. The growing use and apply of ERP system by firms specially industry sectors in the world.
2. This study is considered as an important reference for those interested and involved in the areas of research, since it studies ERP system adoption, which has important benefits in business growth and increase competitiveness, innovation and the growth of new markets.
3. Lack of Palestinian Studies on the ERP system adoption – according to the researcher’s knowledge-.
4. This study is a contribution to the development of new knowledge for researchers and interested in understanding the ERP system adoption drivers.

Second: Practical importance:

- 1- This study will may help PFI and government institution to know how to support ERP system adoption of manufacturing firms at Gaza strip.
- 2- This study provides some suggestions for increasing the awareness of firms owners and CEOs about technology impact and ERP system.

1.7 Limitation

- **Place Limitation:** Researcher couldn’t survey all firms’ owners and CEOs at Gaza strip for the difficulty of communication.
- **Target Group characteristics:**
 - Majority of Gaza strip manufacturing firms are family business make the communication and responses more difficult.

- Some of firms' owners have inadequate knowledge about ERP system which this affect on their understanding and responding of the questionnaires.

1.8 Structure of the thesis

The study consists of six chapters, Chapter one display a general introduction of the research. It introduces a statement of the problem, research hypothesis, objectives, and importance of the study, a brief of structure of the thesis. The following chapter is chapter Two, which talks about the literature review. It includes a brief discussion of relevant area in ERP system and Industrial sector in Gaza strip. The next chapter is chapter Three, which presents relevant studies and research papers in the fields of ERP system adoption. Chapter Four includes research design, Study population and sample, the instrument questionnaire, piloting, data collection, data entry and analysis. And Chapter Five includes percentages, significance and correlation tables relating to questionnaire's data, study constructs and hypotheses. The last one is chapter Six Conclusions & Recommendations: This chapter includes conclusions and the recommendations of the study.

1.9 Chapter Summary

Chapter one showed an overall the framework of the study through previewing a general introduction on the factors affecting on ERP system. Then, the researcher addressed the main components of the research by previewing a statement of the problem, research hypothesis, objectives, and importance of the study, a brief of structure of the thesis.

Chapter 2

Literature Review

Chapter 2

Literature Review

2.1 Introduction

The ERP is an industry-driven nature and notion, and is entirely approved by industry as practical solution to attain integrated enterprise information systems(Moon, 2007). Which ERP is software represents one of state of the art information technologies that integrate managerial and operational processes, ERP integrates and supports human resource, production, finance, procurement and accounting, marketing and distribution, and other functional and sub-functional systems (Hart O Awa et al., 2016).

ERP turned into a key strategic tool for all firms operating in nowadays competitive and globalized economy (Antoniadis, Tsiakiris, & Tsopogloy, 2015), All firms regardless of their size are facing various challenges such as globalization of markets, knowledge economy and e-commerce. This new environment predetermine each firm to survive and become more competitive by only making substantial use of information technologies and information systems (IT/IS). This substantial use of IT/IS has transmuted the ERP systems market into the industry's fastest developing sector. In other words ERP systems have become vital strategic tools in today's competitive business environment (Poba-Nzaou, Raymond, & Fabi, 2008).

The way organizations conduct business and operations have been transformed by ERP applications, through dramatically improving financial transparency, supply chain and operations management, marketing and customer services, human resources management, by integrating all resources and information (Antoniadis et al., 2015).

So it is understandable that many current studies choose to investigate the factors that influence the acceptance or the rejection of IT innovations (Waarts, Everdingen, & Hillegersberg, 2002). Most of these studies build and test adoption models that inspired by the work of Rogers (1995), which is one of the frameworks used to study how anew innovation is adopted with name Diffusion of Innovation (DoI) frameworks (Miss, Victoria, & Tulimevava, 2016).

2.2 The Definition of ERP

ERP is a software-driven business management system that integrates all aspects of every-day business and operations, this system help firms operate their business with more efficiency and raise levels of customer service and satisfaction, while this increase productivity and lower costs and inventories at the same time (Antoniadis et al., 2015).

ERP Systems is the IT innovation one of the fastest growing in the software market, and one of the most important developments in information technology in the last decade. ERP is software created to develop the organizational performance by integrates all departments and functions across a company into a single computer system (Somers & Nelson, 2001).

Jacobs (2007) defined ERP as framework for organizing ,defining and standardizing the business processes necessary to effectively plan and control an organization so the organization can use its internal knowledge to seek external advantages. ERP can handle the majority of an enterprise’s system requirement in all functional areas.

ERP refers to large commercial software packages that promise a unified integration of information flow through an organization by linking various sources of information into a single software application and a single database (Nah, 2001).This system is supporting functional areas such as planning, manufacturing, sales, marketing, distribution, accounting, financial, human resource management, project management, inventory management, service and maintenance, transportation and e-business (Antoniadis et al., 2015).

According to (Jacobs, 2007) the variability with which the term “ERP” itself has been used over the last decade. The fundamental benefits of ERP systems do not in fact come from their inherent “planning” capabilities but rather from their abilities to process transactions efficiently and to provide organized record keeping structures for such transactions. Planning and decision support applications represent optional additions to the basic transaction processing, query and report capabilities included with a typical system. Ambiguity about the term ERP has also lead to a relatively limited line of research in the area. Most ERP research to date has involved

exploratory surveys, targeting common and ubiquitous issues like “cost”, “time” and “success”.

Previous research and literature gives many definitions of ERP systems; Rosemann(1999) define ERP system as a standard and a customizable application software in the same time which provide business solution for the essential process(e.g. production planning and control, warehouse management) and key administrative functions (e.g. accounting, human resource management) of an enterprise (Themistocleous et al., 2005).

The literature insists of the importance of top management support represented by the CEO and senior leaders, many researches declare that organization cannot yield the full benefits of such complex and risky system without top management support, ensuring appropriate business plan and vision, re-engineering business process, effective project management, user involvement and education or training (Al-Jabri & Roztockki, 2015).

ERP start from historical position of tool to software to manage data that has been evolved into an integrated system, a technology, an organization wide business process application which take along significant changes and improvement at all levels in the organization (Al-Fawaz et al., 2010).

2.3 Benefits of ERP

The increasing demand for ERP applications has many reasons, for example, competitive burdens to become a low cost producer, prospects of revenue growth, ability to compete globally, and the necessity to re-engineer the business to respond to market challenges. Benefits of a correctly selected and implemented ERP system can be significant leading to considerable reductions in raw material costs, inventory cost, lead time for customers, production time, and whole production costs (Rajan & Baral, 2015).

ERP is software that facilitates the flow of information among all functions within an enterprise. It sits on a common database and is supported and customized by a single development environment to support an organization’s business processes. For many reasons, the commercial market for ERP systems grew rapidly in the 1990s. ERP implementations have been enabler for many corporate reengineering activities. They provide an opportunity for large corporations to shed

aging legacy systems, old work processes and counter-productive company cultures, and to radically redefine how the business is run. ERP systems are sold back to CEO's and CFO's as strategic solutions and not as computer software (Al-Fawaz et al., 2010).

ERP provides two main benefits that do not exist in non-integrated departmental systems: (1) a unified enterprise view of the business that includes all functions and departments; and (2) an enterprise database where all business transactions are entered, recorded, processed, monitored, and reported. This unified view increases the requirement for, and the extent of, interdepartmental cooperation and coordination. But it enables companies to achieve their objectives of increased communication and responsiveness to all stakeholders (Umble, Haft, & Umble, 2003).

Business benefits of ERP could be shown as follows (Saputro, Handayani, Hidayanto, & Budi, 2010):

- Quickened response time.
- Reduced financial closing cycle time.
- Improved customer relationship management.
- Improved on-time delivery.
- Improved interaction with suppliers.
- Reduced direct operating cost.
- Lowered inventory level.
- Support faster information transactions.
- Increasing productivity.
- Improved decision making.

When ERP systems are fully understood and implemented as it should be in the business organizations, they can gain many vital benefits and improvements, ERP system needs massive resources to be implemented so it is costly and risky investment. However firms and companies are eager to invest in ERP systems, they want to be certain that their investments return the expected benefits (Al-Jabri & Al-Hadab, 2008). The other benefits of ERP systems are its complete integration with all the business processes, reduction in the capacity of data entry, adaptability and applying best practices (Rajan & Baral, 2015).

ERP benefits could be classified into two types: tangibles, which can affect on the first line of the business; and intangibles which are less quantifiable. For example, cost reduction can be counted as tangible benefit while improving customer services by more smiling and happy faces is intangible. ERP Previous literature classified ERP benefits into five categories: IT infrastructure, operational, managerial, strategic, and organizational benefits .Realizing the expected benefits of ERP usually takes 3–4 months (or more) after full deployment, but many organizations are still struggling to derive benefits from the ERP system they have implemented (Al-Fawaz et al., 2010).

In spite of variety and plentiful benefits expected from ERP system, the relationship between ERP adoption and organizational performance is inconclusive, for understanding and realization of benefits of ERP implemented it should accompanied with full participation and user' support, information technology alone would not reflect on organizational performance, and the technology must be properly implemented for information technology to affect performance (Kharuddin, Foong, & Senik, 2015).

2.4 ERP History and Its Evolution

In the 1960's the primary competitive thrust was costly so all manufacturing companies focused on inventory control, their strategy based on high volume production, cost minimization to ensure the customer satisfaction and still maintain competitive, this was the introduction of newly computerized reorder point (ROP) systems including economic order quantity and economic reorder point to meet the basic needs of manufacturing planning and control (MPC).In the late 1960s MRP was born, MRP is backbone of MRP II and ERP, this early MRP application software was eccentric method for scheduling and planning materials for complex manufacturing products. In the 1970's, MRP systems were developed , the first version was big, clumsy and expensive, the development of speed and the capacity of the disk (random access) storage was a major enabling technology for development of more integrated business information systems. The software tools were highly limited by modern standards (Elragal & Haddara, 2012).

In the late 1970s the initial competitive thrust was towards marketing, which resulted in the adoption of the target market strategies with necessity of larger

production integration and planning .MRP fit nicely for all these needs and became well-known as the fundamental material planning concept used in production management and control. In the 1980's, companies were more driven to be more engaged in using the available and powerful technology and were able to couple the movement of inventory with the coincident financial activity. MRP II systems appeared and were successful in incorporating the financial accounting system and the financial management system with the manufacturing and materials management systems. By that, companies had a more integrated business system which was able to deliver the material and capacity requirements associated with a desired operations plan (Elragal & Haddara, 2012).

By the early 1990's, the term enterprise resource planning ERP was invented by the Gartner Group. During the 1990s ERP includes more functions and supplements to the original modules. These ERP extensions include advanced planning and scheduling (APS), e-business solutions such as customer relationship management (CRM) and supply chain management (SCM) (Elragal & Haddara, 2012).

In other words ERP is historical development of business integration concepts from MRP and MRPII .MRP was used to estimate more efficiently the materials needed. MRP developed into MRP II, which encompassed new functionality such as capacity management, scheduling and sales planning. However MRPII was primarily seen as the next logical stage in efficient manufacturing planning, business realized that customer satisfaction and profitability are aims that apply to the entire enterprise, extending beyond manufacturing, and covering finance, sales and distribution, and human resources.

Computer Integrated Manufacturing (CIM) is observed as the following step, containing at least the technical functions of the product development and production process in a Comprehensive integration outline. The idea of a totally integrated enterprise solution is now called ERP (Klaus, Rosemann, & Gable, 2000).

ERP II is the forthcoming future as next generation of ERP systems. ERP II is mainly an extension of the traditional ERP systems to include e-commerce and supply chain operations (Elragal & Haddara, 2012).

ERP III is extended of ERP and ERP II which is future virtual enterprise structure with a flexible, yet powerful information system incorporating web-based SOA and cloud computing version. This structure would be able to integrate organizations across legal entities to include not only customers and vendors, but the entire market place (Hurbean & Fotache, 2014).

2.5 Innovation Diffusion Theory

Diffusion of innovations is a theory related to innovation of new ideas or technology, that seeks to clarify how, why and at what rate the innovation spread (Miss et al., 2016).

Innovation Diffusion is Rogers's theory (1983) that gave the world one of the greatest accepted theories of innovation technology. Later, other factors were combined to improve the model to be more comprehensive and explanatory (He & Wu, 2006).

Rogers (1983) asserts innovation in new concept with big impact on improvement to either individual or organization goals. Other definition of innovation of Poutsma (1987) state that innovation has four characteristics which they are:

1. Process innovation or production innovation.
2. Innovation push or market pull.
3. Planned innovation or incidental innovation.

Based on Poutsma's definition, ERP belongs to a process of innovation. ERP is an innovation beginning from the basis where it utilizes the information technology to continue with improvement of basis, which is a large development. The possible reason for ERP adoption is in accordance to the strong trend of technology push or market pull of Poutsma's definition. Thus, ERP is obviously a planned innovation (He & Wu, 2006).

Rogers popularized his theory in his book "Diffusion of Innovations" which was published in 1962. Innovation theory has been used to study adoption of IT innovations. Technological innovations present potential adopters with new means for solving problems and exploiting opportunities (Thong & Yap, 1995).

Technological innovation previous studies and literature has defined many factors as possible determinants of organizational adoption of an innovation. Most of these studies have examined the organizational characteristics and individual characteristics on adoption of innovations. Organizational characteristics include size, competition, centralization, specialization, functional differentiation and external integration; Researches have investigated individual characteristics of the chief executive officer (CEO). For the reason that CEO plays a vital role in a business he / she shapes future of the business and create new conditions which it's the basis of business growth. The influence of CEO even bigger in small business because of CEO plays main role in business survival. The reason behind this is CEO in small businesses is usually also the owner of business(Thong & Yap, 1995).

Based on Rogers (2003), the theory clarifies many exogenous factors that influence on adoption decision of information technology innovation (Akca & Özer, 2014).Rogers (2003) model explains the factors affecting innovation adoption by 28 attitudes grouped in five characteristics (Akca & Özer, 2014). These factors are as follow:

- a. Individual factors: the awareness of the possible user toward information system is essential driver of information adoption.
- b. Innovative factors: (Light & Papazafeiropoulou, 2004) the judgment of possible users who want to adopt innovation defined by these factors:
 - i. Relative advantage.
 - ii. Ease of use.
 - iii. Compatibility.
 - iv. Visibility.
 - v. Problem Solver.
 - vi. Standard.
 - vii. Technological Edge.
- c. Task factors: Task factors contain of coming sub-branches:
 - i. Commercial advantage
 - ii. User satisfaction.
 - iii. User resistance.

- d. Organizational factors: some features of organizational factors have influence on innovation adoption decision. It consists of these variables:
 - i. Interpersonal networks.
 - ii. Communication.
 - iii. Technological experience.
 - iv. Working teams.
 - v. Project leader.
 - vi. Interdependence from others.
 - vii. Adopter type.
 - viii. Management hierarchy.
 - ix. Size of organization.
 - x.
- e. Environmental factors: The transfer of innovation is also dependent on environment. Environmental factors consist of these elements:
 - i. Cultural value.
 - ii. Technological infrastructure.

According to literature which is suggest general categories of variables that may affect the adoption and diffusion of an innovation by organizations. These are innovation characteristics, adopter characteristics, internal environment characteristics and external environment characteristics (Waarts et al., 2002).

2.6 ERP Working Strategy

ERP systems are a complex multi-dimensional multi-tasking information system which is driving large and medium sized business adoption of integrated IT. ERP has gained distinction in information systems research since the late 1980's (Boon, Corbitt, & Peszynski, 2004).

The ERP system developed to carry out both traditional accounting activities concerning transaction and non-counting functions such as production scheduling, product design, inventory management, human resources management, and sales (Dillard & Yuthas, 2006).

Fundamental tactic of ERP methodology is linking internal and external organizational information systems, including the enterprise wide applications and supply chain management. ERP is filled of integration opportunities with customer,

suppliers, process and systems, that why beforehand ERP implementation there is important need for organizations to look at ERP using to explore all these possible integrations opportunities (Boon et al., 2004).

Even though firms and business have continued to invest heavily in ERP, how to realize the maximum benefits and create greater business values remains a mystery. Firms that have applied ERP are expected to achieve numerous benefits from using the system (Almahamid & Awsi, 2015).

2.7 ERP Adoption

Adoption in IS literature in general, and in ERP literature in specific, the term “adoption” is variably perceived by authors. Some authors identify it as a final phase in which users accept the ERP system, and others explain it as the initial phase when companies decide on investing in an ERP system (Haddara & Zach, 2011).

Many research discussed ERP adoption drivers, in SMEs from different viewpoints. A small number of studies (Dwivedi, Papazafeiropoulo, Ramdani, Kawalek, & Lorenzo, 2009; Ramdani & Kawalek, 2008) have implemented the Technology-Organization-Environment frame work (TOE) to develop a model to predict which SMEs are more expected to adopt in general Enterprise System (ES). Even though, the model developed was applied to predict the factors that affect SMEs to adopt ES, however it doesn't differentiate between factors that affect each type of system solely (e.g. ERP, SCM).

Some researchers concluded that ES adoptions in SME's are more influenced by internal organizational and technological factors, sooner than industry and market related factor (Dwivedi, Papazafeiropoulo, Ramdani, et al., 2009; Ramdani & Kawalek, 2008).

On the contrary, Schafermeyer & Rosenkrans (2008) propose that, the higher an SME collaboration within network of organizations, the more expected to adopt an ES, and more environmental influence it will get.

A research conducted in India debates that the business needs, competition, market survival, and customer retention are among the main drivers that force SMEs to adopt ERP system (Subba Rao, 2000).

Ravarini et al. (Ravarini, Tagliavini, Pigni, & Sciuto, 2000) suggests a pre-adoption framework for evaluating the suitability of an ERP system in alignment

with the degree of business complexity, and the extent of change that a company visualizes to achieve. Blackwell et al. (Blackwell, Shehab, & Kay, 2006) developed a decision support systematic methodology that assists decision makers in regard to adoption decisions and could improve the overall outcomes from the ERP adoption project. Other studies states that CEO's characteristics and the ERP perceived benefits are connected with ERP adoptions outcomes in Taiwanese SMEs (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009).

Other studies discussed the influence of certain organizations' characteristics on ERP adoption decisions. Research results indicate that business complexity is a weak predictor of ERP adoption (Themistocleous et al., 2005). While organization size is a strong adoption predictor (Mabert, Soni, & Venkataramanan, 2003; Raymond & Uwizeyemungu, 2007; Tagliavini, Faverio, Ravarini, Pigni, & Buonanno, 2002; Themistocleous et al., 2005). Moreover, SMEs' willingness and readiness of adopting ERP systems are affected by industry type in manufacturing firms (Raymond, Rivard, & Jutras, 2006; Raymond & Uwizeyemungu, 2007) . Other studies discuss that the lack of financial resources, and the obstacles that face SMEs while evaluating and selecting ERP do not have an influence on ERP adoption decision (Seethamraju & Seethamraju, 2008) , and that adoption drivers may vary according to SME size (Halonen, 2009).

Adoption of an innovation is the first step of any project seeking to apply and use it, usually adoption will need to extensive monetary and resource investments and this applies to ERP adoption so it also considered as innovation .This first step is very crucial stage and any lack of understanding or awareness can lead to severe troubles later on and a drain on serious organizational resources. The adoption stage has been recognized as one of most serious stages in the innovation process (Ram et al., 2013b).

Roger's definition of adoption: "the decision of any individual or organization to make full use of an innovation as the best course of action available"(Ram et al., 2013b). The identification of organizational ERP adoption drivers is important for successful achievement of an ERP project, By comparing ERP adoption to a typical IT system adoption researcher can find differences, ERP system is more complex, integrated in nature, more capital intensive and usually not

tailor made and it require different organizational capabilities to operate and maintain (Ram et al., 2013b).

First stage in an innovation process is the adoption stage which is decision making stage (Rogers 2003). This is vital stage and incorrect adoption decision could jeopardize existence of the organization. An understanding of the antecedents relating to the adoption stage can help organization to achieve saving in cost, time and reduce the risk of failures by creating better environment (Ram & Pattinson, 2009) .

2.7.1 Characteristics of ERP system Adoption

ERP system allows organizations to substitute their existing systems, while it standardizes the flow of management information. Gupta found that in case ERP system was successfully implemented it can increase competitiveness in by increasing not only the quality of products/ services but also and most importantly customer satisfaction, and also Wei et al. concluded that ERP investment can influence the future competitiveness and performance of organization (Pan & Jang, 2008).

ERP systems are complex western software. So understanding and using similar system need a lot of training and education. Usually staff members have to train themselves on using ERP system while still performing normal duties (Rajapakse, 2012).

2.7.2 Adoption Drivers/ Factors

One of the main drivers are potential cost saving, technical and operational integration of the various business functions to synchronize the information flow with material flow (Haddara, Fagerstrøm, & Mæland, 2015).

Motivations to implement ERP such as: Replace old legacy systems, Simplify and standardize systems, Ease of upgrading systems, Link to global activities, Restructure organization and Keep up with competitors (Saputro et al., 2010)

ERP systems can support and aid in increasing competitiveness, ERP can provide timely reporting capabilities to management, containing cost and operational information which is needed in making strategic decisions (Haddara et al., 2015).

It is possible to study ERP system adoption factors through going back to literature of IT adoption factors in general. Investigating the factors that influence

decision to adopt advanced manufacturing technology in SMEs,(Raymond & Uwizeyemungu, 2007). Ariss et al.(2000) suggested the following classification:

- Product/market related factors (improvement of product quality, improvement in product design).
- Financial reasons (availability of financing, cash flow, government programs of financial assistance).
- Managerial and organizational reasons (strategic orientation towards technology, management awareness to technology, management and employees relations, employees competences, increase in productivity).
- Activities factors (competitiveness in terms of cost, environmental requirements).

Peters, 1996 declared that Information systems investments could be one from three classifications: infrastructure, business operations or market influencing. ERP systems belong to business operations investment as they are created to support core business operations.

Furthermore Ross (1999) divided the reasons for ERP system adoption into three groups (Raymond & Uwizeyemungu, 2007):

- Infrastructure.
- Capability (processes improvement, data visibility).
- Performance (Strategic decision making, cost reduction, adaptability to customer requirements).

Oliver and Romm (2000) classify the information adoption drivers into three categories(Raymond & Uwizeyemungu, 2007):

- The necessity to improve the performance of ongoing operations.
- The necessity to integrate data and systems.
- The necessity to avoid business risk becomes critical or to avoid market competitive disadvantages.

The chosen variables for this study defined as:

- 1. CEO characteristics and his/her attitude towards adoption of IT:**
 - i. CEO Characteristics (CEO Innovativeness)**

CEO is entrepreneur figure who is vital in defining the innovative attitude of a small business (Thong & Yap, 1995). New strategy adoption of any business needs support from high ranking manager this is has been confirmed by a lot of literatures (Grover, 1993; Thong, 2001; Thong & Yap, 1995).

ii. CEO attitude towards adoption of IT

Based on Rogers model of individual innovation adoption process, a decision to adopt is taken after attitude towards an innovation takes place. In small business chief decision maker is the CEO, so CEO awareness to adoption is very important, still there are things uncertain about implementation new innovation whether it will be superior to current methods of operation. Degree of risk and uncertainty exist in adoption of new innovation, and each CEO react differently to this degree of risk or uncertainty .If the CEO perceive the benefits of the adoption be more important than risks, then the business is more likely to adopt (Thong & Yap, 1995).

2. Top Management Support:

Many researches indicated that highly passionate and committed individuals, who are ready to take risks, often play an energetic role in overcoming resistance to the innovation, securing resources for adopting.

Support from top management for innovation adoption is important, this support is not merely approval form the front office to start with a project, but active, enthusiastic support which is spread throughout all levels of the business(Grover, 1993).

3. Environmental Characteristics (Competition intensity – Information intensity –Customer power):

Researchers discovered that the competitive pressure had impact on the adoption of new information technology in small enterprises(Hung, Chang, & Lee, 2004).

it is known that maturity of an industry characterized by fragmentation through competition and this supported through innovation. It is known that more mature industries will be more eager to adopt new innovation to achieve its competition goals. Innovation studies have been clarified that a positive relationship between competitive intensity and innovation. Under high competitive intensity,

greater resource allocations for innovation are likely, resulting in greater innovation. Then high competitive industries would be more likely to adopt innovation(Grover, 1993).

Second concept is information intensity can be enhanced through information technology. As such products are generally complicated to order or use, they require accompanying information. Greater complexity of product description in a firm or industry, more information is needed to specify the attributes of the product to sell it. Therefore, it can be hypothesized that innovation adopters have a highly information intensive product as compared to non-adopters(Grover, 1993).

It would desirable to introduce new innovation in industries where customers are concentrated, purchase standard products in large volumes, and have little difficulty in changing suppliers. Another important customer features is the natural degree of vertical coordination with suppliers in the industry. This is occurs if the input of the firms is unique cannot be used by another firm(Grover, 1993).

4. Employees's IS knowledge:

Small businesses are lacking in specialized IS knowledge and technical skills. Many businesses are tempted to delay adoption of the innovation until they have adequate interior expertise, hence, if employees of small businesses are knowledgeable about IS , the businesses may be more willing to adopt new innovation of IS . Further, there is empirical evidence that businesses with employees who have more knowledge of the technological innovation are likely to use more of the innovation(Thong, 1999).

Employees's IS knowledge was measured by three items. These items included: (1) Business employees were all computer-literate; (2) There was at least one employee who was a computer expert; and (3) I would rate my employees' understanding of computers as very good compared with other small companies in the same industry. Similarly, the CEOs were asked to determine their employees' IS knowledge before adoption of IS(Thong, 1999).

5. Technological Impacts:

Technological impact on an enterprise includes newness, complexity , maintenance vendor support, and competitors usage, Technological reasons are the

key reasons for reconsidering and installed ERP system(Dwivedi, Papazafeiropoulo, Shiau, et al., 2009).

6. ERP System Cost:

The high costs associated with it and the problems of implementing it have caused business to re-examine their plans for acquiring and implementing enterprise wide systems(Dwivedi, Papazafeiropoulo, Shiau, et al., 2009).

- % \ software licensing.
- % \ training & other internal staff cost.
- % \ hardware .
- % \ consulting.

7. ERP Characteristics:

c. Perceived Benefits.

The inventory reduction, data integration and cost reduction are the main justifications of ERP projects because these are the major perceived benefits brought about by on ERP system(Dwivedi, Papazafeiropoulo, Shiau, et al., 2009).

d. Expected Complexities.

Complexity can be defined as the degree of difficulty users experience in understanding or using an innovation. The degree to which technical skills are required to use the innovation may tend to inhibit its adoption. Technical innovations are generally considered complex products, having unfamiliar characteristics to the adoption unit. Thus, unless users have high achievement needs, complexity is likely to be negatively related with adoption (Grover, 1993).

8. Palestinian Context:

Palestinian industries face many constraints and obstacles related to lack of raw materials, electricity supply, price hike, existing machinery situation, blockade and political situations. All that could be positive or negative influence on ERP system adoption decision.

This research work identified four industries, listed below, as the intended initial targets for the research topic. The selection was based on exploratory interviews and the knowledge of the type of Palestinian industries in Gaza strip, these four sectors chosen because of their historical importance to the Palestine

economy and the potential opportunities for prosperity , preliminary views as to their competitive potential , the four sectors are:

- Textile & Garment Industry.
- Wood Industries.
- Food Industries.
- Leather Industries.

This selection process aims to identify those industries in Palestine that have the most promise in terms of their ability to contribute to the development of the country.

The researcher focuses in her exploratory interviews based on the following criteria:

- **Growth Potential:** offer clear capacity for future growing, and potential opportunities for expansion and new investments in productive Palestinian enterprises.
- **Industry IT Readiness:** clarify the level of interest, organizational capacity, leadership and dynamism.
- **Palestinian Factors:** include the potential for rapid employment creation and sensitivity to border closures.

Table(2.1): Sector Score Summary

Sector	Growth Potential	Industry IT Readiness	Palestinian Factors	Aggregate Assessment
Textile & Garment Industry	+	+	+	+
Wood Industries	++	++	+	++
Food Industries	+	+	•	+
Leather Industries	•	•	•	•

Source: conceptual model created by researcher based on exploratory interviews.

- low score + high score ++ higher score

As shown in Table 1.1 wood industry can be classified as the most promising and most contributing to the development of the country in future, followed by textile & garment industry and food industries then leather industry.

ERP System Adoption: the dependent variable is adoption of ERP system. In this study, adoption of ERP is defined as the initial phase when companies decide on investing in an ERP system, ERP is system which integrates varied organizational systems and facilities error free transactions and production, thereby enhancing the organization's efficiency. ERP systems run on a variety of computer hardware and network configurations, typically using a database as an information warehouse to support operations, management and decision-making in the business.

2.7.3 ERP System Adoption Alternatives

Once organization decide to adopt and implement an ERP system, it should prepare for several cost substances such as software, hardware, consulting, training and implementation team.as result of being ERP implementation investment is high, business should study three components such as(Saputro et al., 2010) :

- People (knowledge, skill and behavior).
- Process (e.g. business activities, standard operation procedure, process workflow etc).
- Technology (hardware and software).

Studying the three earlier components can help the organization to implement an ERP system and choose any one from the several alternatives, the several alternatives as follow(Saputro et al., 2010):

- Vanilla ERP implementation that adopt vendor's best practices. The disadvantages of this technique that it is accessible to other competitors and disruption of operations over 3-5 years.
- Partial ERP implementation (e.g. selected models) that influence on partial change in business processes.
- In-house development (Customized system which will be exclusive from other competitors. The disadvantages of this technique that need very long term analysis and design process and high expenses.

In case organization chooses to apply ERP using vanilla or partial implementation technique, it could buy an ERP system from vendor (e.g. SAP, Oracle PeopleSoft, etc) or use an open source ERP system (e.g. OpenBravo, OpenERP, etc) (Saputro et al., 2010).

When characteristics of the software application do not correctly fit the business requirements some organization can follow one from two possible strategic as follow:

1. Change the business processes to fit the software with minimal customization. This strategy could mean changes in long established ways of doing business with better competitive advantage, and could influence on important people roles and responsibilities.
2. Modify software to fit existing processes. This strategy could slow down the project, and could affect the stability and correctness of software application., this choice need less organizational changes.

Even though ERP vendors are focusing on customization process needed to match ERP system to the existing processes features in number of different industries, still previous studies show that ERP system implementing is considered complex and expensive task (Kharuddin et al., 2015; Rajan & Baral, 2015).

2.7.4 Challenges to Implement ERP System

Substantial investments in terms of time, money and effort go along with ERP system adoption; ERP system acquiring decision has serious implications for the adopting organizations. In large organizations, ERP system implementations may take several years, especially in case the system is deeply customized to fit it with the needs of the adopting organization. Excessive effort and difficulties related to ERP implementations, beside to related organizational change, have given ERP adoption projects bad reputation. Literature show that at least 90 percent of ERP implementations end up late or over budget , 40 percent accomplish only partial implementation, and almost 20 percent are scrapped before completion as total failure(Laukkanen, Sarpola, & Hallikainen, 2007).

Due to resource poverty typically characterizing smaller business, the adoption can be seen more challenging, greater resource commitment and risk for them than larger business (Thong, 2001).Small business experience more knowledge constraints than larger ones, while the large business are challenged by the changes imposed by the ERP system adoption.

2.7.5 ERP System Adoptions in Developing Countries

Applying ERP systems in firms and business is often accompanied by substantial changes in organizational structure and ways of working. Furthermore, implementation of ERP systems in developing countries is faced with specific difficulties over and above those faced by other countries. This encourages that information technology and management practices need to be modified and customized for different cultural contexts (Rajan & Baral, 2015).

It is clear that ERP systems were applied in developed as well as in developing countries in growing matter (Huang & Palvia, 2001; Kamhawi, 2008). Though, research studies on ERP systems acceptance in developing countries are suffering from scarcity comparing it to the redundancy of research studies on ERP systems acceptance in developed countries.

ERP system is using a single database that gathers and stores data in real time with a standardized user interface that help organizations integrate their information flow and business processes. ERP is an integrated system since it can support diverse departments, business lines functions through the entire enterprise with the potency of including any business transaction run by any user within any department (Al-Jabri & Al-Hadab, 2008).

Rate of ERP system adoption in developing countries in Asia is very low comparing it to developed countries the birth place of ERP, this is due to obvious reasons like the differences in relative prosperity of organizations and national culture between two regions (Rajapakse & Seddon, 2005).

In Asia context reasons for low adoptions clarify to be as follows:

- Higher relative costs lead to lower relative demand, as result of relative national per capita income, ERP systems (software , hardware and support) are much more challenging for organizations in most Asian countries than in the West.
- Inadequate national infrastructure e.g. lack of ERP implementation skills and lack of telecommunications infrastructure.
- National and organizational cultural matters may restrict adoption. In other words lack of “feature function fit” between the organization’s requirements and the packages available in the marketplace. As result of the different cultural and

business practices in developing countries, these problems of fit may be more obvious in developing countries.

- The level of provided integration from ERP is too high compared to expectations of individuals and organizations.

Although of the low rate of ERP adoption in developing countries, still organizations in developing countries seek and pursue ERP systems for the similar reasons to organizations in developed countries and the reasons are:

- Support organization growth.
- Keep competitive and connect strategically with other organizations globally (Rajapakse & Seddon, 2005).

2.7.6 ERP System Scope

ERP systems have accomplished substantial importance in the current information systems arena. ERP adoption scope subject to variations as ERP systems are contained of different models. In other words the scope of ERP systems lined up with their several configuration alternatives and breadth of organizational impact, which make the task of implementing them significant, outspreading in many cases over many years. The extents to which ERP systems have shaped the IT industry are captured in the significant financial impact in many businesses (Oliver & Romm, 2000).

2.8 Industrial Sector in Palestine

PITA (Palestinian Information Technology Association of Companies) explains in article with title “Palestinian ICT Labor Market Gap Analysis” (2013) that ICT sector in is facing a great challenge, especially in Gaza Strip where the market is small and most business suffer weak financial capabilities which limits any growth achievements in addition to lack of technical skills to bring out the latest technologies which limits the competition among a rapidly developing sector worldwide.

PITA identified group of important features of Gaza businesses which are weak marketing, business development capabilities, lack of expertise and trainers for advanced technical trainings and certifications, limited capabilities of academic services, limited awareness regarding the role of ICT for improving business and social and shortage in advanced technology skills.

PFI clarifies in article with title “The current status sectors in Palestine” (2009) that industrial sector in Palestine includes some 15,000 registered companies in the West Bank and Gaza. The majority of these are small and medium family-owned businesses, and only about 100 of the manufacturing, mining and construction enterprises in Palestine have a workforce of more than 100 employees. The contribution of the industrial sector to GDP is approximately 16%, and the industrial sector absorbs around 13% of the total work force.

Industrial sectors represented by PFI include food and beverages, construction, stone and marble, pharmaceuticals, chemicals, metal and engineering, textiles, garments and leather, paper, printing and packaging, handicrafts, plastic and rubber, and furniture.

The Palestinian industrial sector is categorized by its wide variety of products and inter-related sub sector branches. The sector lacks severely the adequate continuously available raw materials for the sustainability of the sector. But it has a great advantage of the dedicated hard working and resilient business community. The business community, as a driving force for the industry, was able to achieve several successes during difficult uncertain conditions. One of the main features of industry was its connectivity to the Israeli economy. On one side this is a fatal threat to industry because its success is subject to the Israeli priorities, not the Palestinian priorities, and it is a known fact that most of these priorities are not business related and highly politicized. On the other hand, industry has benefited from Israeli business connections elsewhere in the world.

Industry is playing an important role in the economic and social well-being of the Palestinian society. It employs about 13% of the total workforce and it contributes 16% to the GDP. Exports were (and still are) a good economic ambassador for the entire Palestinian cause. The rapid growth of industry was notable during the nineties, the political uncertainty and turbulences have affected the industrial sector negatively. A slight shift was noticed in the structuring of industry that is related to both political changes and international economic changes and globalization sequences. The leather and shoe making industry and the garment and textile industry are examples of badly affected industries. Contrary to that,

Pharmaceutical industries and marble and stone industries were good examples of positive change.

The Palestinian economy faces a number of challenges. Restrictions resulting from the political situation continue to be the most significant obstacle to economic growth. Uncertainty and lack of help in progress, together with internal constraints, have also contributed to economic recession.

Industry is an important part of the economy and is considered as a major driving force for employment and development. Only few industrial investments were evident in the West Bank in the last decade, most of these were in the form of development to existing enterprises. Although productivity has been fallen and later the total sale, the clear feature of Palestinian industries that more than 90% of manufacturing firms are classified as small family business. The Palestinian manufacturing firms make A lots of efforts working through family business administration tools and mechanisms to challenge related problems in financing, promotion, technical assistance, raw materials and other business essentials. (Palestinian-Federation-Industries, 2009)

2.8.1 Palestinian Industrial Background

Palestine is a small active economy with key geographical location at center of the Middle East, but it faces number of substantial export development constraints, mainly the strict import and export restrictions and controls imposed by Israel, and Palestinian dependency on Israel as a market for Palestinian products.

DAI Washington (2006) stated in its report “Cluster Competitiveness Assessment” that in September 1993, expectations for economic prosperity in West Bank and Gaza have been high as result of signing of the Oslo Agreement between the Palestinian Liberation Organization and Israel. In the following years of the agreement, GDP grew by 4-5 percent annually and through the end of 1999 unemployment had dropped to single digit levels, with almost three-quarters of new jobs created in 1998-1999 in the private sector. Nevertheless, with the beginning of intifada the economic situation deteriorated: GDP per capita fell 36 percent between 2000 and 2002, and, even with some recovery between 2003 and 2005, GDP per capita in 2006 is 30 percent lower than its 1999 level.

Also DAI Washington report clarified that 43 % of the Palestinian population falls under the poverty line, with around 15 % living in deep poverty. For over decade of political instability and economic volatility, the Palestinian industrial sector has showed dynamism and the ability to adapt to change.

(Palestinian Trade Center) Paltrade (2014) illuminated the condition of Gaza strip Industrial sector after the aggressive war of 2014 and severe suffering from unprecedented damage and destruction which hit the production assets, buildings and raw materials.

It is clear that the direct losses were combined with complete paralysis which affects production for coming future for long time before Industrial sectors could rebuild itself again and appeal its production once again, and that will cause to economic recession and unemployment for thousands of workers and employees in destructive sectors.

PFI provide preliminary information in workshop was organized by Paltrade that 750 factories and 300 businesses were completely or partially destroyed, so the estimated losses in production rate around hundreds of millions dollars while the indirect losses as result of stopping 2700 factories from producing estimated around 47 million of dollars. Undoubtedly that Gaza strip now in most need to get best strategy to achieve sustainable development , Palestinian industry are considered the most supportive factors for Gaza economic which contribute about 16% from GDP.

Palestinian businesses distinguish of being family run MSMEs (micro, small and medium enterprises), Working in traditional sectors such as food and beverages, clothing, minerals, furniture. Mainly target the local market, and face substantial financial, skills and knowledge gaps in terms of growing their businesses, and developing their businesses into export markets. These businesses suffer at present from limited marketing potentials for their products in local and foreign markets, limited technical support and inadequate access to finance. The Israeli occupation continues to be the major obstacle to enhancing the competitiveness of Palestinian businesses due to the restricted flow of capital goods and raw materials, and the controlled movement of goods and people.

٢.٨.٢ Gaza Potential Export Industries

Research by TATWEER Business Services, Gaza, under a contract with Chemonics International Inc. in the framework of the USAID funded Trade Facilitation Project (TFP) 2012. This research study Export in Gaza and clarify that Export is developed by studying the foreign markets needs and then meeting those needs by offering competitive advantages. The Gazan local firms suffer from its isolation form the external market for 9 years and its segregation from new technologies which are applied in the manufacturing process, and all these obstacles resulted from Israel's restriction to close the crossings points since June, 2007.

Nowadays potential export business in Gaza can't be defined accurately as result of lack of export conditions, but the export history before 2007 can help in showing that all industrial sectors and agricultural have export activities.

Before June 2007 statistics indicate that Israel and the West Bank create the large markets for Gaza business, with 90% of garments, 76% of furniture products and 20% of food products being marketed there.

It is not enough to give Gaza business the export permission to motivate them to export. Before the export, the exporters have to study the market, analyze the profitability and adjust the production.

Most of the businesses interviewed clarified that they ready to resume exports instantaneously to those markets at a moment of Israel export permission taken in consideration Gaza export measures. Business readiness in their opinions is by re-contact with other parties, and the markets in West Bank and by adjustment of current production.

2.8.3 Manufacturing Sector in Gaza Strip

This research study on four manufacturing sectors in Gaza strip as illuminated in chapter one section 1.8, these four sectors chosen because of their historical importance to the Palestine economy and the potential opportunities for prosperity, preliminary views as to their competitive potential, the four sectors are:

- Textile & Garment Industry.
- Wood Industries.
- Food Industries.
- Leather Industries.

2.8.3.1 Textile & Garment Industry

Research by TATWEER Business Services (2012) summarizes information about this sector. Textile and Garment joined together make up the largest sector of industrial activity in Gaza strip. Before 2007, the garment and textile sector made up the largest industrial sector in the Gaza Strip of 550 firms employing around 10000 workers in various activities, ranging from home textile, fabric and garments production. The largest activity by far is subcontracting to Israeli firms. Most of the garment factories function in this capacity, either as simple sewing workshops as cutting and sewing finished products are then sold in market or to be re-exported to foreign markets.

Historically, most of the garment factories function as subcontractor for Israeli firms as simple sewing workshops for unfinished product (PalTrade , Textile and Garment Sector Brief,2006).Total annual output of the sector in 2005 was estimated \$39 million and was mostly exported to Israel. Since June 14, 2007, only one garment shipment was exported to the United Kingdom on May 14, 2012.

2.8.1.2 Wood and Furniture Industries

DAI Washington (2006) in its report “Cluster Competitiveness Assessment” illuminate Furniture industry is one of the oldest industries in West Bank and Gaza region, it has succeeded through the last few years to be one of the most promising Palestinian productive sectors with possibility to transform the country’s economy, and many firms established before the political crisis and economic recession beginning in 2000.

This sector distinguished with expansion industry and development including new classifications and categories such as interior design, commercial furnishing and hospitality beside to the creativity in the design and manufacture.

Strengths of this industry are mainly labor cost, high carpentry workmanship skills coupled with high quality and emerging ethnic designs. Palestinian firms had established buyer networks in Israel and other markets and made industry associations and partnerships but this have faded lately with Israel restrictions but this is could be strength point in case some political matters changed.

Weaknesses in this sector characterized by limited use of technology in communication, management and marketing, lack of specialized skills, costly export distribution channels and limited use of appropriate strategies to reach global markets.

So opportunity of this industry are in development of new original and ethnic design, accessing target markets with trade agreements and upgrading the industry's technological infrastructure.

2.8.1.3 Food Industries

Food industries is considered one of the oldest industries in West Bank and Gaza, established in early 1950s with few candy factories and recently were produced more than 100 basic commodities including bakery products, meat, dairy, oil, sweets, soft drinks, animal feeds, canned food, pasta, grains, confectionaries, and so on (PFI Website: <http://www.pfi.ps/>).

Statistics show that food industry has constants growth in local market by increasing its share from 25 % in 1996 to 45% in 2003. The food industry employs about 7,439 workers, 39 % of them self-employed family owners, and majority of them work for wages. About 84 % of workers are in production lines and 11% in administrative and supervisory positions.

The processed food industry plays a key role in the Palestinian Territories' food security and economic growth (PFI Website: <http://www.pfi.ps/>), in other hand it comprised less than 20 % of the total number of industrial firms.

Many of these firms, especially those related to dairy products, food processing, and tobacco, depend on imported inputs, thus limiting the linkages between the industry and domestic agriculture. Imported inputs are used because some local inputs are often not available in the volume needed, in the time needed, or in an efficient manner. This happened because local inputs are produced by many small farmers that have weak cooperative arrangements.

In West Bank and Gaza strip aspect the local inputs can be in Jenin, Hebron, and Rafah which provide sustainable agricultural inputs into the industry and contributed the big share of the value added from agricultural output (PCBS Website).

2.8.1.4 Leather Industries

PFI clarifies in article with title “The current status sectors in Palestine” (2009) that This sector gets its best practice from working Gazan workers inside Israel and Hebron in nineties, Leather making industry known as one of the most Hebronites skillful advantages. It was branded by its high skills of workers and high quality product with natural leather.

The sector is composed mainly of tanneries and shoe makers. Tanneries are the major supplier of raw materials to the shoe making industry. Leather makers produce leathers bags, Wallets, purses, handbags, casual shoes, women and children shoes, slippers and sandals. Little portions of the tanned leather are used for clothing industry and as covers for furniture.

This industry in needs of upgrades its machinery and production and adapts new technologies with computer based manufacturing techniques.

The leather industry in nineties had established buyer networks via subcontracting agreements with Israel by making industry associations and partnerships to work on unfinished products with natural leather from imported raw materials. Even though, a small portion was sold to Israel were re-exported under Israeli brand name. but this have fades lately with Israel restrictions but this could be strength point in case some political matter changed.

Leather industry suffers from severe issues in supply of raw materials, lack of chemicals for tanning, absence modern production methods, environmental considerations, training and adapting new technologies. Also this industry faces problem of scarcity of sales, maintenance and machinery problems, access to markets, local market unfair competition and lack of creative design specialists.

Through the selection process that explained in chapter one and shown in Table 1.1, it is clear that leather industry get the lowest score between all the four sectors and this is mean that leather sector is the less promising sector in terms of their ability to contribute to the development of the country, its long term prospect do not appear to be promising unless the stated problems and issues which this sector suffer from effectively eliminated.

Chapter 3

Previous Studies

Chapter 3

Previous Studies

3.1 Introduction

This chapter introduces the previous literature in the field of the study. She focused on some of the important foreign studies including ones that have addressed the topic directly or indirectly in some developed countries and developing countries. By reviewing these studies the researcher try to identify problems faced by previous studies and the findings that came out from it to help in exploring factors influencing decision to adopt ERP system in Gaza strip's manufacturing firms. Studies are arranged according to the date of the publication from the latest to the oldest one.

3.2 Previous Studies

1. Awa, Ojiabo & Davison (2016) "A model of adoption determinants of ERP within T-O-E framework".

This research seeks to provide understanding of critical factors within the framework of TOE that influence SME's adoption of ERP. Those explain critical factors within TOE framework: Technology, Organization and Environment. The survey data were collected from SMEs in six service enterprises in city of Port Harcourt, Nigeria. Those six sectors are ICT maintenance, legal services, healthcare services, laundry and dry cleaning, make-ups (e.g., barbing, hair dressing, and manicure and pedicure), and management consultancy.

This paper proposes a twelve factor model of ERP adoption from TOE framework and investigates the strength of each factor on SME's adoption process using logistic regression.

Main findings of this study explain the significant determinants of adoption which are ICT infrastructures, technical know-how, perceived compatibility, perceived values, security and size of the firm .in other word adoption of ERP by SMEs is more motivated by technological factors than by organizational and environmental factors.

These results have important practical implications to vendors in terms of providing support for investment decisions, meeting the needs of audiences, and making marketing programs.

2. Nzuki & Malonza (2014) “Determinants of Adoption of Enterprise Resource Planning Systems by Listed Companies in Kenya”

The aim of this study was to define the factors that determine adoption of ERP's among Nairobi Securities Exchange (NSE) companies in Kenya. Those factors are organizational characteristics, ERP attributes and ICT environment aspect.

Descriptive research design was applied in this research with sample size 55 companies listed at NSE. Research data was collected using a questionnaire.

The findings of the research showed that the size of the firm, number of employees in organizations, employee turnover, location, and type of ownership of the organization, age of the company, capital structure and familiarity with ERP tools influenced organizations adoption of ERP systems. ERP attributes like its complexity and compatibility, triability, Observability, relevance and interest within businesses for the adoption of the ERP systems led to the adoption of the system. The ICT environment aspects included hardware, software, people, the government, politics, the environment and innovation were found to influence the adoption of the ERP system.

This research recommends taking urgent proactive measures to improve the use of ERP within all companies listed in the NSE in Kenya. This can be accomplished by addressing all information of departments that require the use of ERP systems.

3. Ram, Corkindale & Wu (2014) “ERP adoption and The Value Creation : Examining The Contributions of Antecedents”

This study examines the role of antecedent factors in the organizational adoption of ERP project for the achievement of competitive advantage.

The study used structural equation modeling (SEM) technique to analyze the survey data of 217 Australian companies and test the model.

The organizations that understand the importance of certain antecedent factors and manage them appropriately can achieve competitive advantage with ERP projects.

These factors include consideration of the system quality and organizational readiness at the planning stage for an ERP project.

The findings indicate that establishing a clear understanding of necessary system attributes in the organizational context at the adoption stage of ERP is important for helping organizations achieve subsequent competitive advantage.

4. Ram, Crokindle and Wu (2013)" Enterprise Resource Planning Adoption: Structural Equation Modeling Analysis of Antecedents"

This research determines the fundamental antecedent factors for the adoption stage of ERP systems.

The data were obtained from a sample of 217 originations across Australia. A structural Equation Modeling (SEM) technique was used to examine the complex relationships between antecedents and the adoption decision.

This study developed and then empirically established that the antecedents of system quality, Organizational Readiness (OGRD) and Perceived Strategic Value (PSV) have direct and positive effect on the outcome on the decision making process at the adoption stage of ERP systems. However, information quality was not found to be a determinant of ERP adoption.

The results support the need for a detailed evaluation of the environment, both internal and external to the organization. Organization need to ensure that they gain information about the quality of any prospective ERP software to avoid potential gaps between their user's needs and the software system's features. The contribution of this study can help managers to mobilize and prioritize their resources to achieve a favorable outcome of the ERP project.

5. Manuere , Gwangwava & Gutu (2012) "Barriers to The Adoption of ICT by SMEs in Zimbabwe: An Exploratory Study in Chinhoyi District "

The aim of this study examine set of factors that affect the adoption of ICT by SMEs in Zimbabwe, this study showed that that two type of barriers internal and external barriers inhibit adoption of ICT by SMEs, Internal barriers such as : owner manager characteristics, firm characteristics, cost and return on investment and support within the organization. Whereas external barriers are infrastructure, social, cultural and political, the study further identifies the relevant support required by SMEs in a developing country, like Zimbabwe.

As result of lack of empirical research in this area an exploratory investigation was considered the most appropriate approach for this study, questionnaire and interviews with SME intermediary organization.

Main findings of the study show that the six top internal barriers of nine are employees lack required skills, ICT has no financial gains, ICT is not suited to products and services, ICT not suited to way business is done, ICT not suited to our customers and suppliers and security concerns with payments over the internet.

The recommended step is to find ways to overcome these barriers and construct a framework, by methodology that will facilitate the transformation of SMEs by changing the attitudes of owners/managers to appreciate the need to adopt ICT.

6. Hang, Chang & Lee (2011) "Critical Factors of ERP Adoption for Small and Medium Sized Enterprises: An Empirical Study"

This study examines theoretical model to explore the critical factors which have influence on ERP adoption in Taiwan's SME's.

Four concepts, including "CEO Characteristics", "innovative technology characteristics", "Organizational Characteristics", and "environmental Characteristics", are empirically examined using a mailing survey, 139 usable responses were obtained.

The response rate to the survey yield approximates 17.38%. The results of analysis show that CEO's attitude towards information technology (IT) adoption; CEO's Knowledge of IT, employees' IT Skills, firm size, competition pressure, Cost, complexity and compatibility are significant factors of ERP adoption to the SMEs.

The following systems are recommended for SMEs, the SAP.com All-in-One launched by both SAP and Pre Vision Technology Ltd., Oracle's E business Works and super special assistant, small special assistant, super special assistant Smart ERP and Workflow ERP of Data Systems Consulting Co., Ltd.

It recommended for SMEs to obtain assistance such as technical guidance and consultation through governmental help to find more suitable, simple and easier model, since complexity and cost of ERP software reduces the willingness of organization to adopt ERP, software vendors should make ERP affordable, easy to learn and operate for SMEs.

7. Li, Y. (2011). "ERP adoption in Chinese small enterprise: an exploratory case study"

This study examines Chinese small enterprise's failed attempt to adopt ERP and define critical success factors to adoption.

The study collects information through multiple field visits and semi structured interviews as well as examination of relevant documentations.

The study identifies nine critical success factors and discussed how these factors affected ERP adoption in a small farming feed manufacturing company.

The nine critical success factors are : Top management support, culture impact, resources availability, technical readiness, system design and configuration, employee training, project management, change management and vendor support.

This research recommends Chinese small enterprises to be aware of the challenges to pursue ERP, the nine critical success factors can serve as starting point for prospective firms to evaluate their organizational readiness, both operationally and financially.

Chinese small enterprises which are truly interested in adoption ERP, they must be willing to engage in substantial organizational restructuring. Senior management must be committed with their involvement and identify project as a top priority. They must recognize that adopting ERP is more introduce a new managerial philosophy than a technological project that simply installs a computer system. Chinese small enterprises should be practical in establishing adoption agenda and assessing their project management capabilities. They should be cautious in balancing the efforts to introduce the new system and to maintain the normal operations. Future research can be directed to study to verify whether those critical success factors are applicable to other Chinese small enterprises in general.

8. Shahawai & Idrus (2010) " Pre-Considered Factors Affecting ERP System Adoption in Malaysian SMEs"

Adoption of ERP System among Malaysian SMEs is still low compared to large organizations. This paper aims to determine the defining factors of adopting an ERP System and discuss the main issues related to ICT (Information Communication Technology) Usage in the organizations that are affecting the adoption of ERP Systems in Malaysian SMEs.

This research work focused on the exploratory method to understand the basic requirements of Malaysian SMEs in providing the right specification to adopt an ERP system. The Pre Considered factors are business level, ICT usage level and Technological Level.

Larger business hierarchy should be more willing to adopt ERP. However this is not the case in most SMEs in Malaysia. While SMEs with lower business level may not have the investment needed to adopt ERP they do not find it a loss that they are unable to it. Number of SMEs adopting ERP does not necessarily correspond towards SME's ICT usage level. Technological Level among SMEs with their ability and willingness to change their existing technological level was also noted as one of the pre considered factor.

The last findings can be used as general indication to SMEs, in other country especially in Asia where the comparison of some characteristics are similar with SMEs in Malaysia.

This research recommends that pre-considered factors should be taken into considerations in influencing the SMEs to adopt ERP. The proposed pre-considered factors can be used as a whole concept in assessing the factors affecting the adoption of an ERP system. It also contributes in understanding of the characteristics of SMEs in Malaysia that positively or negatively affects the adoption of an ERP system.

9. Shiao and Wang (2009) "Development of Measures to Assess The ERP Adoption of Small and Medium Enterprises"

The aim of this paper is to contribute to the development of measures to assess the ERP adoption of small and medium sized enterprises.

The value of this paper can assess the ERP adoption of small and medium sized enterprises. The results offer practical help for government managers to better understand ERP adoption with institutional help in Taiwan.

The survey data, based on the 126 valid responses of 328 companies, are analyzed by Structural Equation Modeling (SEM) statistical Methods.

This study finds the factors affecting ERP adoption are the characteristics of the CEO and Perceived benefits possess positive effects on ERP adoption, while cost and technology complexity have negative influence on ERP adoption, but only the benefits of ERP system significantly influence on ERP adoption.

ERP studies have focused on transaction processing. ERP data are likely to provided platform for supply chain management, customer relationship management, knowledge management, strategic management, and decision support systems. They are also called extended ERP (EERP).

10. Nguyen (2009) “Information technology adoption in SMEs : an integrated framework”

The purpose of this research to get understanding of information technology (IT) adoption in small and SMEs at the same time describing how and why SMEs acquire IT, this paper aim to explore the drivers and inhibitors that influence the adoption process.

Methodology of this paper was empirical research beside to the literature and case studies related to IT adoption from different databases.

Main findings of this paper is demonstrating the process of IT adoption in SMEs by integrating viewpoints from the literature. The framework will help adopters gain a practical overview of the IT adoption process in SMEs.

This framework clarify the factors that influencing information technology adoption which are: Internal force, External force, Information technology, External expertise factor, organizational factor and Networking factor.

Conceptual framework for the IT adoption process is based on the references from the literature. It is open to and requires testing to determine its relevancy and validity in a practical environment.

11. Elbertsen & Van Reekum (2008) “ To ERP or not to ERP? Factors influencing the adoption decision”

This study seek to determine factors influencing the adoption decision in the areas of technology, organization and environment in Netherland, nine hypotheses have been derived from previous studies and tested among Dutch Midsized Enterprises (MEs) in electrical, engineering and metal industries.

Research model tested in quantitative survey, the studied factors are Technology, Organization and Environment, and the results of this empirical study indicate that ERP adoption by MEs is influenced by competitive pressure and the compatibility of the software configuration with the business processes.

This research recommends testing same model to other industries than electrical, engineering and metal industries with some modifications, other locations than Netherlands could lead to further findings .

12. Seethamraju & Seethamraju(2008) “Adoption of ERPs in a Medium-sized Enterprise - A Case Study”

The aim of this paper to examines the factors influencing the decision to adopt ERP systems by small and medium sized enterprise in Australian and analyze the challenges and opportunities a medium sized enterprise through ERP adoption decision process, using case study approach.

The findings of the study show important external drivers influencing the adoption decision such as environmental factors which are supply chain partners, price sensitive or competition and technological factors such as obsolete legacy information systems, the need of efficient management of information and processes, visibility and control are important internal drivers. This study find that organizational factors such as limited availability or resources, centralized decision making, less formalized structures and processes are less predisposed to adoption of ERP system.in other hand this study find that SMEs with more flexibility and more decentralized structure are more predisposed to adoption of ERP system. Implementation and exploitation of the ERP system now, with the costs significantly reduced, may offer an excellent opportunity for SMEs to streamline their processes and information management practices and truly take them to next level where business size may not be a limiting factor for them to be globally competitive.

13. Boumediene, Kawalek (2008) “Predicting SMEs Willingness to Adopt ERP, CRM”.

This study aims to develop a model to predict which SMEs are more probable to be adopters of (ERP, CRM, SCM and e-procurement).

Data was collected via direct interviews from random sample of SMEs in Northwest of England, by applying logistic regression, 102 responses were analyzed.

Main findings of this paper are the factors influencing SME’s adoption of enterprise systems which are different from factors influencing SME’s adoption of other previously studied information systems (IS) innovations.

Technological and organizational factors are more influencing on SMEs than environmental factors. Moreover, the results indicate that business with a greater perceived relative advantage, a greater ability to experiment with these systems before adoption; greater top management support, greater organizational readiness and a larger size are predicted to become adopters of enterprise systems.

14. Al Jabri, Al Hadab (2008) “End User Adoption of ERP Systems: Investigation of Four Beliefs”

This paper studies the effects of four beliefs of end users on the adoption of ERP systems. The beliefs are perceived usefulness, ease of use, expected capability, and expected value.

Survey of sample 58 SAP users was collected from large business in Saudi Arabia. Field survey only employed to test research hypotheses. Survey was managed online via e-mail message.

This study highlighted that perceived value and eases of use of ERP systems are main factors to their adoption. This study is very important for ERP implementation managers who are experiencing end-user resistance to accepting to adapt new implemented ERP system in their business.

This study propose using attitudes towards ERP acceptance as another measure for ERP adoption in a mandatory environment.

15. Kamhawi (2008) “Enterprise resource-planning systems adoption in Bahrain: motives, benefits, and barriers”.

The purpose of this paper is to get better understanding of ERP systems adoption, beside to non-adoption practices in less developed country explicitly Bahrain.

Survey method was applied to get views from IT executives from two types of companies: those which adopted ERP systems and those which far from adopting, two questionnaires were used one for each type.

Main challenges to ERP adoption is high initial cost and long time periods it consume. Resource unavailability is another challenge appears from interviewees. Other types of potential difficulties such as technical, change management and project management, were also seen as challenges but with lower level of severity comparing to resources problems.

This study highlighted the benefits, motives and barriers of implementing similar systems for the business which not experienced these practices before, it examined the causes behind not implementing these systems, executive’s’ attitudes and future intentions towards these systems. The results reported the large capital investments of these systems require, as well as intensive training, and having other important priorities as the main barriers for adopting ERP systems. However they seemed to have positive beliefs about ERP systems, concerning its appropriateness

for their needs as well as their influence on productivity and integration of their information systems.

16. Pan & Jang (2008) “Determinants of The Adoption of Enterprise Resource Planning within The Technology –Organization–Environment Frame Work: Taiwan’s Communications Industry”

This study examine the factors within the TOE frame work that affect the decision to adopt ERP in Taiwan’s communications industry, the empirical test conducted are based on personal interviews with a sample of 99 firms in Taiwan’s communication industry.

Eight factors in three broad categories are tested using logistic regression, and four of these, technology readiness, size, perceived barriers and production and operations improvements are found to be important determinates of the adoption of ERP.

This model correctly classifies 79.8% of the decisions made with respect to the adoption of ERP. The results substantiate the usefulness of this model which may be interesting to managers seeking to be more proactive in planning for their adoption of an ERP system.

The research focused in single communications industry that of Taiwan so it recommended expanding the studying scope to be more generalize, besides other factors could possibly affect ERP adoption have not been considered in the research it recommended to be investigated in future researches.

17. Raymond & Uwizemungu (2007) " A profile of ERP adoption in manufacturing SMEs"

The study offers a framework for analysis that can serve ERP vendors and constructs, as well as SME owner managers.

This study aim to create a typological profile of manufacturing SMEs in regard to their final adoption of ERP system, based on the predisposition of their environmental, organizational and technological context.

The analysis approach of questionnaire data obtained from a bench marketing database of 356 Canadian manufacturing SMEs.

Three types of SMEs were presented from the research results, the first cluster 140 manufacturing SMEs that can be characterized as “Internally Predisposed” to adopt an ERP system, 60 “Externally Predisposed” SMEs to adopt ERP and 156 “Unfavorably disposed “ SMEs to adopt an ERP system.

This research propose a framework that can serve ERP vendors, consultant and SME owner-mangers, serve vendors to better target their offer of product/services, and consultant to better position their firm before contemplating the implementation of an ERP system, and the SME owner-mangers to increase competitiveness of their firms and examine the current level of assimilation of their firm's manufacturing systems within their organizational and environmental context.

18. Laukkanen, Sarpola & Hallikainen (2007) “ Enterprise Size Matters: Objectives and Constraints of ERP Adoption”

This paper investigates the relationship of enterprise size to the objectives and constraints of ERP adoption.

Survey data based on responses of 44 Finnish companies are analyzed by dividing the companies into small, medium sized and large enterprise and comparing results between these groups using statistical methods.

The paper found significant differences exist between small, medium sized and large enterprise regarding the objectives and constraints of ERP system adoption. While small enterprises experience more knowledge constraints, large enterprises are challenged by the changes imposed by ERP adoption. Further, large and medium sized enterprises are more outward-oriented in ERP adoption than small enterprises.

The findings of this study indicate that enterprise size matters in ERP system adoption. In the future research information systems adoption should be studied more thoroughly taking into consideration the differences between small and medium sized enterprises.

The paper shows that the finish context and the sample size should be taken into consideration when generalizing the findings.

The research recommends that planning and management of changes related to ERP system adoption should be acknowledged and given a profound attention in large enterprises. Small enterprises should pay attention to the adequacy of their own expertise in ERP adoption and consider employing external resources in the form of external experts such as consultants and IT vendors. Moreover, the training of users should receive heightened attention in small enterprises; small enterprises should consider revising the scope of integration pursued and address the larger environment outside their company's boundaries when adopting ERP systems. Results suggested that regarding ERP system adoption, small and medium-sized enterprises should not

be considered as on homogenous group. While no significant differences were found between large and medium-sized enterprises, differences between small and medium-sized, as well as small and large enterprises were many. The implication of these findings is that the reference group for medium-sized companies in ERP system adoption should be large rather than small enterprises, while small enterprises have their own distinctive challenges in ERP adoption.

19. He and Wu (2006)" Factors Affecting Adoption of ERP in China"

This paper investigates the ERP Pre-implementation trends and its market potential in China via an executive survey of 150 companies.

Top management support is ranked number one among the 10 factors affecting adoption of ERP China and the rest of factors as follows:

(ii) Education and training (2 & 4), (iii) change management and BPR (Business Process Reengineering) (8), (iv) management of expectations (6 & 10), and (v) clear goals and objectives (7, 3, & 9) in making ERP decisions in China.

On the other hand, this research details the major obstacles of ERP implementation that ERP is too expensive for most Chinese enterprises and is too complicated for most Chinese enterprises. These two obstacles are consistent with global ERP trend.

Even though the major obstacles are unique in china such as language barrier, E-business is essential to ERP/CRM implementation and ERP is not applicable when data integration, speed of information and transaction cost are not critical. Many of these obstacles could be resolved via BPR, infrastructure upgrade and continuous economic reform.

20. Rajapakse, Seddon, (2005) "ERP Adoption in Developing Countries in Asia: A Cultural Misfit".

ERP adoption rate in developing countries in Asia is very low. Clear differences in relative prosperity of business in western as opposite to most Asian countries, National cultures of the Asian countries is one reason for low adoption rates.

While factors such as ERP high costs compared to the West, limited national infrastructures and difficulties with IT implantation are significant in explaining low adoption of western based ERP systems in developing countries in Asia, this study

focus on the possible influences of cultural factors, to explain the low adoption of ERP systems in developing countries in Asia.

Conclusion is the cultural factors have influences. In this study, two cultural dimensions from Hofstede (2001), namely Power Distance and Individualism/Collectivism, to explore potential cultural misfit between western style ERP systems and Sri Lankan organizations. This study explains some reason for problems in ERP adoptions in developing countries in Asia.

Four cultural clashes ERP systems in developing countries in Asia, National culture in Asia are centralized, low level of accountability and discipline, low level of commitment and change, in the other hand ERP cultural in West are decentralized, high level of accountability and discipline, high level of commitment and change.

21. Laukkanen, Hallikainen (2005) “ERP System Adoption-Does The Size Matter ?”

This paper discusses the relationship of enterprise size to the constraints and objectives of ERP system adoption.

The survey data is based on responses of 44 companies between small, medium-sized and large enterprises.

The findings of this study indicate or suggest that company size, indeed, does matter in ERP system adoption and a number of significant differences between enterprises of different sizes can be found.

Results suggest that small and medium-sized enterprises should not be considered as a homogenous group when ERP system adoption is considered. This should be taken into consideration in future research ERP system adoption in organizations of different sizes. Results also suggest that small enterprises experience more knowledge constraints than their larger enterprises in ERP adoption. Moreover there is need for research on the scope and means of integration related to ERP systems and enterprise application integration (EAI) in general in companies of different sizes.

22. Buonanno, Faverio, Pigni, Ravarini, Sciuto and Tagliavini (2005) study “Factors Affecting ERP System Adoption”

This study examines the significant points of enterprise resource planning ERP Adoption between the small to medium sized enterprises (SMEs) and large companies and the points of differences.

The approach of the research focused on identification of business and organizational factors influencing ERP adoption.

Sample of this study was 366 companies of any size; all questionnaires were responded through personal interviews made by dedicated team.

Results of the empirical data clarify that business complexity is a weak influencing factor whereas company size is very good predictor of ERP. Almost all SMEs find financial constraints as the main reason for ERP system non adoption, beside the structural and organizational reasons as major ones.

On the other hand first factor of non-adoption on ERP system in the large organizations is organizational one.

The research model is based on the assumption that business complexity and organizational change are most relevant factors influencing ERP adoption and those factors are explained through a set of factors inherently limited by the results of the literature review.

This study provides indication to SMEs willing to take into consideration the adoption of the ERP system.

This paper contributes to increasing enhancing the understanding of factors influencing the evolution of information system within SMEs with respect to large companies.

Future research could be interesting to analyze how vendors interpret the concepts of business complexity and organizational change by exploring in detail the characteristics of the ERP systems they currently offer.

23. Waarts, Everdingen & Hillegersberg (2002) “The dynamics of factors affecting the adoption of innovations”

This paper investigates the dynamics of the factors influencing on adoption. Dynamic factors mean that driving factors in adopting innovations are changing overtime as long as diffusion of the innovation in the market progresses, and this is

fundamental proposition for this study which was demonstrated in its methodological conclusions. Empirical research was applied between medium sized companies in a variety of European countries and industries concerning adoption of ERP system.

Results of this study indicate that there is two type of driving factors one that affecting late adoption of ERP and other explaining early adoption. At early adoption can be driven by combination of internal strategic drives and attitudes of the firm together with external forces like industry competition and supplier activities.

This research emphasize the influence of the four variables to ERP adoption decision one way or another, four variables are Characteristics of the innovation, the adopting firm characteristics, and the internal and external environment. Although supply side characteristics are repeatedly neglected in previous researches, but this study shows significant influence of activities by suppliers to adoption decisions of both early and later adopters.

Characteristics of the innovation (disadvantages and compatibility), the adopting firm (Attitude towards IT innovation, resources devoted to IT), and the internal (IT intensity, IT integration) and external environment (Industry competitiveness, supplier competition) all show significant effects on the decision of firms to adopt an ERP system. But the effects of (some of) the variables change significantly over time. Only two factors—infrastructure compatibility and supply side activities—have significant effects for both early and later adoption.

This research recommends future studies to investigate external influences such as supplier activities on the likelihood of adoption in different phases of the diffusion curve. Different effects in phases may have severe implications for the marketing strategies of suppliers. This implies that IT vendors may speed up adoption by increasing the compatibility of their innovation at an earlier stage in the adoption life cycle. This can be done by immediately introducing different versions of the IT innovation for multiple platforms.

The probability to adopt ERP is higher for highly automated but less IT-integrated companies. For this group of companies, the potential advantages of ERP can also be significant, but so are the costs and risks involved. It seems that in these circumstances the most common strategy is to further postpone the adoption. ERP suppliers could increase the likelihood of adoption by these companies by offering a

gradual path of implementation as an alternative to the current “big-bang” approach that encompasses high risks. Some ERP vendors are currently starting to partition their monolithic products into components that can be incrementally installed, thus lowering the risk of implementation.

24. Thong & Yap (1995) “CEO Characteristics, Organizational Characteristics & Information Technology Adoption in Small Businesses”

This study suggests that there are main variables that are vital in adoption of innovation: individual characteristics and organizational characteristics.

This paper examines the effect of three characteristics of the Chief of Executive Officer (CEO) and three organizational characteristics on adoption of IT. The three CEO Characteristics were studied are CEO innovativeness, CEO attitude towards adoption of IT and CEO IT knowledge.

The three organizational characteristics were studied are business size, competitiveness of environment and information intensity.

Sample of study was small businesses .the collected data were used to formulate and test six hypotheses.

The result suggests that CEO characteristics are important factors affecting IT adoption in small businesses. Small businesses are more likely to adopt IT when the CEO’s are more innovative, have positive attitude towards adoption of IT and possess greater IT knowledge.

This research provided evidence that technological innovation theories can be successfully applied to the study of organizational adoption of IT, mostly in the context of small businesses. The technological innovation field presents IS researches with a new avenue for studying IT adoption, diffusion and implementation.

25. Grover (1993) “An Empirically Derived Model for the Adoption of Customer-based Inter-organizational systems”

Customer based inter-organizational systems (CIOS) represents one of the most prominent types of such system.

This paper investigates CIOS adoption. A model is constructed based on significant studies in innovation to identify factors facilitating the adoption decision

of a CIOS. Data are gathered from 226 senior executives. Discriminant analysis is used to identify factors that distinguish adopters from non-adopters.

The studied factors are:

- Organizational Factors: (structure, IS Related)
- Support Factors: (Top Management Support, Championship)
- Policy Factors: (Environmental Interaction, Competitive strategy, Management Risk Position)
- Environmental Factors: (Industry, Customer)
- IOS Factors: (Compatibility, Relative advantage, Complexity).

The finding of the study explains the variables with strong contribution are: Top Management Support, Size, IS Related, Variables with weak contribution are environmental factors.

The refined model on CIOS adoption provides direct implications for top management evaluation of a decision to adopt a CIOS. The composite function revealed that adoption of a CIOS could be predicted with an accuracy of over 96 % using the significant variables. This is an outstanding prediction level, given the exploratory nature of this research. This factor analyzed model reveals some general but pertinent questions for top management to evaluate when making the adoption decision.

3.3 Comments on Previous Studies

Review of literature and previous researches show a difference according to its purposes. In this section, the researcher declares most important similarities and differences between her study and previous studies according to: study environment, study variables and study methodology.

3.3.1 Similarities with Previous Studies

3.3.1.1 According to Study Context

Some previous studies were similar to this study by dealing with manufacturing firms, such as the (Li, 2011),(Raymond & Uwizeyemungu, 2007),(Ram et al., 2013b),(Elbertsen & Van Reekum, 2008).

Some previous studies were similar to this study by dealing with developing country, such as the (Rajapakse & Seddon, 2005), (He & Wu, 2006),(Li, 2011),(Haddara & Elragal, 2013),(Al-Jabri & Al-Hadab, 2008),(Kamhawi, 2008),(Shahawai & Idrus, 2010),(Hung et al., 2004), ,(Pan & Jang, 2008), (Hart Okorie Awa, Ojiabo, & Davison, 2016),(Nzuki & Malonza, 2014), (Manuere, Gwangwawa, & Gutu, 2012),(Dwivedi, Papazafeiropoulo, Shiau, et al., 2009),(Al-Jabri & Al-Hadab, 2008).

3.3.1.2 According to Study Variables

This study is similar many studies in that it examines the influence (CEO characteristics and his/her attitude towards adoption of IT , Top Management Support ,environmental characteristics (Competition intensity – Information intensity –Customer power) ,competences of employees , Technological aspects ,ERP system cost ,ERP characteristics , Palestinian context) on ERP system adoption. For example:

1. Many researches study influence of CEO characteristics and his/her attitude towards adoption of IT on ERP system adoption such as: (Hung et al., 2004),(Thong & Yap, 1995),(Grover, 1993),(Dwivedi, Papazafeiropoulo, Shiau, et al., 2009),(Manuere et al., 2012), (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009).
2. Many researches study the influence of Top management support on ERP system adoption such as: (Hung et al., 2004),(Grover, 1993),(Dwivedi, Papazafeiropoulo, Shiau, et al., 2009), (Li, 2011),(He & Wu, 2006), (Kamhawi, 2008),(Boumediene & Kawalek, 2008), (Seethamraju & Seethamraju, 2008) .
3. Many researches study Environmental characteristics on ERP system adoption such as: (Hart Okorie Awa et al., 2016), (Hung et al., 2004), (Thong & Yap, 1995),(Waarts et al., 2002),(Pan & Jang, 2008),(Grover, 1993),(Ram et al., 2013b),(Manuere et al., 2012),(Raymond & Uwizemungu, 2007),(Boumediene & Kawalek, 2008), (Seethamraju & Seethamraju, 2008),(Elbertsen & Van Reekum, 2008).
4. Many researches study Competences of employees on ERP system adoption such as: (Hung et al., 2004).

5. Many researches study Technological aspects on ERP system adoption such as:(Hart Okorie Awa et al., 2016),(Nzuki & Malonza, 2014),(Hung et al., 2004),(Waarts et al., 2002), (Pan & Jang, 2008),(Grover, 1993),(Dwivedi, Papazafeiropoulo, Shiau, et al., 2009), (Li, 2011), (Shahawai & Idrus, 2010),(Rajapakse & Seddon, 2005), (Raymond & Uwizeyemungu, 2007), (Pan & Jang, 2008), (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009), (Boumediene & Kawalek, 2008), (Seethamraju & Seethamraju, 2008), (Elbertsen & Van Reekum, 2008).
6. Many researches study ERP system cost on ERP system adoption such as:(Hung et al., 2004),(Themistocleous et al., 2005), (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009),(Bharathi, Vaidya, & Parikh, 2012),(Rajapakse & Seddon, 2005), (Kamhawi, 2008).
7. Many researches study ERP characteristics on ERP system adoption such as : (Nzuki & Malonza, 2014), (He & Wu, 2006),(Hung et al., 2004),(Themistocleous et al., 2005), (Ram, Corkindale, & Wu, 2014),(Waarts et al., 2002), (Pan & Jang, 2008),(Grover, 1993),(Boumediene & Kawalek, 2008).

3.3.1.3 According to Study Methodology

The current study agreed with most of the previous studies by using the descriptive analytical approach and questionnaire as a tool for data collection. Methodology of this study agreed with (Nzuki & Malonza, 2014), (Thong & Yap, 1995),(Thong, 1999), (Raymond & Uwizeyemungu, 2007), (Kamhawi, 2008).

3.3.2 Aspects of Differences

3.3.2.1 According to Study Context

Some previous studies were not similar to this study by dealing with other environments than manufacturing firms, such as the (Hart Okorie Awa et al., 2016) & (Laukkanen et al., 2007) & (Laukkanen, Sarpola, & Hallikainen, 2005),(Seethamraju & Seethamraju, 2008) which study SMEs, (Ram et al., 2014), (Waarts et al., 2002) , (Themistocleous et al., 2005), (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009),(Nguyen, 2009) which study medium sized companies, (Pan & Jang, 2008) which study communication industry.

Some previous studies were not similar to this study by dealing with developed country, such as the (Ram et al., 2014) & (Ram et al., 2013b) dealt with

Australian companies, (Grover, 1993) study firms at south Carolina, (Waarts et al., 2002) dealt with companies in a variety of European countries, (Raymond & Uwizeyemungu, 2007) dealt with Canadian manufacturing SMEs, (Boumediene & Kawalek, 2008) dealt with Northwest of England, (Seethamraju & Seethamraju, 2008) dealt small and medium sized enterprise in Australian.

3.3.2.2 According to Study Variables

Some studies that examines the influence of other factors such as (Ram et al., 2014) examine the system quality, organizational readiness, (Ram et al., 2013b) examine system quality, Organizational Reediness (OGRD) and Perceived Strategic Value (PSV),(Hart Okorie Awa et al., 2016) & (Hung et al., 2004) & (Nzuki & Malonza, 2014) & (Ram et al., 2014) & (Nguyen, 2009) &(Seethamraju & Seethamraju, 2008) & (Boumediene & Kawalek, 2008) & (Raymond & Uwizeyemungu, 2007) & (Themistocleous et al., 2005)& (Pan & Jang, 2008),(Boumediene & Kawalek, 2008), (Elbertsen & Van Reekum, 2008),(Ram et al., 2014) study organizational characteristics, (Manuere et al., 2012) study firm characteristics, cost and return on investment and support within the organization, (Li, 2011) study culture impact, resources availability, system design and configuration, employee training, project management, change management and vendor support.

(Shahawai & Idrus, 2010) this paper study business level and ICT usage level, (Laukkanen et al., 2007) & (Laukkanen et al., 2005), (Boumediene & Kawalek, 2008) this paper discusses the relationship of enterprise size to the constraint and objectives of ERP system adoption.(Rajapakse & Seddon, 2005) examine the culture factors, to explain the low adoption of ERP.

(Laukkanen et al., 2005) this paper study knowledge constraints and challenged by the changes imposed by ERP adoption between small and large enterprise.

(Pan & Jang, 2008) this paper examines determinates of the adoption of ERP which are size, perceived barriers and production and operations improvements are found to be important.

(Dwivedi, Papazafeiropoulo, Shiau, et al., 2009) this research study perceived benefit, (Al-Jabri & Al-Hadab, 2008) this paper examine perceived usefulness, ease of use, expected capability, and expected value.

(Nguyen, 2009) this research studies internal force, External force, Information technology, External expertise factor and Networking factor.

3.3.2.3 According to Study Methodology

As it stated early in this section, most of the previous studies used descriptive approach and questionnaire as a tool for data collection but some studies use other tools. For example (Thong & Yap, 1995) & (Manuere et al., 2012) used interview beside to questionnaire, (Hart Okorie Awa et al., 2016) & (Pan & Jang, 2008), (Boumediene & Kawalek, 2008) used logistic regression, (Ram et al., 2013b) & (Ram et al., 2013b), (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009) used structural equation modeling (SEM) technique to analyze study data, (Grover, 1993) used discriminant analysis, (Li, 2011) this study collects information through multiple field visits and semi structured interviews as well as examination of relevant documentations.

(Shahawai & Idrus, 2010) This research focused on the exploratory method, (Pan & Jang, 2008) this paper used personal interviews to collect data for empirical test.

(Themistocleous et al., 2005) all questionnaires of this paper were responded through personal interviews made by dedicated team.

(Boumediene & Kawalek, 2008) data of this paper was collected via direct interviews, (Seethamraju & Seethamraju, 2008) this paper used case study approach, (Elbertsen & Van Reekum, 2008) this research model tested in quantitative survey, (Nguyen, 2009) this paper was empirical research.

3.3.3 Benefits from Previous Studies

1. To enrich the Literature Review of the study.
2. To design the study tool (questionnaire).
3. To interpreting the results of the current study.

3.4 Research Gap

The main difference of this research from the previously mentioned studies is that it investigates the influence of factors (CEO characteristics and his/her attitude towards adoption of IT , Top Management Support ,environmental characteristics (Competition intensity – Information intensity –Customer power) ,competences of employees , Technological aspects ,ERP system cost ,ERP characteristics , Palestinian context) on ERP system adoption.. It is one of the first Palestinian studies –based on research knowledge- which examines this relation.

The study also differ from previous studies in that it is applied on Manufacturing firms at Gaza strip four sectors (Food Processing Industries- Garment-Leather-Carpentry) . These firms at the four sectors have very vital role in Gaza strip economic and employment.

This study provides a set of recommendations that would strengthen the role of ERP system in progress and development of manufacturing sectors.

Table (3.1): Summary of some previous studies

#	The study	Main Findings
1	(Hart O Awa et al., 2016)	Adoption of ERP by SMEs is more motivated by technological factors than by organizational and environmental factors.
2	(Nzuki & Malonza, 2014)	Size of the firm, number of employees in organizations, employee turnover, location, and type of ownership of the organization, age of the company, capital structure and familiarity with ERP tools influenced organizations adoption of ERP systems.
3	(Ram et al., 2014)	Importance of the system quality and organizational readiness at the adoption stage of ERP for helping organizations achieves subsequent competitive advantage.
4	(Ram, Corkindale, & Wu, 2013a)	System quality, Organizational Reediness and Perceived Strategic Value have direct and positive effect on the outcome on the decision making process at the adoption stage of ERP systems. However, information quality was not found to be a determinant of ERP adoption.
5	(Manuere et al., 2012)	Six top internal barriers of nine are employees lack required skills, ICT has no finical gains, ICT is not suited to products and services, ICT not suited to way business is done , ICT not suited to our customers and suppliers and security concerns with payments over the internet.

#	The study	Main Findings
6	(Chang, Hung, Yen, & Lee, 2011)	CEO's attitude towards information technology (IT) adoption; CEO's Knowledge of IT, employees' IT Skills, firm size, competition pressure, Cost, complexity and compatibility are significant factors of ERP adoption to the SMEs.
7	(Li, 2011)	Nine critical success factors are : Top management support, culture impact, resources availability, technical readiness, system design and configuration, employee training, project management, change management and vendor support influence on ERP adoption in a small farming feed manufacturing company.
8	(Shahawai & Idrus, 2010)	Larger business hierarchy should be more willing to adopt ERP. Number of SMEs adopting ERP does not necessarily correspond towards SME's ICT usage level. Technological was noted as one of the pre considered factor.
9	(Dwivedi, Papazafeiropoulo, Shiau, et al., 2009)	Characteristics of the CEO and Perceived benefits possess positive affect on ERP adoption, while cost and technology complexity have negative influence on ERP adoption, but only the benefits of ERP system significantly influence on ERP adoption.
10	(Nguyen, 2009)	Internal force, External force, Information technology, External expertise factor, organizational factor and Networking factor are factors that influencing IT adoption.
11	(Elbertsen & Van Reekum, 2008)	ERP adoption by MEs is influenced by competitive pressure and the compatibility of the software configuration with the business processes.
12	(Seethamraju & Seethamraju, 2008)	Environmental factors external drivers influencing the adoption decision which are supply chain partners, price sensitive or competition. Technological factors such as obsolete legacy information systems, the need of efficient management of information and processes, visibility and control are important internal drivers. Organizational factors such as limited availability or resources, centralized decision making, less formalized structures and processes are less predisposed to adoption of ERP system.
13	(Boumediene & Kawalek, 2008)	Technological and organizational factors are more influencing on SMEs than environmental factors.
14	(Al-Jabri & Al-Hadab, 2008)	Perceived value and eases of use of ERP systems are main factors to their adoption.
15	(Kamhawi, 2008)	Main challenges to ERP adoption is high initial cost and long time periods it consume. Resource unavailability is another challenge appears from interviewees.

#	The study	Main Findings
16	(Pan & Jang, 2008)	Technology readiness, size, perceived barriers and production and operations improvements are found to be important determinates of the adoption of ERP.
17	(Raymond & Uwizeyemungu, 2007)	Three types of SMEs were presented from the research results, the first cluster 140 manufacturing SMEs that can be characterized as “Internally Predisposed” to adopt an ERP system, 60 “Externally Predisposed” SMEs to adopt ERP and 156 “Unfavorably disposed “ SMEs to adopt an ERP system.
18	(Laukkanen et al., 2007)	Small enterprises experience more knowledge constraints, large enterprises are challenged by the changes imposed by ERP adoption. Enterprise size matters in ERP system adoption.
19	(He & Wu, 2006)	Top management support is ranked number one among the 10 factors affecting adoption of ERP China and the rest of factors as follows: (ii) Education and training (2 & 4), (iii) change management and BPR (8), (iv) management of expectations (6 & 10), and (v) clear goals and objectives (7, 3, & 9) in making ERP decisions in China. Major obstacles such as language barrier, E-business is essential to ERP/CRM implementation and ERP is not applicable when data integration, speed of information and transaction cost are not critical.
20	(Rajapakse & Seddon, 2005)	ERP high costs compared to the West, limited national infrastructures and difficulties with IT implantation are significant factors in explaining low adoption of western based ERP systems in developing countries in Asia. Four cultural clashes ERP systems in developing countries in Asia, National culture in Asia are centralized, low level of accountability and discipline, low level of commitment and change, in the other hand ERP cultural in West are decentralized, high level of accountability and discipline, high level of commitment and change.
21	(Laukkanen et al., 2005)	Company size does matter in ERP system adoption,
22	(Themistocleous et al., 2005)	Almost all SMEs find financial constraints as the main reason for ERP system non adoption, beside the structural and organizational reasons as major ones. Business complexity and organizational change are most relevant factors influencing ERP adoption.
23	(Waarts et al., 2002)	Characteristics of the innovation, the adopter characteristics, and the internal and external

#	The study	Main Findings
		environment all show significant effects on the decision of firms to adopt an ERP system.
24	(Thong & Yap, 1995)	CEO characteristics are important factors affecting IT adoption in small businesses
25	(Grover, 1993)	Variables with strong contribution are: Top Management Support, Size, IS Related, Variables with weak contribution are environmental factors.

Chapter 4

Methodology

Chapter Four

Methodology

4.1 Introduction

This chapter addresses the methodology details used in this research. The adopted methodology includes the population and sample with the selection criteria in addition to the research's main tool, i.e., questionnaire, and finally the statistical methods that were applied to data analysis. These details are as follows:

4.2 Research Methodology

This study aims to examine the factors affecting on ERP system adoption in Gaza strip manufacturing firms. In order to achieve the objectives of this study, the researcher follows the descriptive analytical approach as it is considered the most common and suitable approach for business and social studies. This section presents the methods used to carry out the study, viz., comparison, explanation and assessment so as to reach meaningful generalizations and furnish the research's queries by analyzing collected data by SPSS.

4.3 Place of the Study

The study was applied in manufacturing sectors in Gaza strip for four industrial sectors (Textile & Garment, wood industries, food industries and leather industries).

4.4 Research Procedures

1. Identifying and defining the problems, setting the objective of the research and developing the plan constitute the first phase of the research thesis proposal.
2. The second phase of the research included a summary of related literature review and review of related previous studies. Then field surveying to initiate the questionnaire design.
3. The third phase of the research handled modifying the questionnaire design and contents, through distributing the questionnaire to a 30 respondent pilot study. The purpose of such a study was to test and prove that the questionnaire paragraphs were so clear to be answered in a way that helps to achieve the target of the study. The questionnaire was modified based on the results of the pilot study. Then, the research focused on distributing questionnaires to the entire

sample in order to collect the required data needed to meet the research objective.

4. The fourth phase was data analysis and discussion. Statistical Package for the Social Sciences, (SPSS) was used to process data and perform the required analysis, followed by conclusions and recommendations.

4.5 Data Sources

Data collection tools have utilized primary and secondary sources as follows:

1. Primary sources: In order to obtain the data needed for this research, a questionnaire was designed by the researcher and modified according to the recommendations of the thesis supervisor and a panel of experts. In-depth interviews were also conducted with some of the CEOs and owners of the business in order to obtain qualitative data. Both Qualitative and quantitative characteristics of the phenomena have been statistically analyzed by means of appropriate statistical tests in order to reach significance and value's indicators to support the research.
2. Secondary sources: The researcher used secondary data sources to address the theoretical framework for the study through the following:
 - a. Scientific journals, periodicals, and academic magazines.
 - b. Theses and dissertations accessed through the universities' libraries.
 - c. Research papers, business articles and reports connected to the study topic.
 - d. Online sources and website.

4.6 Research Population and Sample

The study population was mainly the working factories in Gaza Strip, which in the four sectors (Textile & Garment, wood industries, food industries and leather industries) sector. Whole population around 1280 (PCBS: Economic Surveys Series, 2013).

The researcher reached the study population physically. The response percentage was 73.3% from population,

Table (4.1) Population according to PCBS and the response number in each sector in Gaza Strip

Type of industrial sector	Population	Responses	Percentage%
Textile & Garment	159	72	32.7
Wood Industries	642	114	51.8
Food Industries	457	19	8.7
Leather Industries	22	15	6.8
Total	1280	220	100.0

In this study, the researcher use Robert Mason equation to calculate sample size. The sample size equals (296) factories. The researcher distributed (300) questionnaire, and the number of responded questionnaires were (220) questionnaire, the type of sample is random sample.

4.7 Research Tool

The researcher seeks through this study to analyze "factors affecting on ERP system adoption in Gaza strip manufacturing firms". For this end, a survey questionnaire was designed to collect the research's primary data. The questionnaire included close-ended questions to facilitate the data collection process. The design of questionnaire affected the response rate and the reliability and validity of the data collected. Response rates, validity and reliability are maximized by careful design of individual questions, clear layout of the questionnaire form, lucid explanation of the purpose of the questionnaire and pilot testing.

The questionnaire was composed of four parts:

1. **Part A** : primary information about the demographic information of businesses in general: governorate, job tile, establishment year, nature of the business, type of company, type of industrial sector, number of employees and customer type.
2. **Part B**: Extent of use of IT Infrastructure which contain IT Infrastructure, internet connection, IT staff/department skills, type of ICT support, willing & planning any technological change and CEO IT knowledge.
3. **Part C** : Factors affecting on ERP system adoption includes study variables, nine dimensions, as follows:
 - **First dimension**: CEO Characteristics and attitude Towards Adoption of IT was adapted from (Thong & Yap, 1995) research.

- **Second dimension:** Top Management Support was adapted from (Grover, 1993) research.
 - **Third dimension:** Environmental Characteristics (Competition Intensity- Information Intensity- Customer Power) was adapted from (Grover, 1993) research.
 - **Fourth dimension:** Employee's IS Knowledge was adapted from (Thong, 1999) research.
 - **Fifth dimension :** Technological Impacts was adapted from (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009) research.
 - **Sixth dimension:** ERP System Cost was adapted from (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009) research.
 - **Seventh dimension:** The perceived benefits of applying ERP systems was adapted from (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009) research.
 - **Eighth dimension:** The expected complexities of applying ERP systems was adapted from (Grover, 1993) research.
 - **Ninth dimension:** Palestinian Context
4. **Part D:** Manufacturing firm future prospective in coming year, firm future attitudes towards adopting and applying IT.

The researcher used the five-point Likert scale to measure responses on questionnaire items. In terms of the agreement strength, the results ranging from Agree very slightly (1) to Agree very strongly (5) appeared as shown in table (4.2) herein below. Numbers assigned to importance (1, 2, 3, 4, 5) do not indicate that the interval between scales are equal, nor do they indicate absolute quantities. They are merely numerical labels.

Table (4.2): Likert Scale

Scale	Agree very slightly	Agree Slightly	Agree Moderately	Agree Strongly	Agree very strongly
Relative weight	1	2	3	4	5

A cover letter explaining the purpose of the questionnaire, the aim of the study and the privacy of information has been provided to the questionnaire in order to encourage more responses. The questionnaire has been translated into Arabic for documentation purposes and facilitates it to the reader (Appendix C).

4.8. Questionnaire Procedures

The researcher utilizes the following questionnaire procedures:

1. Upon designing the questionnaire, it was reviewed and modified by research supervisor.
2. The modified copy was given to referees from local universities, who have excellent knowledge and expertise in the area of the research topic.
3. The questionnaire was modified based on the referee's comments and a pilot study of 50 questionnaires was distributed to help test the validity and reliability of the questionnaire based on pilot sampling equation.
4. Based on the pilot phase findings, it was concluded that the questionnaire was ready to be distributed as a final copy.

4.9 Statistical Methods

Both qualitative and quantitative data analysis methods have been used. The data collected through questionnaires was processed and analyzed by means of the Statistical Package for the Social Sciences (SPSS), and the following statistical tools were used:

1. Descriptive statistics: such as, percentage, arithmetic average, standard deviation, relative arithmetic average which is used in order to identify the categories of variable frequency according to researcher's view presented in the description of the study variables.
2. Pearson Correlation Coefficient: to make verification of consistency amongst questionnaire paragraphs and to find out the relationship between the variables.
3. Cronbach's Coefficient Alpha: to test the reliability of questionnaire paragraphs.
4. Spearman-Brown: to test the reliability of questionnaire paragraphs.
5. Kolmogorov – Smirnov (One- Sample K-S): to check the normality distribution of data categories.
6. T- Test: for the mean of single samples (One sample T test) is used to check the difference between the paragraph's mean and medium of a hypothesized value 3 (Middle value of Likert scale).
7. The One- Way Analysis of Variance (ANOVA) is used to examine if there is a statistical significant difference between several means among the respondents.

8. The Independent Samples T-test is used to examine if there is a statistical significant difference between two means among the respondents.

4.10 Questionnaire Validity

Validity refers to the degree to which an instrument measures what it is supposed to be measured. Validity has a number of different aspects and assessment approaches. Statistical validity is used to evaluate instrument validity, which include external, internal and structural validity (Gravetter & Forzano, 2012: p. 167).

4.10.1. External Validity

To ensure a high level of validity, the questionnaire has been handed to nine of concerned experts, from various universities in Islamic University, Al- Azhar University, for evaluation (Appendix A). These referees kindly presented their views on the questionnaire in terms of its content, clarity of items' meaning and suitability. They also proposed what they deem necessary to modify the formulation of items in order to avoid any misunderstanding and to assure that the questionnaire meets aims of the study. The final copy of the questionnaire was modified according to the experts' recommendations.

4.10.2. Internal Validity

Internal validity of the questionnaire is the first statistical test used to test the validity of the questionnaire by measuring the correlation coefficients between each item in one field and the whole field. The internal consistency of the questionnaire paragraph was measured by a pilot study sample amounting to (30) participants. The correlation coefficient between each with total degree for each dimension was calculated.

Table (4.3): Internal validity for questionnaire paragraph

No	Paragraph	Relation Coefficient	Sig. level
First dimension: CEO Characteristics and attitude Towards Adoption of IT			
١	I have original ideas	0.43	0.000*
٢	I would sooner create something new than improve something existing	0.54	0.000*
٣	I often risk doing things differently	0.53	0.000*
٤	Computers increase the productivity of my employees	0.80	0.000*
5	My employees find computers easy to use	0.58	0.000*
6	I have seen what other small companies have achieved with computers	0.70	0.000*
Second dimension: Top Management Support			

No	Paragraph	Relation Coefficient	Sig. level
١	Top management considers ERP as important to the organization	0.77	0.000*
٢	Top management Applies IT to the organization	0.85	0.000*
٣	Top management provides the needed budget to support IT in the organization	0.85	0.000*
٤	Top management fully aware of the nature and cost of needed ERP system to the organization	0.80	0.000*
Third dimension: Environmental Characteristics (Competition Intensity-Information Intensity- Customer Power)			
١	There is tough price competition in our industry	0.40	0.000*
٢	There is tough competition in our industry based on product/service quality or novelty	0.40	0.000*
٣	The product/service in our industry generally require a lot of information /Marketing to sell	0.45	0.000*
٤	The product/service in our industry is complicated or complete to understand or use	0.41	0.000*
٥	The ordering of products in our industry by customers is generally a complex process	0.40	0.000*
٦	Customer in our industry generally purchase in large volumes	0.46	0.000*
٧	It is easy for customers to change suppliers	0.57	0.000*
٨	Products/services offered by other firms are similar to ours	0.54	0.000*
Fourth dimension: Employees's IS knowledge			
١	Business employees were all computer literate	0.54	0.000*
٢	There was at least one employee who was a computer expert	0.47	0.000*
٣	I would rate my employees' understanding of computers as very good compared with other small companies in the same industry	0.75	0.000*
Fifth dimension : Technological Impacts			
١	Better vendor technological support is an important factor in ERP adoption	0.60	0.000*
٢	More pressure from the new IS technology of competitors is an important factor in ERP adoption	0.66	0.000*
٣	Technological sophistication in the ERP system is an important factor in the ERP adoption decision.	0.75	0.000*
٤	Using software developed with the latest information technology is an important factor in ERP adoption decision	0.68	0.000*
5	The difficulty of maintaining information systems with resources is an important factor in ERP adoption decision in my company	0.75	0.000*
Sixth dimension: ERP System Cost			
١	The high cost of an ERP system may deter my company's adoption of ERP	0.77	0.000*
٢	The high cost of an ERP consultant's fee may deter my company's adoption of ERP	0.84	0.000*
٣	The high cost of recruiting and retaining IT professionals may deter my company's adoption of ERP	0.85	0.000*

No	Paragraph	Relation Coefficient	Sig. level
ε	A higher cost of ERP training fee may deter my company's adoption of ERP	0.80	0.000*
5	The high cost could be avoided by customize local programs instead of buying international program	0.54	0.000*
Seventh dimension: The perceived benefits of applying ERP systems			
١	Creating better company profits	0.79	0.000*
٢	Creating better cost reduction	0.71	0.000*
٣	Having better system integration	0.70	0.000*
ε	Obtaining benefits from inventory reduction	0.48	0.000*
5	Better process improvement	0.79	0.000*
6	More benefit from consistency in operations	0.77	0.000*
Eighth dimension: The expected complexities of applying ERP systems			
١	I believe that ERP is complex to use	0.83	0.000*
٢	I believe that ERP development is a complex process	0.89	0.000*
٣	Difficulty of employees adaptation and their resistance to change	0.84	0.000*
ε	Lack of enough budget to support applying ERP systems	0.75	0.000*
Ninth dimension: Palestinian Context			
١	Unavailability of raw materials deter ERP adoption	0.81	0.000*
٢	Frequently interrupted electricity supply deter ERP adoption	0.85	0.000*
٣	Price hike of production inputs deter ERP adoption	0.88	0.000*
ε	Old/obsolete machinery and production lines deter ERP adoption	0.86	0.000*
5	Blockade, security and political situation deter ERP adoption	0.87	0.000*
6	The difficulty of access to regional/international at market deter ERP adoption	0.86	0.000*

* Correlation is statistical significant at $\alpha \leq 0.01$

As table (4.3) shows, the correlation coefficients are significant at the level of 0.01, where the probability value of each paragraph is less than 0.01. Therefore, it can be said that paragraphs of the questionnaire are consistent and valid to measure what they were set for.

4.10.3. Structure Validity

It is the second statistical test used to examine the validity of the questionnaire structure by testing the validity of each field and the validity of the entire questionnaire. It measures the correlation coefficient between one field and all the questionnaire's fields that have the same level of the Likert scale.

Table (4.4): Correlations coefficient between each dimension and the total degree of the questionnaire

Dimension	Relation Coefficient	Significance level
First dimension: CEO Characteristics and attitude Towards Adoption of IT	0.64	0.000*
Second dimension: Top Management Support	0.47	0.000*
Third dimension: Environmental Characteristics (Competition Intensity-Information- Customer Power)	0.63	0.000*
Fourth dimension: Employees's IS knowledge	0.41	0.000*
Fifth dimension : Technological Impacts	0.71	0.000*
Sixth dimension: ERP System Cost	0.70	0.000*
Seventh dimension: The perceived benefits of applying ERP systems	0.80	0.000*
Eighth dimension: The expected complexities of applying ERP systems	0.60	0.000*
Ninth dimension: Palestinian Context	0.68	0.000*

* Correlation is statistical significant at $\alpha \leq 0.01$

Table (4.4) indicates the correlation coefficients between degree of each dimension of the questionnaire and the total degree of the questionnaire. The correlation coefficients are statistically significant at $\alpha \leq 0.01$, while the probability value for all paragraphs is less than 0.01. Therefore, it can be seen that the nine dimensions are valid to measure what they were set out for so as to achieve the main aim of the research.

4.11 Questionnaire Reliability

Reliability is the degree of consistency and precision or accuracy that a measuring instrument demonstrates. The less variation an instrument produces in repeated measurements of an attribute, the higher its reliability. Other terms used interchangeably with reliability are stability, dependability and predictability. If for instance, an instrument elicits similar circumstances, the test is said to be consistent, and therefore, it can be depended upon (Sevilla et. al., 2007: p. 196). Reliability is measured by two methods as follows:

4.11.1 Cronbach's Alpha Method

Cronbach's Coefficient Alpha is used to measure the reliability of the questionnaire between each dimension and the mean of all dimensions of the questionnaire. The normal range of Cronbach's coefficient alpha value is between 0.0 and + 1.0. Higher values reflect a higher degree of internal consistency. The Cronbach's coefficient alpha was calculated for each dimension of the questionnaire.

Table (4.5): Cronbach’s Coefficient Alpha for the entire questionnaire

Dimension	Number of paragraphs	Cronbach’s coefficient alpha
First dimension: CEO Characteristics and attitude Towards Adoption of IT	6	0.73
Second dimension: Top Management Support	4	0.84
Third dimension: Environmental Characteristics (Competition Intensity-Information Intensity- Customer Power)	8	0.71
Fourth dimension: Emplpoyees’s IS knowledge	3	0.65
Fifth dimension : Technological Impacts	5	0.66
Sixth dimension: ERP System Cost	5	0.82
Seventh dimension: The perceived benefits of applying ERP systems	6	0.80
Eighth dimension: The expected complexities of applying ERP systems	4	0.85
Ninth dimension: Palestinian Context	6	0.93
Total questionnaire paragraphs	47	0.92

As demonstrated in table (4.5), the value of Cronbach’s alpha for all dimensions are in the range of 0.65 and 0.93, while the Cronbach’s Alpha for the entire questionnaire is 0.92, which indicates an excellent reliability of the entire questionnaire. Thus, the researcher is assured of the questionnaire reliability and validity for responding, results analyzing and hypotheses testing.

4.11.2.Split-Half Method

After the questionnaire is administered, questionnaire paragraphs are fragmented into two parts, namely the odd-number questions, and even-number questions. Then the correlation coefficient between individual questions degrees and degrees of even questions is calculated and corrected by Spearman Brown: Average correlation coefficient= $\frac{2r}{1+r}$ where r correlation coefficient between degrees of odd-number questions and even-number questions. Results are indicated in table (4.5):

Table (4.6) Reliability coefficients by Split-half method for all dimensions

Dimension	Correlation coefficient by Spearman	Reliability coefficient by Brown method
First dimension: CEO Characteristics and attitude Towards Adoption of IT	0.50	0.67
Second dimension: Top Management Support	0.66	0.80
Third dimension: Environmental Characteristics (Competition Intensity-Information Intensity- Customer Power)	0.52	0.69
Fourth dimension: Emplpoyees’s IS knowledge	0.50	0.67
Fifth dimension : Technological Impacts	0.48	0.65
Sixth dimension: ERP System Cost	0.60	0.75

Dimension	Correlation coefficient by Spearman	Reliability coefficient by Brown method
Seventh dimension: The perceived benefits of applying ERP systems	0.52	0.69
Eighth dimension: The expected complexities of applying ERP systems	0.54	0.70
Ninth dimension: Palestinian Context	0.86	0.93
Total questionnaire paragraphs	0.67	0.80

As demonstrated in table (4.6), Spearman correlation coefficient for all dimensions is in the range of 0.48 and 0.86, while Brown coefficient ranges 0.65 to 0.93, which indicates an excellent reliability of the entire questionnaire. Thus, the researcher is reassured that the questionnaire is reliable and can be administered successfully.

After successfully conducting the above mentioned tests, it can be said that the researcher has proved both validity and reliability of the research's main tool, and hence, questionnaires are ready for distribution to the sample.

4.12. Normality Distribution of Data

To examine normality distribution of Data, the One-Sample Kolmogorov – Smirnov (KS) test is utilized. The KS Test is designed to find out whether the data follow a normal distribution or not. Such a test is necessary for hypotheses testing because most parametric tests require normally-distributed data.

Table (4.7): One-Sample Kolmogorov-Smirnov Test

Dimension	Z-Value	Probability Value
First dimension: CEO Characteristics and attitude Towards Adoption of IT	0.95	0.33
Second dimension: Top Management Support	0.97	0.30
Third dimension: Environmental Characteristics (Competition Intensity-Information Intensity- Customer Power)	0.62	0.84
Fourth dimension: Employees's IS knowledge	1.12	0.16
Fifth dimension : Technological Impacts	0.81	0.52
Sixth dimension: ERP System Cost	0.67	0.76
Seventh dimension: The perceived benefits of applying ERP systems	1.13	0.15
Eighth dimension: The expected complexities of applying ERP systems	0.70	0.71
Ninth dimension: Palestinian Context	1.13	0.15
Total questionnaire paragraphs	1.16	0.13

As Table (4.7) shows, test results of the probability value of each dimension are more than 0.05 (*sig.* > 0.05) which indicates that data follow a normal distribution and parametric tests can be used.

4.13. Chapter Summary

This chapter presents a description of the research methodology that is followed in the implementation of the field study through identifying different ways and tools used in the completion of this study. It also contains a description of the study population and sampling that is considered a comprehensive survey of the all population. Finally, the chapter addresses the questionnaire preparation and testing its validity besides; it presents the statistical methods used in the analysis of results. All this is to examine the factors that affect the decision to adopt ERP in Gaza strip's Manufacturing firms.

Chapter 5
Data Analysis and
Discussion

Chapter Five

Data Analysis and Discussion

5.1 Introduction

This chapter includes detailed description of the findings resulted from applying the statistical tests on the collected data from the main tool, i.e. a questionnaire and discussion of the results with explanations for the meaning of these results. Also, it provides a clear idea about the respondents' demographic data, .Then, data was processed and statistically analyzed using the necessary tests, as detailed in the previous section of the current chapter. The Statistical Package for the Social Sciences (SPSS) was utilized for the analysis of data so as to furnish the study queries and reach the research result.

The collected data of the respondents presented and the findings will be described and discussed in four main parts:

- The first part will tackle the analysis of the demographic information of businesses in general: governorate, job tile, establishment year, nature of the business, type of company, type of industrial sector, number of employees and customer type.
- The second view IT Infrastructure Level of businesses which contain IT Infrastructure, internet connection, IT staff/department skills, type of ICT support, willing & planning any technological change and CEO IT knowledge..
- The third part will apply the statistical tests indicated in section (4.9): (Statistical Analysis on the collected data from questionnaire respondents) which answer nine main questions of the study (nine factors). The overall results will be compared with the previous studies results.
- The fourth part will illustrate the manufacturing firms future prospective in coming year, what their firm future attitude towards adopting and applying IT.
- The Fifth part will testify the study hypothesis. The findings of this test will be discussed and compared with previous studies results.

5.2 Sample Characteristics

The following tables demonstrate the sample distribution According to the demographic information of business: governorate, job title, establishment year, nature of the business, type of company, type of industrial sector, number of employees and customer type. Each of them is described and analyzed separately. The frequency and percentage for each variable is listed according to the survey categories. The following table describes results:

5.2.1 Governorate

Table (5.1) shows that 30% of the sample exists in North, 45.9% exists in Gaza, 11.8% exists in Middle, 5.5% exists in Khan Younis, and 6.8% exists in Rafah, which is natural according to the differences between these governorates in total numbers of business.

Table (5.1): Analyzing Governorate variable

Governorate	Frequency	Percentage%
North	66	30.0
Gaza	101	45.9
Middle	26	11.8
Khan Younis	12	5.5
Rafah	15	6.8
Total	220	100.0

5.2.2. Job Title

Table (5.2) shows that 37.3% of the sample are business owner, 25% are manager, 31.4% are administrative, 6.4% others, which is natural as already explained before in sections (1.2),(1.6),(2.8) the majority of those firms are family business.

Table (5.2): Analyzing Job Title variable

Job Title	Frequency	Percentage%
Business Owner	82	37.3
Manger	55	25.0
Administrative	69	31.4
Other	14	6.4
Total	220	100.0

5.2.3. Establishment Year

Table (5.3) shows that 1.8% of the sample establishment year of their company less than 1 year, 4.1% between 1 to 3 years, 5.5% between 3 to 5 years,

10.0% between 5 to 10 years, and 78.6% more than 10 years. Which these numbers illustrate that many newly established business couldn't survive under current economic and political conditions and close their business, older business could hardly survive and continue to work.

Table (5.3): Analyzing Establishment Year variable

Establishment Year	Frequency	Percentage%
Less than 1 year	4	1.8
1-3 years	9	4.1
3-5 years	12	5.5
5-10 years	22	10.0
More than 10 years	173	78.6
Total	220	100.0

5.2.4. Nature of the Business

Table (5.4) shows that 47.7% of the sample is not seasonal business, 14.1% seasonal, while 38.2% both. Almost all seasonal business which have high demand on their products in certain seasons attempt to mix their nature of their products between seasons as possible to help them to produce through the year among all seasons without pause period.

Table (5.4): Analyzing Nature of the Business variable

Nature of the Business	Frequency	Percentage%
Not Seasonal	105	47.7
Seasonal	31	14.1
Both	84	38.2
Total	220	100.0

5.2.5. Type of Company

Table (5.5) shows that 52.7% of the sample that type of company is one person company, 40.5% Private Shareholding Company, 5.9% Public Shareholding Company, while 0.9% other. Which is natural as already explained before in sections (1.2),(1.6),(2.8) the majority of those companies/firms are family business.

Table (5.5): Analyzing Type of Company variable

Type of Company	Frequency	Percentage%
One –person Company	116	52.7
Private Shareholding Company	89	40.5
Public Shareholding Company	13	5.9
Other	2	0.9
Total	220	100.0

5.2.6. Type of industrial sector

Table (5.6) shows that 32.7% of the sample is in textile & Garment sector, 51.8% wood Industries sector, 8.6% food Industries sector, while 6.8% leather industries. These percentages are almost similar to percentages of firms in these sectors from the overall population Table (4.1) except to food industries sector didn't respond to filling questioner as rest of the industrial sectors.

Table (5.6): Analyzing Type of industrial sector Variable

Type of industrial sector	Frequency	Percentage%
Textile & Garment	72	32.7
Wood Industries	114	51.8
Food Industries	19	8.6
Leather Industries	15	6.8
Total	220	100.0

5.2.7. No. of employees

Table (5.7) shows that 13.2% of the sample with number of employees in their companies between 1-4 employees, 53.6% from 5 to 19, 28.6% from 20 to 49, 3.6% from 50 to 99, while 0.9% number of employees 100 and above. These percentages are natural and logic in section (2.8) classified the majority of manufacturing firms as small and medium family-owned businesses.

Table (5.7): Analyzing No. of employees variable

No. of employees	Frequency	Percentage%
1-4	29	13.2
5-19	118	53.6
20-49	63	28.6
50-99	8	3.6
100 and above	2	0.9
Total	220	100.0

5.2.8. Customer Type

Table (5.8) shows that 5.0% of the samples serve certain type of customer which is other businesses, 26.4% of the samples serve individuals, while 68.6% serve both businesses & individuals. Diversification of customer types is technique to survive under current market conditions so the majority with 68.6% of the sample attempt to serve both business and individuals.

Table (5.8): Analyzing Customer Type variable

Customer Type	Frequency	Percentage%
Businesses	11	5.0
Individuals	58	26.4
Business & Individuals	151	68.6
Total	220	100.0

5.3 IT Infrastructure Level

In this section, the researcher describes and analyzes the extent of IT Infrastructure level which contain IT Infrastructure, internet connection, IT staff/department skills, type of ICT support, willing & planning any technological change and CEO IT knowledge. Each one of them is described and analyzed separately. The frequency and percentage for each variable is listed according to the survey categories. The following table describes the answer of the first question:

Q1: What are the available IT infrastructure, resources and support at Gaza strip manufacturing firms?

5.3.1 IT Infrastructure

Table (5.9) shows that 9.6% of the sample don't have any of IT Basics at their companies, 21.4% have desktop PC, 22.7% have laptop, 25.3% have fire extinguishers and systems, 14.1% have monitoring cameras devices, 4.5% have fingerprint employee time & attendance, while 2.4% have others IT infrastructure. IT Infrastructure basics at its minimum level, the majority of the firms don't encourage to invest IT infrastructure under the economic and political situations, and some of them didn't understand the perceived benefit from applying them.

Table (5.9): Analyzing IT Infrastructure variable

IT Infrastructure	Frequency	Percentage%
Not Available any of IT Basics	45	9.6
Desktop PC	100	21.4
Laptop	106	22.7
Fire extinguishers and systems	118	25.3
Monitoring cameras devices	66	14.1
Fingerprint Employee Time & Attendance	21	4.5
Other	11	2.4
Total	467	100.0

5.3.2. Internet Connection

Table (5.10) shows that 70.5% of the samples have internet connection, while 29.5% have no any internet connection. This is good indicator about business owners or CEOs attitudes toward using internet in their business transaction and operations.

Table (5.10): Percentage of firms that have Internet Connection

Internet Connection	Frequency	Percentage%
Yes	155	70.5
No	65	29.5
Total	220	100.0

5.3.3 IT staff department skills

Table (5.11) shows that 12.3% of the sample have very high IT staff department skills, 27.3% have high IT staff department skills, 38.6% have medium IT staff department skills , 13.2% have low IT staff department skills , while 8.6% have very low IT staff department skills. Manufacturing firms' staff typically consists of administrative employees and first line workers, the first class should know IT skills but its small number comparing it to workers who usually have medium to low IT skills.

Table (5.11): Analyzing IT staff department skills variable

IT staff department skills	Frequency	Percentage%
Very high	27	12.3
High	60	27.3
Medium	85	38.6
Low	29	13.2
Very low	19	8.6
Total	220	100.0

5.3.4. Type of ICT support

Table (5.12) shows that 12.9% of the sample use Manually/no ICT support in their business, 10.7% have Sales and marketing system, 15.7% use Finance & Accounting system, 8.8% have CRM , 5.3% have EDI, 10.7% use HRM system in business, 5.6% use CAM system, while 1.1% of the sample use other IT systems. Percentages show that some firms still make everything manually without ICT support and this is indicator for one of two things these firms can't afford these ICT support or don't know its perceived benefit from using them. This question is multiple choices with possibility of choosing more than one answer, so it obvious that some firms already using more than one system for finance, accounting sales, marketing, CRM, EDI and HRM purposes.

Table (5.12): Analyzing Type of ICT support variable

Type of ICT support	Frequency	Percentage%
Manually/no ICT support	81	12.9
Sales and marketing	67	10.7
Finance & Accounting	98	15.6

Type of ICT support	Frequency	Percentage%
CRM	55	8.8
EDI	33	5.3
HRM	67	10.7
Inventory Monitoring	47	7.5
Archive & Secretary Work	41	6.5
CAD	61	9.7
MRP	35	5.6
CAM	35	5.6
Other	7	1.1
Total	627	100.0

5.3.5. Willing & Planning any technological change

Table (5.13) shows that 48.2% of the sample have very high willing & Planning to do technological change, 35.0% have high willing & Planning to do technological change, 13.2% have moderate willing & Planning to do technological change, 2.7% have little willing & Planning to do technological change, 0.5% have very little willing & Planning to do technological change, 0.5% not have willing & Planning to do technological change. The majority of the respondents have very high to high willing and planning to do technological change.

Table (5.13): Analyzing Willing & Planning any technological change variable

Willing & Planning any K2 technological change	Frequency	Percentage%
Very High	106	48.2
High	77	35.0
Moderate	29	13.2
Little	6	2.7
Very Little	1	0.5
Not Much	1	0.5
Total	220	100.0

5.3.6. CEO IT Knowledge

Table (5.14) shows that 34.0% of the business owner or CEOs uses a computer at work, 32.0% of them have formal qualifications in the use and operation of a computer, 14.3% of them have computer experience about business related programs and computer applications, 14.7% of them have Computer experience about business support programs, 5.0% have not any IT Knowledge. CEO plays a vital role in shaping any business future and growth that's why this question is important to know CEO IT knowledge but as it is illustrated only 14.3% of the sample have computer experience about business related programs and computer

applications and the reason behind this is CEO in small and medium businesses is usually also the owner of business.

Table (5.14): Analyzing CEO IT Knowledge variable

CEO IT Knowledge	Frequency	Percentage%
Use a computer at work	150	34.0
Have formal qualifications in the use and operation of a computer	141	32.0
Have computer experience about business related programs and computer applications	63	14.3
Have Computer experience about business support programs	65	14.7
None	22	5.0
Total	441	100.0

5.4 Factors affecting on ERP system adoption and answering main nine research questions

To analyze paragraphs of the questionnaire dimensions, the One Sample T-test is used to determine if the mean of a paragraph is significantly different from a hypothetical value 3; the degree of neutrality (Middle value of Likert scale). Moreover, the sign of the Test value indicates whether the mean is significantly smaller or greater than the hypothetical value of 3, i.e. whether the average response increase or decrease the degree of neutrality. If the P-value (Sig.) is smaller than or equal to the level of significance then the mean of a paragraph is significantly different from a hypothetical value of 3, while if the P-value (Sig.) is greater than the level of significance, $\alpha \leq 0.05$, then the mean of a paragraph is insignificantly different from a hypothetical value of 3.

Therefore, analysis results of the research's nine dimensions can be explained as follows:

1. To what extent do “CEO Characteristics” support ERP system adoption decisions at Gaza strip manufacturing firms?

Table (5.15): Results of T test , mean & relative weight for first dimension

No.	Paragraph	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
١	I have original ideas	3.90	0.97	77.9	13.675	0.000*	1
٢	I would sooner create something new than improve something	3.75	1.13	74.9	9.783	0.000*	2

No.	Paragraph	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
	existing						
۳	I often risk doing things differently	3.44	1.21	68.7	5.370	0.000*	5
۴	Computers increase the productivity of my employees	3.50	1.23	69.9	5.996	0.000*	4
5	My employees find computers easy to use	3.07	1.20	61.5	0.903	0.368//	6
6	I have seen what other small companies have achieved with computers	3.71	1.19	74.3	8.883	0.000*	3
Total degree		3.56	0.76	71.2	10.995	0.000*	

* arithmetic mean is statistical significant at $\alpha \leq 0.05$

// arithmetic mean is not statistical significant at $\alpha \leq 0.05$

As shown in table (5.15), the opinions of respondents about first dimension were as follows:

The highest response paragraph according to the relative weight is as follows:

- In paragraph No. (1): the relative weight equals "77.9%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

And the lowest response according to the relative weight is as follows:

- In paragraph No. (5): the relative weight equals "61.5%" and p-value equals "0.368" which is more than 0.05, that means there is neutrally on this paragraph.

In general, the results of all paragraphs of "**CEO Characteristics and attitude Towards Adoption of IT**" show that the average mean equals "3.56", the relative weight equals "71.2%", the value of T test equal "10.995", and p- value equals "0.000", which is less than 0.05, and hence significant. This means that 71.2% of the business owners/ CEOs agreed to the importance of "**CEO Characteristics and attitude Towards Adoption of IT**" as a motivator to adopt ERP system, which is a high percentage. This result is consistent with (Thong & Yap, 1995), (Waarts et al., 2002), (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009) and (Chang et al., 2011).

2. To what extent does “Top Management” support ERP system adoption decision at Gaza strip manufacturing firms?

Table (5.16): Results of T test, mean & relative weight for second dimension

No.	Paragraph	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
١	Top management considers ERP as important to the organization	4.13	1.00	82.6	16.858	0.000*	1
٢	Top management Applies IT to the organization	3.69	1.02	73.8	10.066	0.000*	2
٣	Top management provides the needed budget to support IT in the organization	3.44	1.05	68.8	6.244	0.000*	4
٤	Top management fully aware of the nature and cost of needed ERP system to the organization	3.45	0.99	69.1	6.780	0.000*	3
Total degree		3.68	0.83	73.6	12.198	0.000*	

* arithmetic mean is statistical significant at $\alpha \leq 0.05$

As shown in table (5.16), the opinions of respondents about second dimension were as follows:

The highest response paragraph according to the relative weight is as follows:

- In paragraph No. (1): the relative weight equals "82.6%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

And the lowest response according to the relative weight is as follows:

- In paragraph No. (3): the relative weight equals "68.8%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

In general, the results of all paragraphs of "**Top Management Support**" show that the average mean equals "3.68", the relative weight equals "73.6%", the value of T test equal "12.198", and p- value equals "0.000", which is less than 0.05, and hence significant. This means that 73.6% of the business owners/ CEOs agreed to the importance of “**Top Management Support**” as a motivator to adopt ERP system, which is a high percentage. This result is consistent with (Grover, 1993), (He & Wu, 2006) and (Li, 2011).

3. To what extent do “Environmental Characteristics” (Competition Intensity- Information Intensity- Customer Power) support ERP system adoption decision at Gaza strip manufacturing firms?

Table (5.17): Results of T test, mean & relative weight for third dimension

No.	Paragraph	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
١	There is tough price competition in our industry	4.40	0.99	87.9	21.007	0.000*	1
٢	There is tough competition in our industry based on product/service quality or novelty	4.22	1.06	84.4	16.996	0.000*	2
٣	The product/service in our industry generally require a lot of information /Marketing to sell	3.90	1.16	78.0	11.525	0.000*	3
٤	The product/service in our industry is complicated or complete to understand or use	2.86	1.22	57.2	-1.717	0.087//	6
5	The ordering of products in our industry by customers is generally a complex process	2.58	1.26	51.6	-4.938	0.000*	8
6	Customer in our industry generally purchase in large volumes	2.81	1.15	56.3	-2.413	0.017*	7
7	It is easy for customers to change suppliers	2.90	1.25	58.0	-1.187	0.236//	5
8	Products/services offered by other firms are similar to ours	3.36	1.26	67.3	4.285	0.000*	4
Total degree		3.38	0.60	67.6	9.443	0.000*	

* arithmetic mean is statistical significant at $\alpha \leq 0.05$

// arithmetic mean is not statistical significant at $\alpha \leq 0.05$

As shown in table (5.17), the opinions of respondents about third dimension were as follows:

The highest response paragraph according to the relative weight is as follows:

- In paragraph No. (1): the relative weight equals "87.9%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

And the lowest response according to the relative weight is as follows:

- In paragraph No. (5): the relative weight equals "51.6%" and p-value equals "0.000" which is less than 0.05, that means there is disapproval on this paragraph.

In general, the results of all paragraphs of "**Environmental Characteristics (Competition Intensity- Information Intensity- Customer Power)**" show that the average mean equals "3.38", the relative weight equals "67.6%", the value of T test equal "9.443", and p- value equals "0.000", which is less than 0.05, and hence significant. This means that 67.6% of the business owners/ CEOs agreed to the importance of "**Environmental Characteristics (Competition Intensity- Information Intensity- Customer Power)**" as a motivator to adopt ERP system. The result is consistent with (Hart O Awa et al., 2016) and (Boumediene & Kawalek, 2008) which both of the studies found that adoption of ERP is more motivated by technological factors than by environmental factors, and with (Chang et al., 2011) , (Elbertsen & Van Reekum, 2008), (Waarts et al., 2002) and (Seethamraju & Seethamraju, 2008) which all of the three studies illustrated that competition pressure is strong factor of ERP adoption. In the other hand, the result is dissimilar to (Grover, 1993) which showed that environmental factor is a weak contribution to ERP adoption.

4. To what extent does “Employees’s IS knowledge” support ERP system adoption decision at Gaza strip manufacturing firms?

Table (5.18): Results of T test, mean & relative weight for fourth dimension

No.	Paragraph	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
١	Business employees were all computer literate	2.46	1.06	49.2	-7.560	0.000*	3
٢	There was at least one employee who was a computer expert	3.78	1.08	75.5	10.661	0.000*	1
٣	I would rate my employees’ understanding of computers as very good compared with other small companies in the same industry	3.40	1.06	67.9	5.528	0.000*	2
Total degree		3.21	0.75	64.2	4.153	0.000*	

* arithmetic mean is statistical significant at $\alpha \leq 0.05$

As shown in table (5.18), the opinions of respondents about fourth dimension were as follows:

The highest response paragraph according to the relative weight is as follows:

- In paragraph No. (2): the relative weight equals "75.5%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

And the lowest response according to the relative weight is as follows:

- In paragraph No. (1): the relative weight equals "49.2%" and p-value equals "0.000" which is less than 0.05, that means there is disapproval on this paragraph.

In general, the results of all paragraphs of " **Empoyees’s IS knowledge** " show that the average mean equals "3.21", the relative weight equals "64.2%", the value of T test equal "4.153", and p- value equals "0.000", which is less than 0.05, and hence significant. This means that 64.2% of the business owners/ CEOs agreed to the importance of “**Empoyees’s IS knowledge**” as a motivator to adopt ERP system. This result is consistent with (Chang et al., 2011).

5. To what extent does “Technological impacts” support ERP system adoption decision at Gaza strip manufacturing firms?

Table (5.19): Results of T test, mean & relative weight for fifth dimension

No.	Paragraph	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
١	Better vendor technological support is an important factor in ERP adoption	3.80	0.98	75.9	12.055	0.000*	1
٢	More pressure from the new IS technology of competitors is an important factor in ERP adoption	3.63	1.09	72.6	8.614	0.000*	3
٣	Technological sophistication in the ERP system is an important factor in the ERP adoption decision.	3.75	0.93	75.1	12.055	0.000*	2
4	Using software developed with the latest information technology is an important factor in ERP adoption decision	3.47	1.07	69.5	6.552	0.000*	4
5	The difficulty of maintaining information systems with resources is an important factor in ERP adoption decision in my company	3.30	1.08	66.0	4.130	0.000*	5
Total degree		3.59	0.74	71.8	11.909	0.000*	

* arithmetic mean is statistical significant at $\alpha \leq 0.05$

As shown in table (5.19), the opinions of respondents about fifth dimension were as follows:

The highest response paragraph according to the relative weight is as follows:

- In paragraph No. (1): the relative weight equals "75.9%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

And the lowest response according to the relative weight is as follows:

- In paragraph No. (5): the relative weight equals "66%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

In general, the results of all paragraphs of "**Technological Impacts**" show that the average mean equals "3.59", the relative weight equals "71.8%", the value of T test equal "11.909", and p- value equals "0.000", which is less than 0.05, and hence significant. This means that 71.8% of the business owners/ CEOs agreed to the importance of "**Technological Impacts**" as a motivator to adopt ERP system. The result is consistent with (Hart O Awa et al., 2016) and (Boumediene & Kawalek, 2008) which both of the studies found that adoption of ERP is more motivated by technological factors than by environmental factors, and also consistent with (Dwivedi, Papazafeiropoulo, Ramdani, et al., 2009) which illustrated that technology complexity have important and negative influence on ERP adoption, (Waarts et al., 2002) which showed that IT intensity is significant influence on ERP adoption by the same token (Al-Jabri & Al-Hadab, 2008) which showed that eases of use of ERP systems is main factor to their adoption.

Also (Pan & Jang, 2008) which showed that technology readiness is important determinant of ERP adoption, (Rajapakse & Seddon, 2005) which illustrated that IT difficulties is significant in explaining low adoption of western based ERP systems in developing countries in Asia.

Furthermore this result is consistent with (Grover, 1993), (Seethamraju & Seethamraju, 2008), (Boumediene & Kawalek, 2008), (Nguyen, 2009) and (Shahawai & Idrus, 2010).

6. To what extent does an “ERP System Cost” support ERP system adoption decision at Gaza strip manufacturing firms?

Table (5.20): Results of T test, mean & relative weight for Sixth dimension

No.	Paragraph	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
١	The high cost of an ERP system may deter my company's adoption of ERP	3.49	1.11	69.8	6.546	0.000*	2
٢	The high cost of an ERP consultant's fee may deter my company's adoption of ERP	3.49	1.06	69.7	6.793	0.000*	3
٣	The high cost of recruiting and retaining IT professionals may deter my company's adoption of ERP	3.33	1.09	66.6	4.528	0.000*	5
4	A higher cost of ERP training fee may deter my company's adoption of ERP	3.36	1.03	67.3	5.253	0.000*	4
5	The high cost could be avoided by customize local programs instead of buying international program	3.66	1.06	73.2	9.197	0.000*	1
Total degree		3.47	0.83	69.3	8.320	0.000*	

* arithmetic mean is statistical significant at $\alpha \leq 0.05$

As shown in table (5.20), the opinions of respondents about Sixth dimension were as follows:

The highest response paragraph according to the relative weight is as follows:

- In paragraph No. (3): the relative weight equals "66.6%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

In general, the results of all paragraphs of "**ERP System Cost**" show that the average mean equals "3.47", the relative weight equals "69.3%", the value of T test equal "8.320", and p- value equals "0.000", which is less than 0.05, and hence significant. This means that 69.3% of the business owners/ CEOs agreed to the importance of "**ERP System Cost**" as a motivator to adopt ERP system. This result is consistent with (Chang et al., 2011), (Dwivedi, Papazafeiropoulo, Ramdani, et al., 2009), (Kamhawi, 2008), (Rajapakse & Seddon, 2005) and (Themistocleous et al., 2005).

7. To what extent do “Perceived benefits and Expected complexities” affect of ERP system adoption decision at Gaza strip manufacturing firms?

a) In your opinion, what are “Perceived benefits” of applying ERP systems in your firm?

Table (5.21) Results of T test, mean & relative weight for seventh dimension

No.	Paragraph	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
١	Creating better company profits	3.86	0.98	77.3	13.022	0.000*	2
٢	Creating better cost reduction	3.81	1.01	76.3	11.950	0.000*	4
٣	Having better system integration	3.90	0.94	78.1	14.292	0.000*	1
4	Obtaining benefits from inventory reduction	3.45	1.05	69.1	6.406	0.000*	6
5	Better process improvement	3.82	1.00	76.4	12.143	0.000*	3
6	More benefit from consistency in operations	3.77	1.02	75.5	11.267	0.000*	5
Total degree		3.77	0.72	75.4	15.949	0.000*	

* arithmetic mean is statistical significant at $\alpha \leq 0.05$

As shown in table (5.21), the opinions of respondents about seventh dimension were as follows:

The highest response paragraph according to the relative weight is as follows:

- In paragraph No. (3): the relative weight equals "78.1%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

And the lowest response according to the relative weight is as follows:

- In paragraph No. (4): the relative weight equals "69.1%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

In general, the results of all paragraphs of " **The perceived benefits of applying ERP systems** " show that the average mean equals "3.77", the relative weight equals "75.4%", the value of T test equal "15.949", and p- value equals "0.000", which is less than 0.05, and hence significant. This means that 75.4% of the business owners/ CEOs agreed to the importance of “**The perceived benefits of applying ERP systems**” as a motivator to adopt ERP system. This result is consistent with (Ram et al., 2013b) which showed that system quality and perceived strategic value have direct and positive effect on ERP adoption decision, also

consistent with (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009), (Waarts et al., 2002) and (Al-Jabri & Al-Hadab, 2008).

b) In your opinion, what are the “Expected complexities” of applying ERP system ?

Table (5.22): Results of T test, mean & relative weight for eighth dimension

No.	Paragraph	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
١	I believe that ERP is complex to use	2.86	1.13	57.3	-1.795	0.074//	4
٢	I believe that ERP development is a complex process	2.87	1.10	57.4	-1.777	0.077//	3
٣	Difficulty of employees adaptation and their resistance to change	3.15	1.07	62.9	2.022	0.044*	2
4	Lack of enough budget to support applying ERP systems	3.45	1.02	69.1	6.629	0.000*	1
Total degree		3.08	0.80	61.7	1.536	0.126//	

* arithmetic mean is statistical significant at $\alpha \leq 0.05$

// arithmetic mean is not statistical significant at $\alpha \leq 0.05$

As shown in table (5.22), the opinions of respondents about eighth dimension were as follows:

The highest response paragraph according to the relative weight is as follows:

- In paragraph No. (4): the relative weight equals "69.1%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

And the lowest response according to the relative weight is as follows:

- In paragraph No. (1): the relative weight equals "57.3%" and p-value equals "0.000" which is more than 0.05, that means there is neutral on this paragraph.

In general, the results of all paragraphs of "**The expected complexities of applying ERP system**" show that the average mean equals "3.08", the relative weight equals "61.7%", the value of T test equal "1.536", and p- value equals "0.126", which is more than 0.05, and hence not significant. This means that 61.7% of the business owners/ CEOs agreed to not importance of "**The expected complexities of applying ERP system**" as a motivator to adopt ERP system. That

means there is neutrally on this eighth dimension. This result is inconsistent with (Nzuki & Malonza, 2014), (Li, 2011), (Chang et al., 2011), (Dwivedi, Papazafeiropoulo, Shiau, et al., 2009), (Al-Jabri & Al-Hadab, 2008),(He & Wu, 2006) and (Laukkanen et al., 2007). In the other hand this result is consistent with (Themistocleous et al., 2005) which showed that organizational change is most relevant factor influencing ERP adoption.

9. To what extent does “Palestinian Context” influence on ERP system adoption decision at Gaza strip manufacturing firms?

Table (5.23): Results of T test, mean & relative weight for ninth dimension

No.	Paragraph	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
١	Unavailability of raw materials deter ERP adoption	4.13	1.08	82.6	15.492	0.000*	6
٢	Frequently interrupted electricity supply deter ERP adoption	4.53	0.91	90.6	24.870	0.000*	1
٣	Price hike of production inputs deter ERP adoption	4.17	1.01	83.4	17.179	0.000*	4
4	Old/obsolete machinery and production lines deter ERP adoption	4.16	1.01	83.2	17.021	0.000*	5
5	Blockade, security and political situation deter ERP adoption	4.40	1.01	87.9	20.438	0.000*	2
6	The difficulty of access to regional/international at market deter ERP adoption	4.38	1.05	87.6	19.581	0.000*	3
Total degree		4.29	0.83	85.9	23.193	0.000*	

* arithmetic mean is statistical significant at $\alpha \leq 0.05$

As shown in table (5.23), the opinions of respondents about ninth dimension were as follows:

The highest response paragraph according to the relative weight is as follows:

- In paragraph No. (2): the relative weight equals "90.6%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

And the lowest response according to the relative weight is as follows:

- In paragraph No. (1): the relative weight equals "82.6%" and p-value equals "0.000" which is less than 0.05, that means there is approval on this paragraph.

In general, the results of all paragraphs of "**Palestinian Context**" show that the average mean equals "4.29", the relative weight equals "85.9%", the value of T test equal "23.193", and p- value equals "0.000", which is less than 0.05, and hence significant. That means there is approval on this ninth dimension. This means that 85.9% of the business owners/ CEOs agreed to the importance of "**Palestinian Context**" as strong deterrent to adopt ERP system.

5.5 Analysis of all Dimensions:

Table (5.24) shows the respondents' responses to all nine dimensions of the study.

Table (5.24): Results of T test & arithmetic mean & relative weight for all of study dimensions

No	Dimension	Mean	Standard deviation	Relative Weight %	T test	Sig level	Rank
١	First dimension: CEO Characteristics and attitude Towards Adoption of IT	3.56	0.76	71.2	10.995	0.000*	5
٢	Second dimension: Top Management Support	3.68	0.83	73.6	12.198	0.000*	3
٣	Third dimension: Environmental Characteristics (Competition Intensity- Information Intensity- Customer Power)	3.38	0.60	67.6	9.443	0.000*	7
٤	Fourth dimension: Employeess's IS knowledge	3.21	0.75	64.2	4.153	0.000*	8
٥	Fifth dimension: Technological Impacts	3.59	0.74	71.8	11.909	0.000*	4
٦	Sixth dimension: ERP System Cost	3.47	0.83	69.3	8.320	0.000*	6
7	Seventh dimension: The perceived benefits of applying ERP systems	3.77	0.72	75.4	15.949	0.000*	2
8	Eighth dimension: The expected complexities of applying ERP systems	3.08	0.80	61.7	1.536	0.126//	9
9	Ninth dimension: Palestinian Context	4.29	0.83	85.9	23.193	0.000*	1
Research Dimensions		3.59	0.44	71.8	20.129	0.000*	

As results show, the grand mean of all research nine dimensions equals 3.59, the relative weight is 71.8%, the value of T test is 20.129 and p- value equals 0.000, which is less than 0.05. This indicates that the grand average degree of responses to all research dimensions has increased the degree of neutrality 3 and, hence, shows approval of the sample respondents to the dimensions, entirely except one dimension, the analysis shows that "Palestinian context" dimension has the first rank in terms of importance, followed by " The perceived benefits of applying ERP systems ", "Top

management support" and "Technological impacts" "CEO characteristics and attitude towards adoption of IT" , "ERP system cost", "Environmental characteristics" and " Employees's IS knowledge ", while "The expected complexities of applying ERP systems" come last.

5.6 Future prospective of manufacturing firms in coming year

Q10 In coming year, What are the future intention of manufacturing firms toward IT and ERP?

Table (5.25): Future prospective of manufacturing firms in coming year

Answer	Frequency	Percentage%
Looking for consultant company to study IT needs of the firm.	39	12.6
Buying and applying IT system from regional and international companies.	29	9.4
Looking for local vendor to design and operate the system in the firm.	64	20.7
Update and develop the current IT in the firm.	112	36.2
No necessity to adopt any IT system.	65	21.0
Total	309	100.0

It's clear from the results in Table (5.25) that 12.6% of the sample looking for consultant company to study IT needs of the firm, 9.4% buying and applying IT system from regional and international companies, 20.7% looking for local vendor to design and operate the system in the firm, 36.2% update and develop the current IT infrastructure in the firm, 21% of sample think that no necessity to adopt any IT system.

The majority is more motivated to just update the current IT infrastructure in their firms, and 21% think there is no need to adopt IT system or change the current status and that because of lack of awareness and knowledge about IT perceived benefit, lack of needed budget or the current Palestinian context.

5.7 Research Hypotheses Testing

Q11 Are there any significant differences between respondents due to (governorate, job title, establishment year, nature of the business, type of company, type of industrial sector, number of employees, customer type)?

1. There is a statistical significant differences at level $\alpha \leq 0.05$ in the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to Governorate.

Table (5.26): Results of variance analysis due to Governorate

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig level
Between groups	4.313	4	1.078	6.240	0.000*
Within groups	37.153	215	0.173		
Total	41.466	219			

* Value of "sig" statistically significant

To test the hypothesis, (One-Way ANOVA) test has been utilized to study the differences in factors affecting on ERP system adoption at Gaza strip manufacturing firms due to Governorate. Results, as shown in table (5.26), indicate that the p-value (sig) equals 0.000 which is less than the significance level ($\alpha \leq 0.05$), thus it can be concluded that there are differences in the averages of the research responses about the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the Governorate.

To detect these differences, Scheffe test is used and comparisons are as shown in (Table 5.27):

Table (5.27): Results of Scheffe test for differences according to Governorate

Governorate	Average	North	Gaza	Middle	Khan Younis	Rafah
North	3.71	1	*	//	//	//
Gaza	3.46		1	//	*	//
Middle	3.54			\	//	//
Khan Younis	3.93				\	//
Rafah	3.72					1

* Value of "sig" statistically significant

// Value of "sig" not statistically significant

It's clear that the study sample has working at Gaza strip factories that see factors affecting on ERP system adoption at Gaza manufacturing firms with degree more than the study sample that working at north Gaza factories, It Shows that the study sample has working at khan Younis factories that see factors affecting on ERP system adoption at Gaza manufacturing firms with degree more than the study sample that working at Gaza factories.

2. There is a statistical significant differences at level $\alpha \leq 0.05$ in the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to Job Title.

Table (5.28): Results of variance analysis due to Job Title

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig level
Between groups	2.170	3	0.723	3.976	0.009*
Within groups	39.296	216	0.182		
Total	41.466	219			

* Value of "sig" statistically significant

To test the hypothesis, (One-Way ANOVA) test has been utilized to study the differences in factors affecting on ERP system adoption at Gaza strip manufacturing firms due to job title. Results, as shown in table (5.28), indicate that the p-value (sig) equals 0.000 which is less than the significance level ($\alpha \leq 0.05$), thus it can be concluded that there are differences in the averages of the research responses about the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the Job Title.

To detect these differences, Scheffe test is used and comparisons are as shown in (Table 5.29):

Table (5.29): Results of Scheffe test for differences according to Job Title

Job Title	average	Business Owner	Manger	Administrative	Other
Business Owner	3.68	1	//	*	//
Manger	3.62		1	//	//
Administrative	3.45			\	//
Other	3.61				\

* Value of "sig" statistically significant

// Value of "sig" not statistically significant

It's clear that job titles which are business owners see that factors affecting on ERP system adoption in Gaza strip manufacturing firms with degree more than the job titles are administrative.

3. There is a statistical significant differences at level $\alpha \leq 0.05$ in the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to establishment year.

Table (5.30): Results of variance analysis due to establishment year

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig level
Between groups	0.102	4	0.025	0.133	0.970//
Within groups	41.364	215	0.192		
Total	41.466	219			

// Value of "sig" not statistically significant

To test the hypothesis, (One-Way ANOVA) test has been utilized to study the differences in factors affecting on ERP system adoption at Gaza strip manufacturing firms due to establishment year. Results, as shown in table (5.30), indicate that the p-value (sig) equals 0.970 which is more than the significance level ($\alpha \leq 0.05$), thus it can be concluded that there are no differences in the averages of the research responses about the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the establishment year.

4. There is a statistical significant differences at level $\alpha \leq 0.05$ in the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to Nature of the Business.

Table (5.31): Results of variance analysis due to Nature of the Business

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig level
Between groups	1.728	2	0.864	4.719	0.010*
Within groups	39.738	217	0.183		
Total	41.466	219			

* Value of "sig" statistically significant

To test the hypothesis, (One-Way ANOVA) test has been utilized to study the differences in factors affecting on ERP system adoption at Gaza strip manufacturing firms due to Nature of the Business. Results, as shown in table (5.31), indicate that the p-value (sig) equals 0.000 which is less than the significance level ($\alpha \leq 0.05$),

thus it can be concluded that there are differences in the averages of the research responses about the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the Nature of the Business.

To detect these differences, Scheffe test is used and comparisons are as shown in (Table 5.32):

Table (5.32): Results of Scheffe test for differences according to Nature of the Business

Nature of the Business	Average	Not Seasonal	Seasonal	Both
Not Seasonal	3.50	1	//	*
Seasonal	3.70		1	//
Both	3.67			1

* Value of "sig" statistically significant

// Value of "sig" not statistically significant

It's clear that the factories which not seasonal work see that factors affecting on ERP system adoption at Gaza strip manufacturing firms with degree less than that the factories which work with both seasonal and not seasonal.

5. **There is a statistical significant differences at level $\alpha \leq 0.05$ in the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to type of company.**

Table (5.33): Results of variance analysis due to type of company

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig level
Between groups	1.703	4	0.426	2.303	0.060//
Within groups	39.763	215	0.185		
Total	41.466	219			

// Value of "sig" not statistically significant

To test the hypothesis, (One-Way ANOVA) test has been utilized to study the differences in factors affecting on ERP system adoption at Gaza strip manufacturing firms due to type of company. Results, as shown in table (5.33), indicate that the p-value (sig) equals 0.060 which is more than the significance level ($\alpha \leq 0.05$), thus it can be concluded that there are no differences in the averages of the research responses about the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the type of company.

6. There is a statistical significant differences at level $\alpha \leq 0.05$ in the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to type of industrial sector.

Table (5.34): Results of variance analysis due to type of industrial sector

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig level
Between groups	0.513	3	0.171	0.901	0.441//
Within groups	40.953	216	0.190		
Total	41.466	219			

// Value of "sig" not statistically significant

To test the hypothesis, (One-Way ANOVA) test has been utilized to study the differences in factors affecting on ERP system adoption at Gaza strip manufacturing firms due to type of industrial sector. Results, as shown in table (5.34), indicate that the p-value (sig) equals 0.441 which is more than the significance level ($\alpha \leq 0.05$), thus it can be concluded that there are no differences in the averages of the research responses about the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the type of industrial sector.

7. There is a statistical significant differences at level $\alpha \leq 0.05$ in the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to no. of employees.

Table (5.35): Results of variance analysis due to no. of employees

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig level
Between groups	0.926	4	0.232	1.228	0.300//
Within groups	40.540	215	0.189		
Total	41.466	219			

// Value of "sig" not statistically significant

To test the hypothesis, (One-Way ANOVA) test has been utilized to study the differences in factors affecting on ERP system adoption at Gaza strip manufacturing firms due to no. of employees. Results, as shown in table (5.35), indicate that the p-value (sig) equals 0.300 which is more than the significance level ($\alpha \leq 0.05$), thus it can be concluded that there are no differences in the averages of the research responses about the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the no. of employees.

8. There is a statistical significant differences at level $\alpha \leq 0.05$ in the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to Customer Type.

Table (5.36): Results of variance analysis due to Customer Type

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig level
Between groups	1.038	2	0.519	2.786	0.064//
Within groups	40.428	217	0.186		
Total	41.466	219			

// Value of "sig" not statistically significant

To test the hypothesis, (One-Way ANOVA) test has been utilized to study the differences in factors affecting on ERP system adoption at Gaza strip manufacturing firms due to Customer Type. Results, as shown in table (5.36), indicate that the p-value (sig) equals 0.064 which is more than the significance level ($\alpha \leq 0.05$), thus it can be concluded that there are no differences in the averages of the research responses about the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the Customer Type.

Chapter 6
Conclusions &
Recommendations

Chapter 6

Conclusions & Recommendations

6.1 Introduction

This chapter summarizes the findings that were obtained and the recommendations were presented. Finally, the future research ideas were stated discussed.

6.2 Conclusion and findings of the Study

This research investigated the Factors influencing on ERP system adoption decision at Gaza manufacturing firms. Nine factors (CEO characteristics and his/her attitude towards adoption of IT, Top Management Support, Environmental Characteristics (Competition intensity – Information intensity –Customer power), Employees's IS knowledge, Technological Impacts , ERP System Cost, Perceived Benefits from ERP system applying ,Expected Complexities and Palestinian context)

From the findings that were presented in the previous chapter, the most notable conclusions are:

6.2.1 Results regarding ERP Adoption Drivers

- About 71.2% of the business owners/ CEOs agreed to the importance of **“CEO Characteristics and attitude Towards Adoption of IT”** as a motivator to adopt ERP system, which is a high percentage.
- About 73.6% of the business owners/ CEOs agreed to the importance of **“Top Management Support”** as a motivator to adopt ERP system, which is a high percentage.
- About 67.6% of the business owners/ CEOs agreed to the importance of **“Environmental Characteristics (Competition Intensity- Information Intensity- Customer Power)”** as a motivator to adopt ERP system.
- About 64.2% of the business owners/ CEOs agreed to the importance of **“Employees's IS knowledge”** as a motivator to adopt ERP system.
- About 71.8% of the business owners/ CEOs agreed to the importance of **“Technological Impacts”** as a motivator to adopt ERP system.
- About 69.3% of the business owners/ CEOs agreed to the importance of **“ERP System Cost”** as a motivator to adopt ERP system.

- About 75.4% of the business owners/ CEOs agreed to the importance of **“The perceived benefits of applying ERP systems”** as a motivator to adopt ERP system.
- About 61.7% of the business owners/ CEOs agreed to the importance of **“The expected complexities of applying ERP system”** as a motivator to adopt ERP system. That means there is neutrally on this eighth dimension.
- About 85.9% of the business owners/ CEOs agreed to the importance of **“Palestinian Context”** as a motivator to adopt ERP system.

6.2.2 Conclusion of all dimensions

The analysis showed that "Palestinian context" dimension has the first rank in terms of importance with relative weight 85.9%, followed by "The perceived benefits of applying ERP systems" with relative weight 75.4%, "Top management support" with relative weight 73.6% and "technological Impacts" with relative weight 71.8%. "CEO characteristics and attitude towards adoption of IT" with relative weight 71.2% , "ERP system cost" with relative weight 69.3%, "Environmental characteristics" with relative weight 67.6% and " Employees's IS knowledge " with relative weight 64.2% , while "The expected complexities of applying ERP systems" come last with relative weight 61.7%.

6.2.3 Future attitudes towards adopting and applying IT in coming year

About 12.6% of the sample looking for consultant company to study IT needs of the firm, 9.4% buying and applying IT system from regional and international companies, 20.7% looking for local vendor to design and operate the system in the firm, 36.2% update and develop the current IT infrastructure in the firm, 21% of sample think that no necessity to adopt any IT system.

6.2.4 Result regarding hypotheses test

- There is significant differences among respondents at (sig=0.05) towards the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the Governorate. Study sample exist and work at Gaza see factors affecting on ERP system adoption manufacturing firms with degree more than the study sample that exist and work at north Gaza, Results show that the study sample

which exist and work at Khan Younis that see factors affecting on ERP system adoption in manufacturing firms with degree more than the study sample that exist and work at Gaza.

- There is significant differences among respondents at ($\text{sig}=0.05$) towards the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the Job Title. Study sample with job titles business owners see that factors affecting on ERP system adoption in manufacturing firms with degree more than the job titles which are administrative.
- There is significant differences among respondents at ($\text{sig}=0.05$) towards the factors affecting on ERP system adoption at Gaza strip manufacturing firms due to the nature of the business. Study sample with not seasonal work see that factors affecting on ERP system adoption at Gaza strip manufacturing firms with degree less than that the factories which work with both seasonal and not seasonal.

6.3 Recommendations

6.3.1 Practical Recommendation

- Top management support has strong and positive relationship with ERP adoption decision so researcher advice PFI to support business owners of the manufacturing sectors with awareness courses related to ERP system. Further design subject related brochure and give it to all PFI members and courses participants.
- For same last reason about top management support influence researcher recommends all donors to care and sponsor manufacturing sectors in way to encourage those sectors applying ERP systems or similar IT systems, usually donors demands and interest can be big influence on those sector strategy.
- Employees' IS knowledge has a strong and positive relationship with ERP adoption decision so researcher advice PFI to give training programs related to ERP system for its members who intend to apply ERP system or similar IT systems before implementation.
- For same reason about Employees' IS knowledge influence researcher recommends academic institutions to introduce some computer courses and computer literacy training programs to students of the vocational colleges. To

graduate vocational students with ability to use computer through their working in manufacturing firms.

- Researcher recommends Palestinian universities to give students of both vocational colleges awareness courses about ERP systems or similar IT systems. And other more sophisticated classes about ERP systems or similar IT systems for students of business colleges.
- Researcher recommends government to ease rules and policies to support manufacturing firms to adopt and implement ERP systems or similar IT systems.
- Researcher recommends government and PFI to make session through media and workshops about ERP systems or similar IT systems explaining its perceived benefits and implementation challenges.
- Environmental characteristics of competition intensity, information intensity and customer power have a strong and positive relationship with ERP adoption decision so researcher recommends government to provide assistance for all industrial sectors especially SMEs such as technical guidance and consultation to find more suitable, simple and easier model, since complexity and cost of ERP software reduces the willingness of organization to adopt ERP, software vendors should make ERP affordable, easy to learn and operate for SMEs.
- ERP system costs have negative relationship with ERP system adoption decision so researcher recommends manufacturing firms at Gaza strip should not adopt ERP systems unless they are in alignment with the competitive environment, they must follow today's global context by implementing manufacturing practices such as concurrent engineering, just-in-time, value-added production and agile manufacturing to improve their competitive positions.

6.3.2 Future Research

- Future research could build on this study and consider the new trends affecting ERP, in order to enhance understanding enterprise systems' adoption in different settings and/or within different contexts. Relationships between the strategic context of planning for enterprise systems and achieved benefits can be further investigated based upon the foundations provided by this study.
- This study only focuses on the adoption decision and not on its implementation. Further research could be conducted to examine what goes into the successful implementation of ERP.

- Further case study based research could examine the differences and similarities in practices, strategies, and factors specific to the adoption stage in Western versus Asian cultural contexts
- To implement this study in other industrial sectors such as construction industries, metal industries and handicraft industries.
- To study other factors which may influence on ERP system adoption at Gaza strip manufacturing firms such as: firm size, employee turnover, location, and type of ownership of the organization.
- Throw more light on ERP practices in Palestine by study case study in industrial sectors ERP practices.
- Establish empirical research concerning the motives, benefits and challenges concerning these practices for ERP adopters.
- Other research provides richer examination for ERP practices using technical, operational, strategic and decision making perspectives.
- Establish other researches present evaluating ERP practices in a less developed country which provide better understanding for these practices and open the door to other interesting future studies.

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Appendix

**Appendix (A):
Judgment Committee**

#	Expert Name	Work Place
1	Dr. Hatem Al Aydi	Islamic University of Gaza
2	Dr. Nabil Alloh	General Personnel Council
3	Dr. Ribhi Baraka	Islamic University of Gaza
4	Dr. Tawfeeq Barhum	Islamic University of Gaza
5	Dr. Sami Abu Naser	Al- Azhar University
6	Dr. Iyhab Zaqout	Al- Azhar University
7	Dr. Ahmad Mahmoud	Al- Azhar University
8	Dr. Salah Al Agha	Islamic University of Gaza
9	Dr. Alaa Al Halis	Islamic University of Gaza

Appendix (B)

Questionnaire (English Version)

The Islamic University–Gaza
Research and Postgraduate Affairs
Faculty of Commerce
Master of Business & Administration



الجامعة الإسلامية - غزة
شئون البحث العلمي والدراسات العليا
كلية التجارة
ماجستير إدارة الأعمال

Dear Business Owner/CEO

I am currently undertaking a dissertation as part of my partial fulfillment of the requirement for the award of the Master of Business Administration at the Islamic University of Gaza under the supervision of Dr. Khalid Dahleez. My research entitled:

“Factors Affecting on ERP System Adoption in Gaza Strip Manufacturing Firms”

ERP is system which integrates varied organizational systems and facilities error free transactions and production, thereby enhancing the organization's efficiency. ERP systems run on a variety of computer hardware and network configurations, typically using a database as an information warehouse to support operations, management and decision-making in the business.

This research aims to study the factors influencing on ERP system adoption in four industrial sectors Textile & Garment, wood industries, food industries and leather industries.

To achieve the research objectives, I cordially invite you to complete the attached Questionnaire, which will provide valuable data towards the study. Any information collected from this study will be kept strictly confidential and purely for academic purposes. I would be very much grateful if you can kindly return the attached questionnaire within one week. Enclosed is a set of questionnaire survey form. If you were able to complete and return the questionnaire as soon as possible, it would be greatly appreciated. Thank you in advance for your valuable time and contribution to this research work.

Yours sincerely,
Fadwa F. Abu Shmmala
Msc. Candidate.
MBA Program
Islamic University of Gaza

First : Demographics	
1.1 Governorate:	<input type="checkbox"/> North <input type="checkbox"/> Gaza <input type="checkbox"/> Middle <input type="checkbox"/> Khan Younis <input type="checkbox"/> Rafah
1.2 Job Title:	<input type="checkbox"/> Business Owner <input type="checkbox"/> Manger <input type="checkbox"/> Administrative <input type="checkbox"/> Other_____
1.3 Establishment Year:	<input type="checkbox"/> <1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 3-5 years <input type="checkbox"/> 5-10 years <input type="checkbox"/> >10years
1.4 Nature of the Business:	<input type="checkbox"/> Not Seasonal <input type="checkbox"/> Seasonal <input type="checkbox"/> Both
1.5 Type of Company	<input type="checkbox"/> One – person Company <input type="checkbox"/> Private Shareholding Company <input type="checkbox"/> Public Shareholding Company <input type="checkbox"/> Non-Profit Organization <input type="checkbox"/> Other _____
1.6 Type of industrial sector:	<input type="checkbox"/> Textile & Garment <input type="checkbox"/> Wood Industries <input type="checkbox"/> Food Industries <input type="checkbox"/> Leather Industries
1.7 No. of employees:	<input type="checkbox"/> 1-4 <input type="checkbox"/> 5-19 <input type="checkbox"/> 20-49 <input type="checkbox"/> 50-99 <input type="checkbox"/> >100
1.8 Customer Type:	<input type="checkbox"/> Business <input type="checkbox"/> Individuals <input type="checkbox"/> Business & Individuals

Second : IT Infrastructure Level	
1.9 IT Infrastructure:	<input type="checkbox"/> Not Available any of IT Basics <input type="checkbox"/> Desktop PC <input type="checkbox"/> laptop <input type="checkbox"/> Fire extinguishers and systems <input type="checkbox"/> Other _____ <input type="checkbox"/> Monitoring cameras devices <input type="checkbox"/> Fingerprint Employee Time & Attendance
1.10 Internet Connection:	<input type="checkbox"/> Yes <input type="checkbox"/> No
1.11 IT staff/ department/ skills :	<input type="checkbox"/> Excellent <input type="checkbox"/> Very Good <input type="checkbox"/> Good <input type="checkbox"/> Medium <input type="checkbox"/> Bad <input type="checkbox"/> Very Bad

1.12 What type of ICT support :	<input type="checkbox"/> Manually/n o ICT support <input type="checkbox"/> HRM <input type="checkbox"/> Sales and marketing <input type="checkbox"/> Inventory Monitoring <input type="checkbox"/> Finance & Accounting <input type="checkbox"/> Archive & Secretary Work <input type="checkbox"/> CRM <input type="checkbox"/> CAD <input type="checkbox"/> CAM <input type="checkbox"/> EDI <input type="checkbox"/> MRP <input type="checkbox"/> Other___					
1.13 Willing & Planning any technological change?	<input type="checkbox"/> Very High <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Little <input type="checkbox"/> Very Little <input type="checkbox"/> Not Much					
1.14 CEO IT Knowledge :	You may circle more than one		<input type="checkbox"/> Use a computer at work. <input type="checkbox"/> Have formal qualifications in the use and operation of a computer. <input type="checkbox"/> Have computer experience about business related programs and computer applications. <input type="checkbox"/> Have Computer experience about business support programs. <input type="checkbox"/> None			

Third: Factors Affecting on ERP System Adoption, Please choose on your degree of consent

1. CEO Characteristics and his/her attitude Towards Adoption of IT						
		Agree very slightly	Agree Slightly	Agree Moderately	Agree Strongly	Agree very strongly
		1	2	3	4	5
1	I have original ideas					
2	I would sooner create something new than improve something existing					
3	I often risk doing things differently					
4	Computers increase the productivity of my employees					
5	My employees find computers easy to use					
6	I have seen what other small companies have achieved with computers					

2. Top Management Support						
7	Top management considers ERP as important to the organization					
8	Top management Applies IT to the organization					
9	Top management provides the needed budget to support IT in the organization					
10	Top management fully aware of the nature and cost of needed ERP system to the organization					

3. Environmental Characteristics(Competition Intensity-Information Intensity- Customer Power)						
	There is tough price competition in our industry					

		Agree very slightly	Agree Slightly	Agree Moderat ely	Agree Strongly	Agree very strongly
		1	2	3	4	5
12	There is tough competition in our industry based on product/service quality or novelty					
13	The product/service in our industry generally require a lot of information /Marketing to sell					
14	The product/service in our industry is complicated or complete to understand or use					
15	The ordering of products in our industry by customers is generally a complex process					
16	Customer in our industry generally purchase in large volumes					
17	It is easy for customers to change suppliers					
18	Products/services offered by other firms are similar to ours					

1. Employees's IS knowledge						
19	Business employees were all computer literate					
20	There was at least one employee who was a computer expert					
21	I would rate my employees' understanding of computers as very good compared with other small companies in the same industry					

2. Technological Impacts						
19	Better vendor technological support is an important factor in ERP adoption					
20	More pressure from the new IS technology of competitors is an important factor in ERP adoption					
21						

		Agree very slightly	Agree Slightly	Agree Moderately	Agree Strongly	Agree very strongly
		1	2	3	4	5
24	Technological sophistication in the ERP system is an important factor in the ERP adoption decision					
25	Using software developed with the latest information technology is an important factor in ERP adoption decision					
26	The difficulty of maintaining information systems with resources is an important factor in ERP adoption decision in my company					
1. ERP System Cost						
27	The high cost of an ERP system may deter my company's adoption of ERP					
28	The high cost of an ERP consultant's fee may deter my company's adoption of ERP					
29	The high cost of recruiting and retaining IT professionals may deter my company's adoption of ERP					
30	A higher cost of ERP training fee may deter my company's adoption of ERP					
31	The high cost could be avoided by customize local programs instead of buying international program					

ERP Characteristics						
3. In your opinion, What are the perceived benefits of applying ERP systems in your firm?						
32	Creating better company profits					
33	Creating better cost reduction					
34	Having better system integration					
35	Obtaining benefits from inventory reduction					
36	Better process improvement					
37	More benefit from consistency in operations					
4. In your opinion, What are the expected complexities of applying ERP systems in your firm?						
38	I believe that ERP is complex to use					
39	I believe that ERP development is a complex process					
40	Difficulty of employees adaptation and their resistance to change					
41	Lack of enough budget to support applying ERP systems					

		Agree very slightly	Agree Slightly	Agree Moderately	Agree Strongly	Agree very strongly
		1	2	3	4	5
5. Palestinian Context						
42	Unavailability of raw materials deter ERP adoption					
43	Frequently interrupted electricity supply deter ERP adoption					
44	Price hike of production inputs deter ERP adoption					
45	Old/obsolete machinery and production lines deter ERP adoption					
46	Blockade, security and political situation deter ERP adoption					
47	The difficulty of access to regional/international at market deter ERP adoption					

Fourth: Your Manufacturing firm future prospective

- **In coming year, What are your firm future attitudes towards adopting and applying IT :**
 - Looking for Consultant Company to study IT needs of the firm.
 - Buying and applying IT system from regional and international companies.
 - Looking for local vendor to design and operate the system in the firm.
 - Update and develop the current IT infrastructure in the firm.
 - No necessity to adopt any IT system.

Thank You

Appendix (C)
Questionnaire (Arabic Version)

The Islamic University–Gaza
Research and Postgraduate Affairs
Faculty of Commerce
Master of Business & Administration



الجامعة الإسلامية - غزة
شئون البحث العلمي والدراسات العليا
كلية التجارة

دراسة استقصائية حول

العوامل المؤثرة على عملية تبني نظام تخطيط موارد المؤسسات المحوسب
(ERP system adoption) في مصانع قطاع غزة

استبانة

عزيزي صاحب المصنع/المدير التنفيذي/المسئول..

نظام تخطيط موارد المؤسسات هو نظام تقني صُمم لتنسيق جميع الموارد والمعلومات والأنشطة اللازمة لإتمام الإجراءات العملية مثل المحاسبة والموارد البشرية كما يمكنه من تبادل البيانات بين أجزائه المختلفة ويمكن تصميمه على حسب رغبتك.

حيث يُعتبر نظام تخطيط موارد المؤسسات نظام متطور من نظام تخطيط موارد التصنيع MRP فنظام ERP يربط بين الإدارة المالية والموارد والتصنيع وخدمة العملاء وإدارتي التسويق والمبيعات.

يأتي البحث لإكمال الأطروحة العلمية لنيل درجة الماجستير في إدارة الأعمال من الجامعة الإسلامية في غزة ويهدف البحث لدراسة العوامل التي تساهم في اتخاذ قرار تبني نظام تخطيط موارد المؤسسات. في هذه المرحلة يقوم الباحث بجمع المعلومات لإعداد الدراسة البحثية عن تلك العوامل حسب وجهة نظر أصحاب الأعمال والمدراء التنفيذيين في مصانع قطاع غزة.

سأكون ممتنة لوقتكم الثمين في تعبئة الاستبيان، ولكم مطلق الإرادة والحرية في عدم الإجابة عن أي سؤال لا ترغبون بالإجابة عنه. كما وإني أقدر جهودكم عاليا في الإجابة على أسئلة الاستبانة؛ حيث يستغرق تعبئتها ١٥-٢٠ دقيقة. كما وأؤكد على أنه لا توجد إجابات صحيحة وإجابات خاطئة وأن تبقى معلوماتكم الشخصية سرية ولا تستخدم إلا لأغراض البحث العلمي. لذا أرجو التكرم بالإجابة عليها بصدق وموضوعية ولكم مني جزيل الشكر.

أشكر لكم حسن تعاونكم ووقتكم، نجاح هذه الدراسة بعون الله تعالى ثم بفضل مشاركتكم.

الباحثة: فدوى فرج أبو شمالة

برنامج الماجستير في إدارة الأعمال - كلية التجارة

الجامعة الإسلامية - غزة

جوال: ٥٩٩٢٤٠٦٥١

أولاً: معلومات عامة عن المصنع:	
1.1 المحافظة:	<input type="checkbox"/> شمال غزة <input type="checkbox"/> غزة <input type="checkbox"/> الوسطى <input type="checkbox"/> خان يونس <input type="checkbox"/> رفح
1.2 المسمى الوظيفي:	<input type="checkbox"/> صاحب المصنع <input type="checkbox"/> مدير الشركة <input type="checkbox"/> إداري <input type="checkbox"/> غير ذلك----- ---
1.3 عمر المصنع بالسنوات:	<input type="checkbox"/> أقل من سنة <input type="checkbox"/> من ١-٣ سنوات <input type="checkbox"/> من ٣-٥ سنوات <input type="checkbox"/> من ٥-١٠ سنوات <input type="checkbox"/> أكثر من ١٠ سنوات
1.4 طبيعة العمل:	<input type="checkbox"/> مستمر <input type="checkbox"/> موسمي <input type="checkbox"/> الاثنين معاً
1.5 الكيان/الشكل القانوني للمصنع:	<input type="checkbox"/> فردية <input type="checkbox"/> مساهمة خاصة <input type="checkbox"/> مساهمة عامة <input type="checkbox"/> مؤسسة غير ربحية <input type="checkbox"/> غير ذلك، حدد
1.6 نوع القطاع الذي يعمل به المصنع:	<input type="checkbox"/> الخياطة والنسيج <input type="checkbox"/> الصناعات الخشبية <input type="checkbox"/> الصناعات الغذائية <input type="checkbox"/> صناعات الجلدية
1.7 عدد الموظفين بالمصنع:	<input type="checkbox"/> ٤-١ <input type="checkbox"/> ١٩-٥ <input type="checkbox"/> ٤٩-٢٠ <input type="checkbox"/> ٩٩-٥٠ <input type="checkbox"/> ١٠٠ فأكثر

ثانياً : مستوى تكنولوجيا المتوفرة بالمصنع :	
1.9 أساسيات التكنولوجيا المتوفرة في المصنع	غير متوفر أي نوع من أساسيات تكنولوجيا <input type="checkbox"/> أجهزة <input type="checkbox"/> كمبيوتر مكتبية <input type="checkbox"/> كمبيوتر محمول <input type="checkbox"/> أنظمة الحريق والطفائيات <input type="checkbox"/> أجهزة الحضور والغياب بالبصمة <input type="checkbox"/> غير ذلك،
1.10 هل يوجد اتصال بالإنترنت	<input type="checkbox"/> نعم <input type="checkbox"/> لا
1.11 ما مستوى مهارات الموظفين حالياً في استخدام تكنولوجيا المعلومات	<input type="checkbox"/> عالي جداً <input type="checkbox"/> عالي <input type="checkbox"/> متوسط <input type="checkbox"/> منخفض <input type="checkbox"/> منخفض جداً
1.12 أنواع برامج تكنولوجيا المعلومات المتوفرة (يمكنك اختيار أكثر من خيار)	<input type="checkbox"/> يدوي /لا يوجد برامج <input type="checkbox"/> المبيعات والتسويق <input type="checkbox"/> المالية ومحاسبية <input type="checkbox"/> إدارة العلاقة مع العملاء <input type="checkbox"/> الأنظمة الإلكترونية <input type="checkbox"/> تصميم بمساعدة الحاسوب <input type="checkbox"/> الأرشفة الإلكترونية والأعمال السكرتارية <input type="checkbox"/> مراقبة المخزون <input type="checkbox"/> موارد البشرية <input type="checkbox"/> التصنيع بمساعدة الحاسوب <input type="checkbox"/> تخطيط موارد التصنيع <input type="checkbox"/> غير ذلك.....
1.13 هل لديك رغبة للتطوير التكنولوجي في المصنع	<input type="checkbox"/> كبير جداً <input type="checkbox"/> كبير <input type="checkbox"/> متوسط <input type="checkbox"/> قليل <input type="checkbox"/> قليل جداً <input type="checkbox"/> إطلافاً
1.14 مدى معرفتك بتكنولوجيا المعلومات	يمكنك اختيار أكثر من خيار: <input type="checkbox"/> أستخدم الحاسوب بالعمل. <input type="checkbox"/> لدي مهارات أساسية في استخدام وتشغيل الحاسوب. <input type="checkbox"/> لدي معرفة ببرامج/تطبيقات المؤسسة. <input type="checkbox"/> لدي معرفة باستخدام برامج الحاسوب لدعم الأعمال. <input type="checkbox"/> لا شيء مما سبق

ثالثاً: العوامل التي تؤثر على تبني نظام تخطيط موارد المحوسب في المصانع، يرجى الاختيار بناء على درجة موافقتك على كل من العبارات التالية

١. خصائص صاحب المصنع/المدير التنفيذي و توجهاته نحو تكنولوجيا المعلومات					
موافق بشدة	موافق	محايد	لا أوافق	لا أوافق بشدة	
٥	٤	٣	٢	١	
					١ أمثلك أفكار غير تقليدية وإبداعية.
					٢ أنوي بإبتكار شيء جديد بدلاً من تطوير ما هو قائم.
					٣ غالباً أخاطر بالقيام بأعمال جديدة ومختلفة.
					٤ يزيد الحاسوب من إنتاجية عمالي .
					٥ يجد موظفو المصنع أن استخدام الحاسوب أمر سهل.
					٦ رأيت النجاح الذي حققه وجود الحاسوب في المصانع والشركات الأخرى.

١. دعم الإدارة العليا					
					٧ تعتبر الإدارة العليا النظم المتطورة مهمة للمصنع.
					٨ تطبق الإدارة العليا تكنولوجيا المعلومات.
					٩ توفر الإدارة العليا الموازنات اللازمة لدعم تطبيق تكنولوجيا المعلومات.
					١٠ تملك الإدارة العليا العلم الكافي بنوعية وتكلفة أنظمة التكنولوجيا المتطورة اللازمة لعمل المؤسسة.

موافق بشدة	موافق	محايد	لا أوافق	لا أوافق بشدة	
					١٤ يتسم المنتج في قطاعنا الصناعي بالتعقيد و يحتاج للمعلومات لفهمه أو استخدامه.
					١٥ تعتبر عملية طلب الزبون لمنتجات قطاعنا الصناعي بشكل عام عملية معقدة.
					١٦ يقوم زبائن منتجات قطاعنا الصناعي عادة بشراء كميات كبيرة.
					١٧ يقوم الزبون بتبديل المورد بسهولة (لمصنع آخر).
					١٨ تشابه المنتجات المعروضة من قبل المصانع الأخرى لمنتجاتنا.
١. كفاءة الموظفين					
					١٩ جميع الموظفين لديهم معرفة بأساسيات استخدام الحاسوب.
					٢٠ هناك على الأقل موظف واحد يعتبر خبير بالحاسوب.
					٢١ قدرة موظفي المصنع على استخدام الحاسوب تعتبر جيدة جدًا بالمقارنة مع المصانع الأخرى في نفس القطاع الصناعي.
٢. الجوانب التكنولوجية.					
					٢٢ جودة الدعم الفني من قبل مورد التكنولوجيا مهمة في عملية تبني النظام.
					٢٣ تبني المنافسين لأنظمة تكنولوجيا حديثة وجديدة دافع قوي في عملية تبني النظام.
					٢٤ مدى التطور العلمي والتكنولوجي لهذا النظام عامل أساسي في عملية تبني النظام.
					٢٥ استخدام المصنع حاليًا للبرمجيات المتطورة يسهل عملية تبني النظام.
					٢٦ صعوبة الاحتفاظ بنظم المعلومات بالموارد الحالية عنصر رئيسي في عملية تبني النظام.

موافق بشدة	موافق	محايد	لا أوافق	لا أوافق بشدة	
٣. تكلفة تكنولوجيا المعلومات والنظم المتطورة (نظام تخطيط موارد المؤسسات).					
					٢٧ التكلفة العالية لمعدات وبرامج تكنولوجيا المعلومات والنظم المتطورة ممكن أن تعيق فكرة تبني النظام.
					٢٨ التكلفة العالية لأجر الاستشاري ممكن تثني/تعيق فكرة تبني النظام.
					٢٩ التكلفة العالية لعملية توظيف والاحتفاظ متخصصي تكنولوجيا المعلومات ممكن أن تعيق فكرة تبني النظام.
					٣٠ التكلفة العالية لعملية التدريب ممكن أن تعيق فكرة تبني النظام.
					٣١ يمكن تجنب التكلفة العالية بتطوير برمجيات محلية بدلاً من شراء برمجيات دولية جاهزة.
خصائص نظام تخطيط موارد المؤسسات					
٤. ماهي الفوائد المرجوة حسب اعتقادك من تطبيق تكنولوجيا ونظم المعلومات المتطورة في المصنع					
					٣٢ يحسن تطبيق التكنولوجيا الربح.
					٣٣ يقلل تطبيق التكنولوجيا التكاليف.
					٣٤ يخلق التكنولوجيا نظام شامل و متكامل.
					٣٥ يقلل تطبيق التكنولوجيا من المخزون.
					٣٦ يحسن تطبيق التكنولوجيا العمليات الصناعية.
					٣٧ تساعد التكنولوجيا في تحقيق ثبات ونظام العمليات التشغيلية

ما هي التعقيدات المتوقعة من تطبيق تكنولوجيا ونظم المعلومات المتطورة (نظام تخطيط موارد المؤسسات)					
موافق بشدة	موافق	محايد	لا أوافق	لا أوافق بشدة	
					تكنولوجيا ونظم المعلومات المتطورة معقدة وصعبة التطبيق.
					عملية تطوير تكنولوجيا ونظم المعلومات عملية معقدة.
					مقاومة وصعوبة تكيف الموظفين للتغيير الملاحق لعملية تطبيق التكنولوجيا .
					عدم وجود موازانات كافية لدعم تطبيق أنظمة التكنولوجيا المتطورة.
١. الوضع الفلسطيني (قطاع غزة) .					
					عدم توفر مواد خام للمصانع يعيق عملية تبني النظام.
					تكرار إنقطاع الكهرباء يعيق عملية تبني النظام.
					ارتفاع أسعار مدخلات الإنتاج يعيق تبني النظام.
					الألات وخطوط الإنتاج القديمة تعيق عملية تبني النظام.
					الحصار والوضع السياسي والأمني يعيق عملية تبني النظام.
					صعوبة الوصول إلى السوق الإقليمي (القدرة على التصدير) يعيق عملية تبني النظام.

رابعاً: تطلعات المصنع في المستقبل

- ما هي اتجاهات مصنعك خلال العام القادم فيما يتعلق بتبني وتطبيق تكنولوجيا المعلومات:
 - البحث عن شركة استشارية لدراسة حاجات المصنع التكنولوجية.
 - شراء وتطبيق النظم من شركات عالمية وإقليمية.
 - البحث عن مزود داخلي لبناء وتصميم وتشغيل النظام لدينا.
 - تحديث التكنولوجيا الموجودة لدينا.
 - لا يوجد رغبة لدى المصنع في تبني النظم التكنولوجية المحوسبة.

شكراً لكم على المشاركة والتعاون