

**An-Najah National University
Faculty of Graduate Studies**

**Outsourcing Risk Management and Success
Factors in Palestinian ICT Companies**

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Outsourcing Risk Management and Success Factors in Palestinian ICT Companies

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This Thesis was defended successfully on 21/11/2016, and approved by

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Dedication

To my mother and father, may God give them health and strength. I love you.

To my husband (Abedelrahman) & my son (Salman).

To my sisters (Walaa & Wafaa).

To my brothers (Wajde & Ahmad).

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الإقرار

أنا الموقعة أدناه، مقدمة الرسالة التي تحمل العنوان:

Outsourcing Risk Management and Success Factors in Palestinian ICT Companies

إدارة مخاطر التعهيد وعوامل نجاحها في شركات تكنولوجيا المعلومات والاتصالات الفلسطينية

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The work and has not been submitted elsewhere for any other degree or qualification.

Student's name:

اسم الطالبة:

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Date:

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List of Abbreviations

ADSL	Asymmetric Digital Subscriber Line
ANOVA	Analysis of Variance
BPO	Business Process Outsourcing
ccTLD	Country Code Top-Level-Domain
GDP	Gross Domestic Product
GIS	Geographic Information Systems
HSITCE	Hasib Sabbagh IT Center of Excellence
H₀	Null Hypothesis
ICT	Information and Communication Technology
IDI	ICTs Development Index
IS	Information System
ISOC.PS	Palestine Chapter of the Global Internet Society
IT	Information Technology
ITU	International Telecommunication Union
KPITIE	Korean Palestinian IT Institute of Excellence
LISA	Logistics Information System Agency
MENA	Middle Eastern and North Africa
MIS	Management Information Systems
MNEs	Multinational Enterprises
MoEaHE	Ministry of Education and Higher Education
MTIT	Ministry of Telecommunication & Information Technology
NGOs	Non Governmental Organizations
OECD	Organization for Economic Co-operation and Development
PA	Palestinian Authority
PalTel	Palestinian Telecommunication
PCBS	Palestinian Central Bureau of Statistic
PICTI	Palestine Information and Communication Technology Incubator
PIPA	Palestinian Investment Promotion Agency
PITA	Palestinian Information Technology Association
PMBOK	Project Management Body of Knowledge
PMDP	Palestinian Market Development Programme
PNINA	Palestinian National Internet Naming Authority
P-Value	Probability Value
R&D	Research and Development

RII	Relative Importance Index
RMP	Risk Management Plan
RPN	Risk Priority Number
S. D.	Standard Deviation
SMEs	Small and Medium-Sized Enterprises
SPSS	Statistical Package for the Social Science
SWOT	Strengths, Weaknesses, Opportunities and Threats
UAE	United Arab Emirates
USAID	United States Agency for International Development
US federal	United State Federal
3G and 4G	Three and Fourth Generations

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**Outsourcing Risk Management and Success Factors
in Palestinian ICT Companies**

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Abstract

Nowadays, outsourcing as a contractual relationship where an external provider takes responsibilities to perform one or more of a client firm's business processes instead of performing them in-house, is becoming a common and an attractive practice in global business and has obtained enormous attention in ICT sector. Although firms reap various benefits and strategic advantages from outsourcing, they face many outsourcing related risks. Therefore, there is an urgent need to identify outsourcing risks and conduct outsourcing risk management, it could increase outsourcing success than ever. The motivation for this research was to develop a framework for outsourcing risk management in the West Bank's ICT sector from the provider's point of view. This framework aims to enhance the firms' ability to manage and mitigate outsourcing related risks, that increase the success of their outsourcing activities, maintain the relationship between the firms and their clients, and thus allow Palestine to be one of the best destinations for providing outsourcing business. The finding showed that the main risk factors affect outsourcing process are financial instability and Israeli occupation and socio-political instability, the main factor for the success of outsourcing is hiring outsourcing experts, and the main mitigation action for outsourcing risks is distribution of

responsibilities clearly. With regards to assess the extent of applying risk management through outsourcing life cycle in the West Bank's ICT sector, is considered good. Moreover, the findings of hypotheses testing showed that there is a statistically significant relationship between outsourcing risk management practices and the success of building strategic outsourcing relationship. Finally, the researcher developed the proposed framework to be adopted in Palestinian ICT providers as an effective management tool.

Chapter One

Introduction

Chapter One

Introduction

1.1 Chapter Overview

Recently, outsourcing became an attractive choices for information technology (IT) decision making, especially when Eastman Kodak outsourced his company's IT Services in 1989 who was a pioneer in this area, after that it has grown considerably (Saitta and Fjermestad, 2005; Vorontsova and Rusu, 2014) and this growth will continue in the future (Gonzalaz et al., 2006). Gartner group has appreciated that the global IT outsourcing market have reached \$273.6 billion in 2012 (Vorontsova and Rusu, 2014).

While firms reap various benefits associated with outsourcing as discussed above, unsuccessful experiences of outsourcing arrangements that lead to undesirable outcome for the client firm have also been reported (Earl, 1996; Willcocks et al., 1999). For example, unexpected transition and management costs, service debasement and disagreement between the client and the provider. Disagreement and disputes are very costly for client and provider and lead to service debasement (Bahli and Rivard, 2005). Therefore, there is an urgent need to identify risk factors associated with outsourcing and how to manage and mitigate it, to reduce their effects, increase the likelihood of success, and maintain the relationship between the client and the provider.

Vorontsova and Rusu (2014) define outsourcing as the provision by external provider of products and services that achieve functions or

activities of the client organization, also outsourcing is an arrangement with external party for the providing of goods and services to replace or complete internal efforts (Hirschheim et al., 2004; Vorontsova and Rusu, 2014).

Among the definitions of IT outsourcing, Vorontsova and Rusu (2014) defined it as the process involves two parties: an outsourcing provider and an outsourcing recipient (customer). The outsourcing provider or supplier delivers IT outsourcing products and services to the outsourcing recipient. Tafti (2005) considered the IT outsourcing as assignment of functions related to developing application and IT services to one or more providers. According to Dhar and Balakrishnan (2006), IT outsourcing is a process of deputation part or all of the IT related decision making rights, business process, internal activities and services to external provider. Hence, the provider will manage and develop these activities depending on agreed upon deliverables, performance standards and output as in the contractual agreement (Aris et al., 2008; Dhar and Balakrishnan, 2006 ; Tafti, 2005; Vorontsova and Rusu, 2014).

IT outsourcing can run partially to develop a software applications or completely to total control of IT operations and functions, and it is an increasingly widespread practice (Saitta and Fjermestad, 2005). The firms can outsource different types of IT such as: system development, systems operation, desktop and network support (Vorontsova and Rusu, 2014). There are many largest information systems (IS) of outsourcing providers

such as IBM, EDS, CSC, Hewlett Packard, Oracle, General Electric and HSBC. Recently, new providers appeared like Tata Consulting, Infosys, Wipro, Satyam, HCL-Perot and Patni Computers located in newly emerging countries, India and South-East Asia (Gonzalaz et al., 2006).

Firms increasingly turn to external providers for IT services doesn't mean that outsourcing is a panacea, nor that is without risks and obstacles lead to failures. IT outsourcing failure is due to that providers fail to meet expected services level and to achieve the expected cost saving (Bahli and Rivard, 2001).

As the information systems domain is growing and becoming complexity and interconnectedness, so do the risks associated with it. This domain considered to be risky because of the uncertainty of requirements information's, the complexity of the IT process and the intangible nature of the IT products. Therefore, several firms are less inclined to adopt information system internal development (Ahmad et al., 2014; Méndez et al., 2008).

As indicated in many articles and several practices, strategic collaboration between provider and client is one of the critical IT outsourcing success factors (Saitta and Fjermestad, 2005). Therefore, building a strong software outsourcing relationship between client and provider is a way to success. Whereas less successful relationship increase the cost of outsourcing with 70% compared with successful relationship (Ahmad et al., 2014; Vorontsova and Rusu, 2014). Ahmad et al. (2014)

identified many factors for this purpose mainly: face-to-face meeting, better communication, contract management between client and vendor, defining processes, operational environment, projects scope, business model, tools, procedures and policies, reliable management, knowledge sharing, mutual expectations and better client–vendor training programs.

They added that in IT outsourcing, the client aims to reducing the cost of their services, whereas the service providers seek to increase their profit, market share and their opportunities to compete others. Although outsourcing offers benefits and strategic advantages, it has many risks for both the client and the service provider (Aundhe and Mathew, 2009), and all suffer together if the client organization's doesn't succeed. Service providers understand that their failure to meet the rapid technology by continuously improving their product will affect their ability to compete. So, they need regulars monitor, evaluate and address the risk (Ahmad et al., 2014).

One of the essential responsibilities of the manager in the organization is managing risk that leads to control the impact of those risks and increase the likelihood of a successful outcome (Ahmad et al., 2014). As an outsourcing contracts continue to grow and become more complex, their success are depending on understanding the associated risks and taking effective mitigation strategies (Aundhe and Mathew, 2009). Hence, it's important to identify and understand the outsourcing related risks to

take the necessary remedial actions and enhance the firm's ability to manage them.

Aris et al. (2008) indicated that the absence of practicing risk management would lead to poor managing and controlling of outsourcing process (Aris et al., 2008). So, the motivation for this research was to develop a risk management framework for managing outsourcing engagement in the West Bank's ICT sector.

In this chapter, the researcher sets the background to the research and analyzes the problem and the need for the study. In addition, the researcher sets the main and sub objectives, and the hypotheses for the research. Finally, the structure of the thesis is outlined.

1.2 Background

Over the last decade, the ICT sector in Palestine has shown continuous growth in products and services. The ICT industry started during the early 1980s in Palestine. After the formation of the Palestinian Authority, the demand of ICT's products and services increased particularly for government uses. Therefore, a growing number of providers appeared to cover the increasing demand (Tjia and White, 2014).

In addition, the ICT sector is considered one of the fastest growing Palestinian economic sectors that support the Palestinian national economy. According to the Palestinian Central Bureau of Statistic (PCBS) (2014) the

ICT sector contribute around 6.1% of the GDP and it contributed to the overall output of the Palestinian economy.

As the ICT industry has seen huge growth and increased in its firms number, Palestinian ICT firms started to deal with outsourcing as a new trend. Therefore, Palestine is an upcoming outsourcing destination, whereas many of its firms work for foreign clients.

Nevertheless, the ICT sector faced many risks that limited the success of outsourcing projects. Thus, there is a clear need to enhance the work for the firms of outsourcing and manage the associated risk in order to meet stakeholder's needs and expectations from outsourcing project and increase the likelihood of outsourcing success (Tjia and White, 2014).

1.3 The Research Problem

ICT sector is considered one of the most emerging sectors in Palestine that has shown continuous growth in the last two decades. In addition, ICT sector is one of the main economic engine sectors that support the Palestinian national economy (Tjia and White, 2014).

Many of Palestinian ICT firms outsource their inputs (software, hardware, management packages, etc.) from firms situated outside of Palestine. Meanwhile, in the last couple of years, some of ICT firms in Palestine start selling their products to foreign consumers like applications, web development, mobile application development, software design and testing, and electronics development (Tjia and White, 2014).

Many of previous works found that outsourcing process faces several types of risks either at client or supplier side. These risks extend from contracts risk to economic risks like financial risks and pricing risks to managerial risks like policy and process compliance risk to process risk like security and privacy risk to project specific risks to relation specific risks to macroeconomic risks and knowledge transfer risk (Tafti, 2005; Ahmed et al., 2014; Aundhe and Mathew, 2009; Dhar and Balakrishnan, 2006). Moreover, Palestinian outsourcing have short of risk management practices due to low formal training in risk management and lack of business and management skills (Paltrade, 2014).

This study aims to determine how to manage effectively outsourcing related risks in the West Bank's ICT firms?

Such study is very important to reduce the risk exposure, open the doors for the firms to still reap the benefits from outsourcing, improve the firm's ability to reach the international clients and global markets, become one of the best outsourcing destination, and to build an international reputation for Palestinian ICT firms.

1.4 Research Objectives

Lonsdale (1999) reveals that many firms have been disappointed with the outcomes that have been obtained from outsourcing. This disappointment is mainly appeared due to the lack of effective risk management that has been employed by managers. Thus, this study aims to

develop a framework for risk management through outsourcing life cycle in the West Bank's ICT sector, which includes the general risk management principles through outsourcing life cycle, and the outsourcing risk management at each phase of outsourcing life cycle (at pre-contract, contract and post-contract phases).

Moreover, the study addresses many issues to achieve its objectives, such as the risks associated with outsourcing at each phase of outsourcing life cycle and their priority, the risk management practices at each phase, the necessary remedial action and mitigation actions to reduce their impacts, the outsourcing success factors, the success factors for building strategic relationship with client firm, and the assessment of the extent of applying risk management practices of outsourcing in the West Bank's ICT firms. The main and sub objectives of this thesis are shown in figure (1.1).

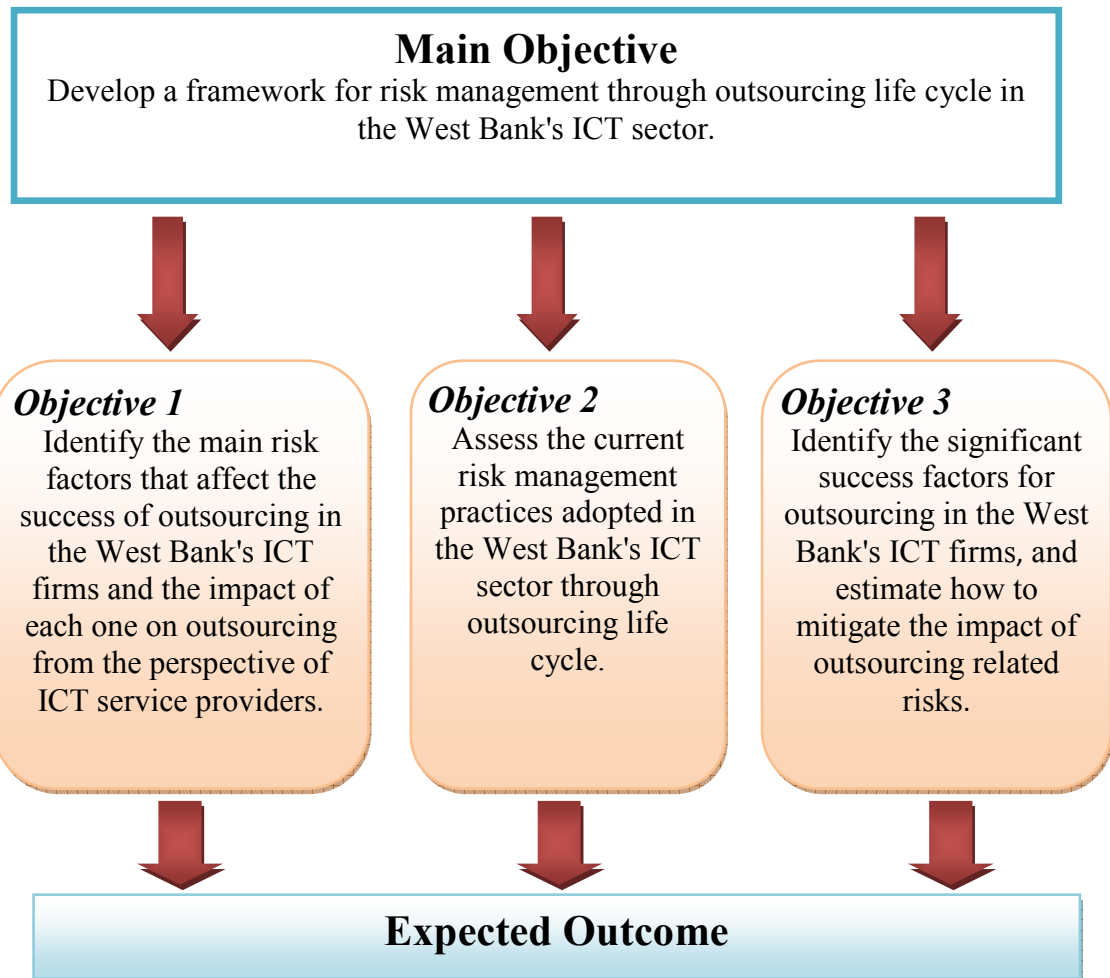


Figure (1.1): the Objectives of the Study

1.5 Research Hypotheses

This study aims to discuss and identify the main risk factors associated with outsourcing, the effects of these factors on outsourcing in ICT sector, how to manage these risks and to create a framework for managing the risks associated with outsourcing engagement in the West Bank's ICT sector. The study will address two phases of analysis: The first phase is to achieve the research objectives, and the second phase is to test research hypothesis.

There are two main hypotheses for this research, as following:

The first hypothesis: there are no statistically significant differences at $\alpha = 0.05$ in the application of outsourcing risk management practices between Palestinian ICT firms based on the demographic factors. The following hypotheses related to this hypothesis:

H1₀: There are no statistically significant differences at $\alpha = 0.05$ in the application of outsourcing risk management practices between the West Bank's ICT firms attributed to the location.

H2₀: There are no statistically significant differences at $\alpha = 0.05$ in the application of outsourcing risk management practices between the West Bank's ICT firms attributed to the firms' market.

H3₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the impact of outsourcing risk factors on outsourcing process at pre-contract, contract and post-contract phases in the West Bank's ICT firms, from the point of respondents' view, attributed to the respondents' qualification.

H4₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the impact of outsourcing risk factors on outsourcing process at pre-contract, contract and post-contract phases in the West Bank's ICT firms, from the point of respondents' view, attributed to the firms' target markets.

H5₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the impact of outsourcing risk factors on outsourcing process at pre-contract, contract and post-contract phases in the West Bank's ICT firms, from the point of respondents' view, attributed to the firms' revenues.

H6₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the impact of outsourcing risk factors on outsourcing process at pre-contract, contract and post-contract phases in the West Bank's ICT firms, from the point of respondents' view, attributed to the location.

H7₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the importance of the outsourcing mitigation actions to reduce outsourcing related risks in ICT sector attributed to the job title of the respondents.

H8₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the importance of the outsourcing mitigation actions to reduce outsourcing related risks in ICT sector attributed to firms' markets.

H9₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the importance of the outsourcing success factors in the West Bank's ICT firms, from the point of respondents' view, attributed to the respondents' gender.

H10₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the importance of the outsourcing success factors in the West

Bank's ICT firms, from the point of respondents' view, attributed to the experience of respondents.

H11₀: There are no statistically significant differences at $\alpha = 0.05$ in the degree of availability of success factors for building strategic outsourcing relationship in the West Bank's ICT firms attributed to the firms' target markets.

H12₀: There are no statistically significant differences at $\alpha = 0.05$ in the degree of availability of success factors for building strategic outsourcing relationship in the West Bank's ICT firms attributed to the location.

The second hypothesis: Outsourcing risk management practices correlate positively with the success of building strategic outsourcing relationship. The following hypotheses related to this hypothesis:

H13₀: There is no significant relationship between general risk management principles and the success of building strategic outsourcing relationship.

H14₀: There is no significant relationship between outsourcing risk management at pre-contract phase and the success of building strategic outsourcing relationship.

H15₀: There is no significant relationship between outsourcing risk management at contract and post-contract phases and the success of building strategic outsourcing relationship.

1.6 Research Expected Outcome

The main expected outcomes of this study are determined as follows:

- Identify the main types of risks that face the outsourcing in the West Bank's ICT firms.
- Identify the main success factors of outsourcing in the West Bank's ICT firms.
- Develop a framework for risk management through outsourcing life cycle in the West Bank's ICT sector.
- Improve the firm's ability to early identified and mitigate the risks associated with outsourcing.
- Enhance the outsourcing risk management practices in the West Bank's ICT firms.

1.7 Thesis Structure

This research contains six chapters including this chapter. Chapter two covers basic information about risk and risk management in general, IT outsourcing and risk management in IT outsourcing in order to build the main base for the remaining chapters, while chapter three presents information about Palestinian ICT sector and outsourcing in Palestine. The methodology of this research is addressed in chapter four. At chapter five, the collected data is analyzed. The framework is developed, and

conclusions and recommendations are provided in chapter six. The outline of research structure is organized into six chapters as shown in figure (1.2).

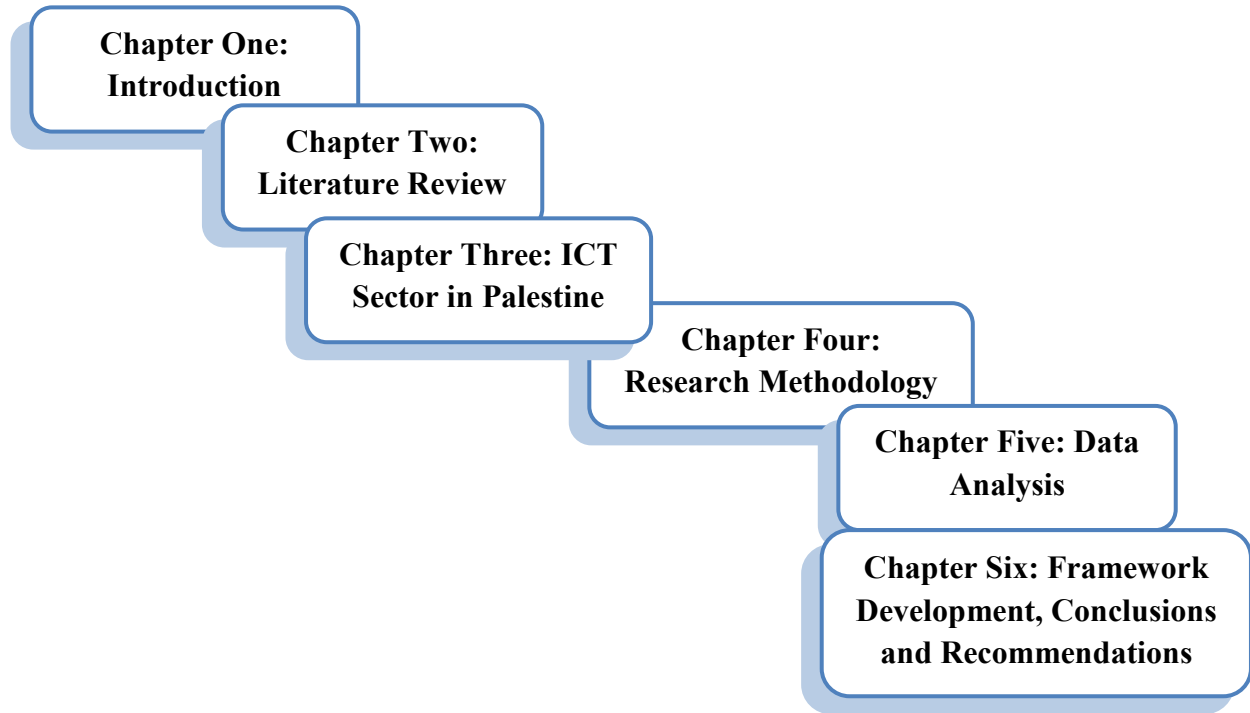


Figure (1.2): Thesis Outline

Chapter Two

Literature Review

Chapter Two

Literature Review

2.1 Chapter Overview

Literature review forms the base for solid academic research, through literature the researcher obtains depth knowledge about the theoretical framework and the set of independent variables that might affect the dependent variable. This chapter discusses some of the previous researches in the field of risk and risk management, information technology outsourcing, IT outsourcing success factors and IT outsourcing risk management.

2.2 Risk and Risk Management

In this section, risk and risk management are defined. Moreover, many of related topics are addressed.

2.2.1 Risk Definition

Risk can be described as combination of two main parameters: the likelihood and the impact of an action (Samantra et al., 2014). Moreover, risk can be defined as an uncertain condition, which has positive or negative impact on business objectives (PMBOK[®], 2000).

There are few risks that are difficult to mitigate, like natural disasters such as flood and earthquake, change in economic policy and industrial recurrence. However, many risks can be mitigated or protected through applying risk management (National Research Council, 1989).

There are different definitions for risk as below:

- **Risk as undesirable event:** the multiple negative events that may occur and it can be managed and mitigated by using contingency planning and insurance (Aubert et al., 2005; Bahli and Rivard, 2005; Dhar and Balakrishnan, 2006; Samantra et al., 2014).
- **Risk as a probability of function:** the probability of occurrence of an event (Aubert et al., 2005; Bahli and Rivard, 2005; Dhar and Balakrishnan, 2006).
- **Risk as variance:** in the economic perspective, risk is calculated as a variance of the distribution of outcome, whether positive or negative such as financial risk (Aubert et al., 2005; Bahli and Rivard, 2003; Bahli and Rivard, 2005; Dhar and Balakrishnan, 2006).
- **Risk as expected loss:** risk is defined as the product of loss function and a probability function that may arises from some present action. This perspective is used in casualty insurance (Aubert et al., 2005; Bahli and Rivard, 2005; Dhar and Balakrishnan, 2006; Samantra et al., 2014).

Kaplan and Garrick (1981) defined risk as a set of triplets composed of scenario, likelihood and consequences. They adopted that a complete risk a assessment process requires to answer three questions as following:

1. What can happen?

2. How likely is this happen?
3. If it does occur, what are the impacts?

The researcher defines risk as any undesirable events that pose a threat to the project, such as financial, legal and political threats. In the context of this study, the risk will be expressed taking into account three considerations: the likelihood of risk, its impact and its difficulty to mitigate.

2.2.2 Types of Risk

There are many types of risk which can be classified into different categories. In our research we address the following risk categories:

- **Endogenous and exogenous risks.**

Endogenous risk is a risk that is affected by our actions such as risks occurring during outsourcing arrangement, while exogenous risk is defined as a risk that we have no control, such as natural disasters (Aubert et al., 2005).

- **Insurable and uninsurable risks.**

Insurable risk is a risk that we can share with other individual or business, and we can purchase insurance as a financial protection, while uninsurable risk is a risk that cannot be reasonably predicted, the cost of this risk is high. Thus, the insurance company cannot provide the financial protection (Dlabay et al., 2011).

- **Economic and non-economic risks.**

Economic risk is defined as the risk that can lead to financial losses. Under this type of risk, there are three classifications of risk: a personal risk, a property risk and a liability risk, while the non-economic risk is the risk that can lead to personal losses like annoyance or embarrassment (Dlabay et al., 2008). This type does not have financial losses.

- **Pure and speculative risks.**

The pure risk is that which presents the chance of loss, but no chance for gain, while the speculative risk is the risk that presents the chance either to loss or to gain (Dlabay et al., 2008).

- **Controllable and uncontrollable risks.**

Controllable risk is the risk that you can reduce or prevent its impact by actions you take, whereas the uncontrollable risk is the risk that you cannot reduce its effect by your actions (Dlabay et al., 2008).

- **Systematic and unsystematic risks.**

Systematic risk is defined as the risk that affects a large number of assets, such as entire market, while unsystematic risk "specific risk" is the risk that affects a very small number of assets, such as a risk that affects a specific company or a specific industry (Investopedia Staff, 2015).

2.2.3 Dealing with Risk

There is no optimal and completed process to provide an assurance that risk exposures across all processes are controlled efficiently. The aim is to apply best practices in dealing with all types of risk in the firm. So, identifying the priority of risks, adopting appropriate risk management processes, and ongoing risk monitoring and reviewing to facilitate the decision making processes on risk controls (Conrow, 2003). Dorfman (2008), Elders Insurance (2013), and Stasiak (2015) defined four possible ways to deal with risks that face any business as shown in table (2.1).

Table (2.1): Four Possible Ways to Deal with Risk

Method	Activity
Risk avoidance	Choose not to participate in risky activity if the likelihood of risk or its impact is too great, that means the companies are going to do nothing.
Risk reduction (mitigation)	Take responsibility to perform all the actions that reduce the impact of the risk, or its likelihood from occurring, or both.
Risk sharing (transferring)	A business decision to find another company to share the risk with it. This condition occurs when an activity must do even there is a risk. Example: purchase insurance.
Risk acceptance	A business decision to complete the activity. In this case, the company must deal with any loss.

(Dorfman, 2008; Stasiak, 2015)

2.2.4 Risk Management Definition

The risks may exist at all business and projects throughout their life. Business and individual must understand these risks and attempt to deal with them to reduce possible losses. The role of risk management comes to

manage and focus on the critical risks that could affect the business outcomes (Conrow, 2003; Dlabay et al., 2011).

Risk management is considered as one of the main issues in the firm business plan. Globally, risk management is considered as one of the most important strategy to deal with possible firm risk. Risk management must be a responsibility of all managers in all different departments in any business. According to Albert (2013), there are three stages that can help predict risk and reduce its impacts: (1) risk identification, (2) risk measurement and (3) risk mitigation. In general, the purpose of risk management is to maximize the probability and consequences of positive actions and to minimize the probability and consequences of bad actions (PMBOK[®], 2000).

Conrow (2003) defined the risk management as the act or the process of dealing with risks. According to Dorfman (2008), risk management is the systematic development and implementation of a plan to deal with potential risks. Risk management can be composed of four main steps, namely: (1) planning for risk, (2) assessing risk issues, (3) developing risk handling options and (4) monitoring risk to get a feedback and to document the overall risk management program (Conrow, 2003).

Although each system has its own risk management strategy, good risk management strategies have the same basic structure as shown in figure (2.1). The solid feedback lines present a direct and typical interaction, while the dotted feedback lines represent a possible interaction.

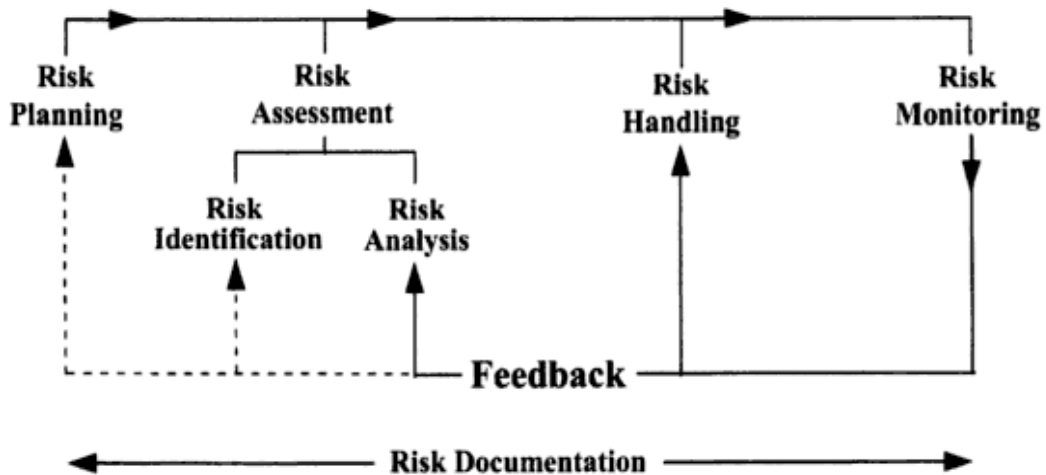


Figure (2.1): Risk Management Process Structure (Conrow, 2003)

2.2.5 Risk Management Process

Figure (2.1) shows that there are four main risk management steps. These are:

Risk Planning

Risk planning is the process to develop and document a detailed and comprehensive risk management strategy.

Risk Assessment

Risk assessment is the process to identify and analyze risks in order to determine the critical risk and control these risks later. This process considers as a time-consuming process but essential, because the quality of assessments can have a large impact on business outcome.

Risk assessments have four main activities: (1) risk identification activity, (2) risk analysis activity, (3) risk assessment by risk category, and (4) risk rating activity.

Risk Handling

Risk handling is the process to determine methods and techniques to deal with risks. It has four business decisions to deal with risk as have been discussed in section 2.2.3.

Risk Monitoring

Risk monitoring is the systematic process of tracking and evaluation the effectiveness of risk handling actions against established metrics throughout the required process. This process provides feedbacks to update risk handling strategies.

The major processes of risk management as they are addressed in PMBOK® (2000) and shown in figure (2.2) are explained as in the following points:

- **Risk management planning**

Is the first process of risk management processes, where it is determining how to approach, plan and perform the risk management activities that follow during the project life cycle. This process is done through holding planning meetings in order to develop the risk management plan. The participants in planning meetings include the project manager, main firm's stakeholders and anyone in the firm who has responsibility to manage and execute the risk planning.

The main output of this process is the risk management plan which includes methodology (i.e. defines the data sources, approaches and tools that may be used during the risk management on the project), roles and responsibilities (i.e. defines the leader and risk management team membership that is responsible to achieve each action in the risk management plan), the budget for risk management, identifies how many times the risk management process will be applied during the project life cycle, defines the format of risk response plan and how the reports from risk management team will be documented, analyzed, and sent to the project team, stakeholders, and others etc.

- **Risk identification**

Determining the risks that most likely to affect the project outputs and documenting their sources and characteristics. Such process is considered an iterative process. After that, the risks can be organized into different risk categories include: organizational risks, project-management risks, technical or quality risks, and external risks.

- **Qualitative risk analysis**

Is the process of assessing the identified risks in terms of their potential impact and likelihood to prioritize their impacts on project objectives, using qualitative analysis methods and tools. This process should be revisited through the project's life cycle to stay connected with any change that occurs in project risks, also it may be followed by an

additional analysis such as quantitative risk analysis or it can lead to risk response planning directly.

- **Quantitative risk analysis**

This process aims to measure numerically the probability and consequences of each risk. The both processes; qualitative and quantitative risk analysis; can be applied separately or as a combination.

- **Risk response planning**

This process aims to develop several risk response options and determine actions and procedures to increase opportunities and reduce threats that hinder the achievement of project's objectives. After developing risk response options, the individuals and parties are assigned to take responsibility to apply each selected risk response. For each risk, the appropriate risk response strategy should be selected. Then, specific risk response actions should be determined to implement the selected strategy.

There are different types of risk response strategies, include: (1) avoidance: some high-risk activities can be avoided by changing the project plan, reducing the scope, adding additional resources or time, and avoiding an innovative approach, to protect the business objectives from their effect, (2) transference: seeking to give a third party responsibility for managing the risk, (3) mitigation: seeking to reduce the impact and/or probability of a risk, and (4) acceptance: seeking to accept the risk when the project team is unable to adopt another risk response strategy to deal with risk or cannot

change the project plan, in this case, developing contingency plan is important.

- **Risk monitoring and control**

Is an ongoing process through the project life cycle to monitor residual risks, keep track of the identified risks, discover new risks, and execute and evaluate the effectiveness of risk plans. Effective risk monitoring and control processes provide good information that facilitates the decision making process at an early stage of the risk's occurring.

PROJECT RISK MANAGEMENT



Figure (2.2): Overview of Project Risk Management Main Processes (PMBOK[®], 2000)

According to Boehm (1991), the risk management process involves two main stages; each stage has three subsidiary steps as shown in figure (2.3). The first stage is risk assessment that involves risk identification, risk analysis and risk prioritization. The second stage is risk control that involves risk management planning, risk resolution and risk monitoring.

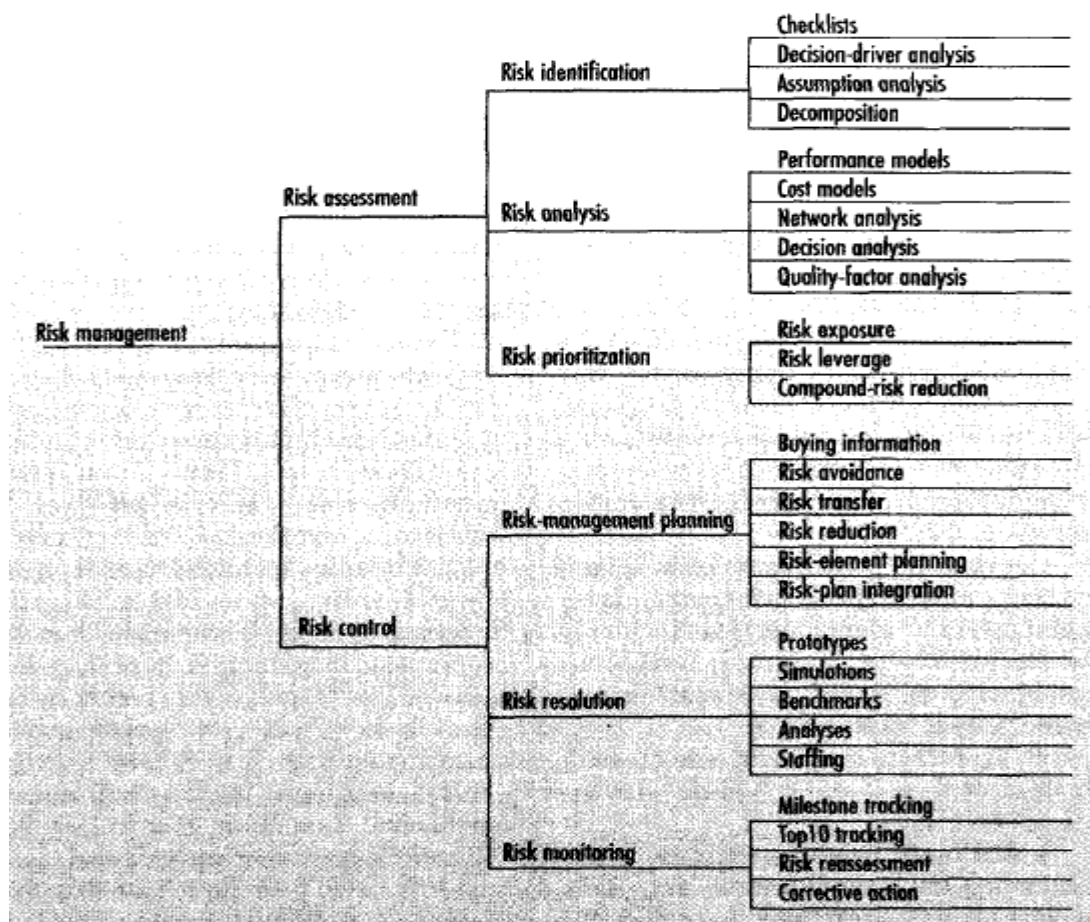


Figure (2.3): Software Risk Management Steps (Boehm, 1991)

According to Stoneburner, et al. (2002), risk management includes three processes: risk assessment, risk mitigation, and evaluation and assessment processes. The processes involved in risk management are explained as in the following points (Stoneburner, et al., 2002):

- **Risk assessment:** firms use risk assessment to determine the extent of the potential risk and the risk associated with a business throughout its life cycle. Risk assessment contains nine steps: system characterization, threat identification, vulnerability identification, control analysis, likelihood determination, impact analysis, risk determination, control recommendations, and results documentation.
- **Risk mitigation:** prioritizing, evaluating and implementing the suitable risk reducing controls.
- **Evaluation and assessment:** making ongoing risk evaluation and assessment to obtain a successful risk management program.

In the same context Ahmed et al. (2014) indicated that risk management framework is important in any organization to monitor the business environment, assess and mitigate possible internal and external risk. According to principles of risk management, they divided the risk assessment activity into three major activities as common practices:

- **Risk identification:** highlight potential risk factors.
- **Risk analysis:** provides information about the consequence, likelihood of occurrence, avoidance and mitigation procedures.
- **Risk evaluation:** assesses various choices, establishes response strategy, monitors risks and ranks priorities.

Regarding the risk management practice, many researchers confirmed that most of the organizations did not conducted risk

management practice as required due to lack of formal training (Arshad et al., 2006; 2007).

2.2.6 Risk Management Techniques

In risk management, the first step is to determine what are the risks facing the business. Then, the organization needs to evaluate the risk management techniques in order to choose the suitable one. Many techniques and tools are available to be used throughout the risk management processes. Generally, each organization adopts the suitable techniques that are related to its operations and activities. In this section, these techniques will be addressed.

As figure (2.2) in section 2.2.5 shows, each subsidiary step has its own techniques. For example, risk identification process has different techniques include: examination of decision drivers, checklists, comparison with experience (assumption analysis), and decomposition (Boehm, 1991).

Schwulst (2014) and Shenkir and Walker (2007) proposed different techniques that can be used throughout the risk management processes as in the following points:

- **Risk identification process:** risk management technique is aimed to identifying risks before they be reality (Schwulst,2014). Using more than one technique as a combination, may produce a more comprehensive list of risk than using a single method. There are different types of techniques available for organizations to identify risks, include:

- ✓ **Brainstorming:** a technique that depends on the creativity of the participants in a brainstorming session. This technique can be used to present a list of risk by a team that works together. In brainstorming session, the participants must feel comfortable and confident when they propose ideas.
- ✓ **Event inventories and loss event data:** providing the participants in brainstorming session with some form of stimulation on risks. Such as, providing an event inventory like industry portfolio of risks or a generic inventory of risks, those are available from consulting firms.
- ✓ **Interviews and self-assessment:** according this technique, each individual of the operating units is given a template to identify the key strategies, objectives and the risks for the unit. Also, each unit in the organization is asked to assess its risk management capabilities. This process follows up with interview.
- ✓ **Facilitated workshops:** after the information from the previous technique is collected, a team from several units participates in a facilitated workshop to debate it.
- ✓ **SWOT analysis (strengths, weaknesses, opportunities, threats):** a technique is used in strategy formulation. The strengths and weaknesses consist of internal variables that are collected from internal audit. The opportunities and threats consist of external variable for the company (environment).

- ✓ **Risk questionnaires and risk surveys:** a list of questions on both internal and external events that can be used to identify risks.
- ✓ **Scenario analysis:** a technique uses what-if questions.
- ✓ **Using technology:** using the company's existing technology infrastructure for risk identification.
- ✓ **Root cause analysis:** determining the causes that lead to a problem (Clarizen Team, 2013).
- **Risk analysis and assessment process:** the techniques for this process can vary from qualitative to quantitative. There are some of techniques can be used in risk assessment:
 - ✓ **Risk ranking:** this technique needs the risk management team to prioritize the risk.
 - ✓ **Risk map:** the importance of a risk depends on its impact and its likelihood of occurring. Thus, risk maps are using impact and likelihood of occurrence.
 - ✓ **Gain/ loss curves:** tools are used to help a company see how a risk can result in a gain or a loss.
 - ✓ **Tornado charts:** a tool that used to help a company see how much of an impact a risk has on a specific metric.

- ✓ Expected monetary value analysis: a technique that calculates the average outcome when the future includes scenarios that may or may not happen.
- **Risk control process:** risk avoidance, loss control, risk transfer strategies and potential risk retention are used as methods to deal with risks.

2.2.7 Risk Management Outcome and Benefits

The main and final outcome of risk management is to provide a detailed document or report about risk status, major risks in the organization and risk control's activities to be sent to the decision makers and top management.

According to Carter et al. (1994), there are two main opportunities of risk management:

1. To reduce undesirable impacts.
2. To work on the causes, to reduce the likelihood of occurrence.

Carter et al. (1994) divided the benefits of risk management into four main categories, include: (1) strategic benefits, (2) financial benefits, (3) marketing benefits and (4) tactical or management benefits.

Moreover, there are many potential benefits achievable from risk management process. Some of these benefits are (Carter et al., 1994; Aviva team, 2015):

- Create an awareness of the critical risks that face the organization.
- Protect the business against the undesirable events.
- Protect the organization's reputation.
- Provide a comprehensive image for the organization.
- Ensure that risks are managed with the clear aim of meeting the company's objectives.

2.3 Outsourcing and Information Technology Outsourcing

Recently, the outsourcing and IT outsourcing have been extensively spread among various firms. This is because outsourcing has many benefits such as cost saving, improving efficiency, increasing flexibility, improving the organization's customer focus, facilitating the access to highly qualified staff and experts, etc. (Claver et al., 2002; Cullen et al., 2006; Fan et al., 2012). Moreover, as the IT domain is growing and becoming complexity and interconnectedness, so do the risks associated with it. This domain considered to be risky more than others because of the uncertainty of requirements information's, the complexity of the IT process and the intangible nature of the IT products. Therefore, several firms turn to outsourcing their IT related services and products instead of information system internal development (Ahmad et al., 2014; Méndez et al., 2008).

In this section outsourcing and information technology outsourcing is defined, in addition related topics of outsourcing are addressed to build the base for the framework of the study.

2.3.1 Outsourcing Definition

Outsourcing can be defined as a contractual relationship, where an external service provider takes responsibility for performing one or more of a company's business processes instead of performing them in-house in order to help increase shareholder value, through focusing on core competencies and reducing operating cost (Saini et al., 2005).

According to Claver et al. (2002), outsourcing has come to solve problems related to staffing and organizational design rather than to solve technical problems. Firms use outsourcing to reap various benefits, from focus on their core business, reduce cost, to increase profit. A firm does not have experts, knowledge or competences for doing a certain work, outsourcing is the solution (Zhu, 2015).

Recently, outsourcing is considered as one of the most important strategy by many firms (Zhu, 2015). It includes many types: information technology outsourcing, business process outsourcing (Chou and Chou, 2009; Samantra et al., 2014; Saini et al., 2005), data entry and call center operations outsourcing (Gans and Zhou, 2007; Saini et al., 2005), and remanufacturing outsourcing (Tsai et al., 2007).

2.3.2 Information Technology Outsourcing Definition

IT outsourcing becomes a common practice in global business nowadays and has obtained enormous attention in ICT sector. The literature review reveals many definitions of IT outsourcing. According to Samantra

et al. (2014), IT outsourcing is perceived as: “The use of a third party to successfully deliver IT enabled business process, application service and infrastructure solutions for a cost effective business outcome”. Soares et al. (2014) defined it as the process of making contracts that state the arrangements between the client and the provider for the partial or total provision of the management and operation of an organization's IT assets or activities. Claver et al. (2002) and Gonzalez et al. (2005) clarified that IT outsourcing means that the IT related functions and operations are supplied and/or managed by one or more an external provider. This type of arrangement can be temporary or for unlimited period (Claver et al., 2002). Thus, IT outsourcing is the practice of outsourcing information and communications related services and products to other firms through contracts governing the relationship between them.

According to Gartner’s forecasts, the IT outsourcing market grow by 5.2% in 2014, and spending to grow by a 5.9% compounded annual growth rate until 2018 (Gartner, 2014). However, there are some reasons related to the characteristics of IT, that put clients at a negative side with respect to IT outsourcing suppliers. Those reasons are (Lacity and Willcocks, 1995):

1. ITs are growing rapidly that there is a high degree of uncertainty.
2. ITs are essential component in all business functions. For this reason, the provider needs to know the idiosyncrasy of the of the organization in order to carry out its IT activities.

3. The switching costs from on IT provider to another are very high.
4. Clients often have less experience than providers in signing IT outsourcing contracts. For this reason, providers have a much better choice in order to protect their own interests.

In addition to IT outsourcing, there is business process outsourcing (BPO), which is a subset of outsourcing process and a step further than IT outsourcing (Saini et al., 2005). BPO is a firm's outsourcing of specific business functions or processes that doesn't need much of technical skills to a third party service provider (The staff of PMDP, 2014). Hence, BPO is the shifting from IT outsourcing to outsourcing of human resource, finance, and accounting components (Saini et al., 2005).

2.3.3 Outsourcing Life Cycle

Life cycle describes all the activities or a series of stages that any subject is involved during its life time, from the start of it to its end. Project management area is considered as the main area that has applied the term of life cycle (Chou and Chou, 2009). Schwalbe (2004) defined the project life cycle as a series of project phases that center on two main activities, include: (1) planning activity, which consists of concept and development phases, and (2) delivery the actual work which consists of implementation and close-out phases.

In this section, a sequence of activities during outsourcing life cycle is discussed. Hirschheim and Dibbern (2002) described the outsourcing life cycle from the client's view as a series of activity that starts with the

decision to outsource, continuous with the life of outsourcing contract (relationship), and closes with the expiration of the contract. According to Chou and Chou (2009), the outsourcing life cycle can be divided into three major phases, these phases are pre-contract phase, contract phase and post-contract phase. Each phase divided into many activities as discussed below (see figure (2.4)) (Chou and Chou, 2009):

Pre-contract Phase: this phase is the first phase in outsourcing life cycle before the signing of a major contract, that can be divided into three activities, include: (1) analysis the decision to outsource (i.e. the client's firm needs to study its internal and external positioning to facilitate the decision making process on outsourcing), (2) setting strategic plan, and (3) the selection of outsourcing provider, in this stage the firm should prepare a clear information about its requirements and expectations of the outsourcing process.

In this phase, the firm needs to formulate a strategic plan. Thus, a firm to formulate a better outsourcing strategy, it must do firstly, a market and economics analyses to understand the current market situation. Secondly, success factors identification to be as a guideline. Finally, risk factors identification to give a comprehensive understanding for firm to monitor these risks.

Contract phase: this phase starts from signing the outsourcing contract between two parties to the ending point of the contract. In this phase, the project management and risk management are required, because an

outsourcing project has uncertainty and risks more than other projects, so risk management is important to reduce the risks impact on outsourcing project objectives during the execution stage.

Figure (2.4) shows that contract phase includes the following three activities:

- Contracting process where a contract negotiation process starts between the two parties (client's firm and provider) in order to establish a complete contract. Then, two legal consultants from the two parties should review the final contract.
- Transitioning process: it begins after the signing of outsourcing contract. It is considered a complex phase in outsourcing life cycle, thus it requires many workloads before the implementation of an outsourcing project.
- Outsourcing project execution: at this stage it's important to implement and deliver each item and requirement as requested in the contract. The two parties must manage the outsourcing relationship, any change requests, and outsourcing risk variables.

Post-contract phase: is a phase comes after contract termination. In this phase, the firm must do outsourcing project assessment, thus it is necessary to assess the quality and satisfaction level to the provided service/ product. This activity helps firms to make the decisions for future contract. After

this phase, the firm has two decisions: new contract search or renewable contract.

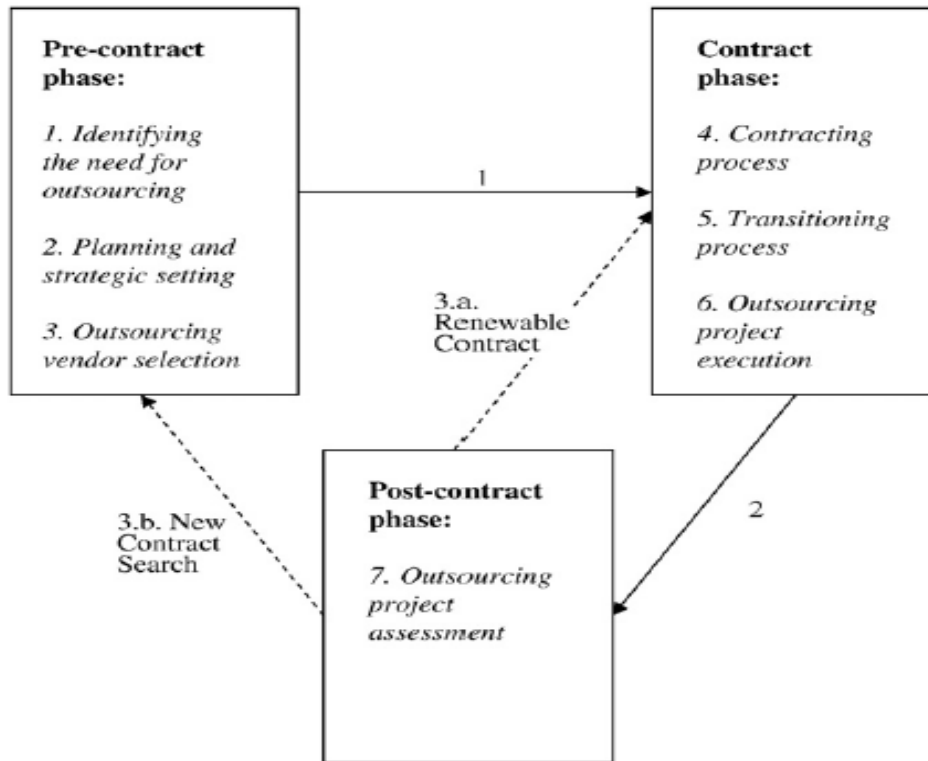


Figure (2.4): IT Outsourcing Life Cycle (Chou and Chou, 2009)

At outsourcing pre-contract phase, many researchers suggested a list of activities that should be practiced, especially during the process of analyzing the decision to outsource, to enhance the effectiveness of risk management in outsourcing process. Some of these activities are discussed below:

- Understand the function and process to be outsourced (Chou and Chou, 2009; Department of Information Resources Texas, 1998).
- Make a comparison between the cost and benefit of achieving outsourcing process (McIvor, 2000).

- Identify the type of relationship between the client and service provider (Franceschini et al., 2003).
- Create risk management committee that is involved in risk identification and anticipation (Federal Financial Institution Examination Council, 2004).
- Communicate well with stakeholders, and involve them to assess the risk and create risk management plan (RMP) (Chou and Chou, 2009; Federal Financial Institution Examination Council, 2004).

During the outsourcing contract management phase, it is important to embed service level agreement in the outsourcing contract as a formal agreement. After signing the outsourcing contract, it is important to perform regular meeting to make sure that the service provider complied with the contract. In addition, reporting to top management and steering committee is an important step to keep them side by side with the project development. Also, on-going monitoring takes place after signing the contract as a continuous process along the way of outsourcing process. Thus, it takes actions during the development phase to make sure that the provider performs and delivers all the promises, during the delivering phase through conducting inspection and testing of the deliverables, and during the maintenance phase after the deliverables. So on-going monitoring should be conducted continuously during maintenance and support to recover any failure (Aris et al., 2008).

In the same context, Cullen et al. (2006) proposed a four-phase model for outsourcing life cycle. The four phases are: architect, engage, operate and regenerate. These phases contain 54 key activities. According to Everett and Dixon (2006), they presented a chart of six phases for outsourcing life cycle, and the key tasks associated with each phase as seen in figure (2.5).

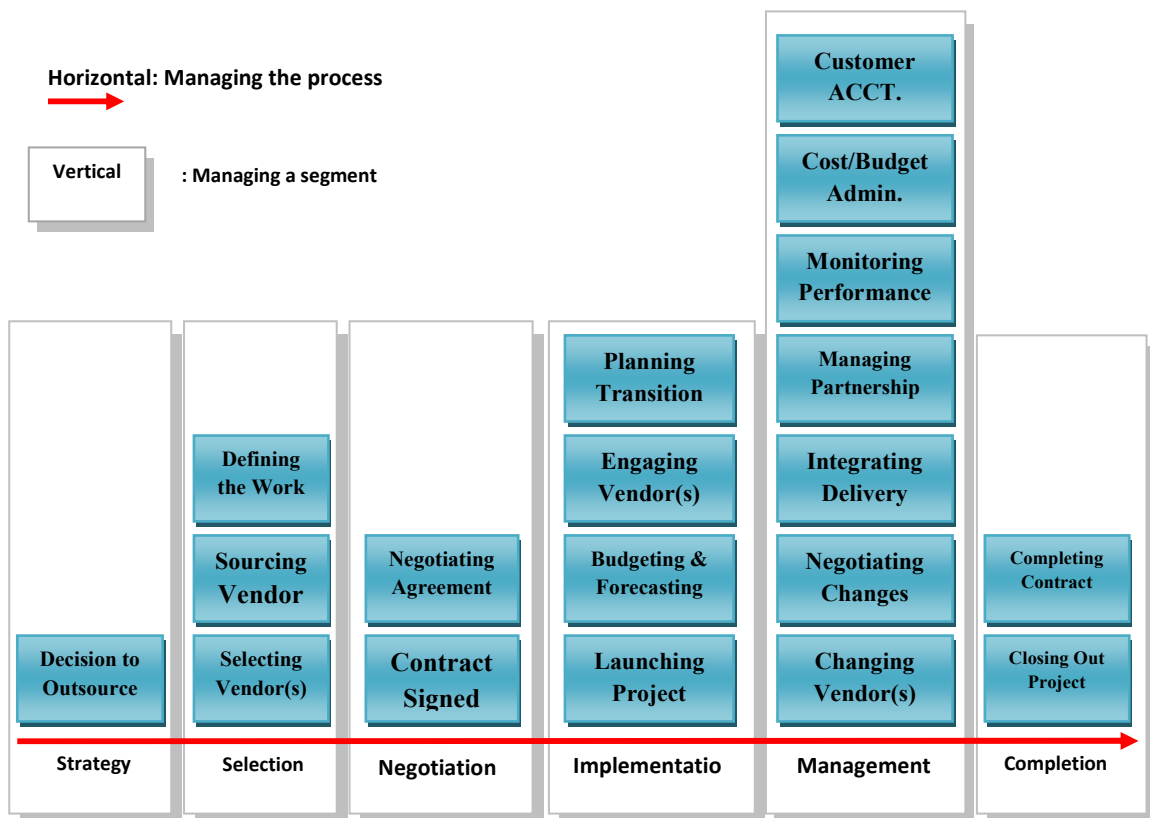


Figure (2.5): Outsourcing Lifecycle Chart (Everett and Dixon, 2006)

The literature review indicates that risk management practice is considered as a continuous process. This means, the risk management practice should be implemented throughout the outsourcing life cycle, because numerous new types of risk might occur or appear over time. To consider the main goal of this thesis; to develop a framework for risk

management through outsourcing's life cycle, the outsourcing life cycle model is developed based on the literature review as shown in figure (2.6).

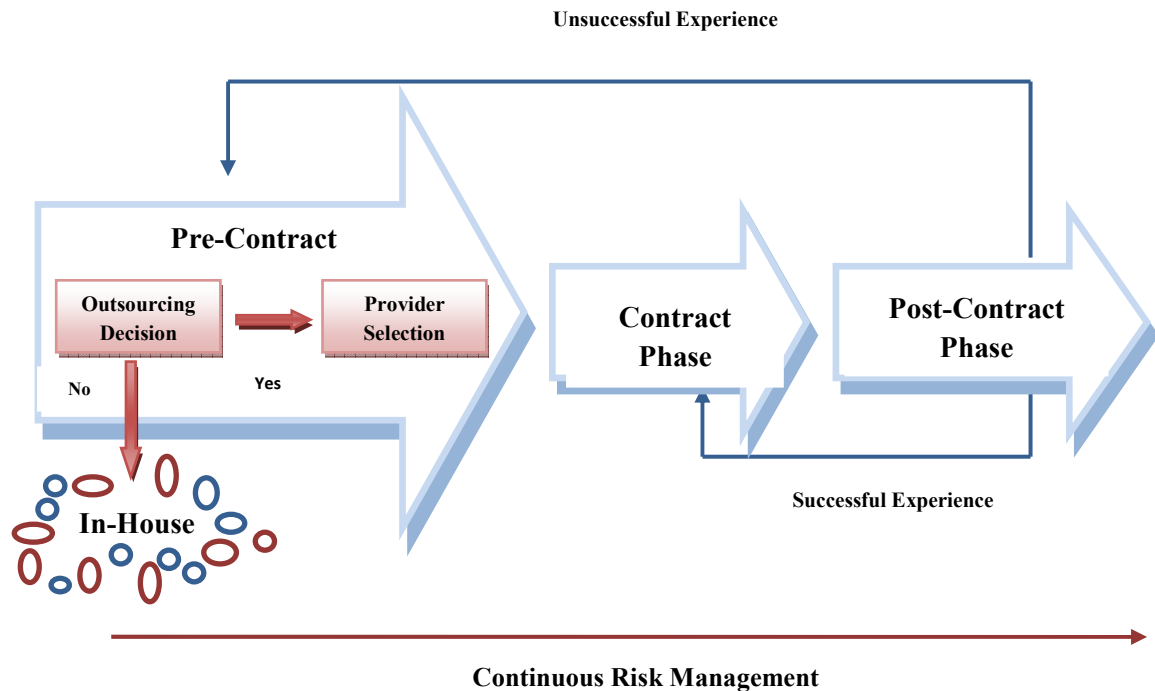


Figure (2.6): Outsourcing Life Cycle Model

2.3.4 Outsourcing Motivation

One of the key questions of outsourcing is why firms outsource. In literature many potential benefits of outsourcing have been identified.

Traditionally, cost saving and financial benefits are often put forward as the main reasons why firms take the decision of outsourcing (Saitta and Fjermestad, 2005). In recent research this is not the case (Baldwin et al., 2001). According to Gartner survey in 2001, about one of every three outsourcing contracts failed to match their expectation to reduce cost (Caldwell, 2002). According to transaction cost theory, there are two type of cost: production cost and transaction cost. Depending on outsourcing the

work by external provider results in lower production cost than doing it in-house due to economic of scale, but transaction cost is high because providers need to be managed and monitoring. Thus, a detailed analysis should be done before making an outsourcing decision (Dhar and Balakrishnan, 2006). Moreover, large number of firms adopted the outsourcing of IT functions to reduce the uncertainty and risk (Baldwin et al., 2001).

According to Dhar and Balakrishnan (2006) study, it shows that 75% of respondents agreed that lower costs, professional services and quality are the most motivation for IT outsourcing projects. 63% of respondents said that focus on core activities is a motivation for IT outsourcing.

Baldwin et al. (2001) proposed a frame of reference that used as a guideline for making decisions related to outsourcing process. They indicated that an acceptance of outsourcing decision is more complicated than simple choosing cost savings, so there are several factors that influenced the decision about adoption of outsourcing or not. Table (2.2) shows four categories of outsourcing motivation as proposed by Baldwin et al. (2001).

Table (2.2): Four Categories of Motives for Outsourcing Decisions

Strategic and Organizational	Economic
<ul style="list-style-type: none"> ✓ Focus on core business. ✓ Eliminate a burdensome IT function. ✓ Gain access to high quality IT services and skills. ✓ Reduce a backlog of application development. ✓ Restructure (devolution of IT), ie downsizing. ✓ Handle fluctuating IT demands. ✓ Exploit new technology. ✓ Market testing. ✓ Share risks and rewards. ✓ Speedy response to IT needs. ✓ Accelerate reengineering benefits. 	<ul style="list-style-type: none"> ✓ Save costs. ✓ Generate a cash flow. ✓ Convert capital assets to revenue. ✓ Accountability of control. ✓ Free resources for core activities. ✓ Control IT cost (cost predictability).
Political and Other Reasons	Technical Reasons
<ul style="list-style-type: none"> ✓ Government legislation. ✓ Enhancement of credibility. ✓ Solve internal conflicts. ✓ Reaction to the bandwagon. 	<ul style="list-style-type: none"> ✓ Access to expertise/technology. ✓ Perceived poor performance of internal staff. ✓ Access to better quality services.

(Baldwin et al., 2001)

In the same context, Tafti (2005) identified many factors that affect the outsourcing decision, including: development cost, shortage of IT professionals and talent, quality and tax incentive offered by other countries. Levina and Ross (2003) discovered that IT outsourcing provider can offer benefits to client by developing a system of complementary core competencies and this system hard to replicate inside non IT firms.

2.4 Overview of Outsourcing Risk Management

Risk and risk management have been studied in different domain, in this research we study the outsourcing related risks and risk management.

2.4.1 Outsourcing Risk Management

Recently, the trend towards IT outsourcing has shown continuous growth and has become an attractive and acceptance choices for IT decision making. In facing an increasingly competitive and changeable environment, organizations need for IT outsourcing risk management (Fan et al., 2012).

IT outsourcing faces many potential risk that may lead to unexpected and undesirable consequences. Absence of outsourcing risk management will lead to increase the total cost, delay project, deliver poor quality and lower the success rate of outsourcing. Thus, outsourcing risk management is needed, it could increase IS outsourcing success than ever (Chou and Chou, 2009; Fan et al., 2012). There are two approaches to ensure the success of any project: project management and risk management. Where risk management should be considered as one of the critical factors that leads to the success of outsourcing project (Aris et al, 2008).

Aris et al. (2008) defined the risk assessment as the process of identifies, analyze and prioritize the risk. Regarding the outsourcing risk management, they proposed a conceptual framework that represents the application of risk management in IT outsourcing in all the phases of the

outsourcing life cycle as shown in figure (2.7). The framework consists of two layers as describes below:

- The inner layer: the layer which presents the basic risk management processes (i.e. identify, assess and manage risk), that should be applied as a continuous process throughout the life cycle of IT outsourcing.
- The outer layer: the layer that presents risk management in IT outsourcing process throughout all phases. Figure (2.7) shows that the outer layer consists of four main phases include: (1) analysis the outsourcing decision, (2) the selection of appropriate service provider, (3) contract management, and (4) applying on-going monitoring to ensure the outsourcing objectives are achieved.

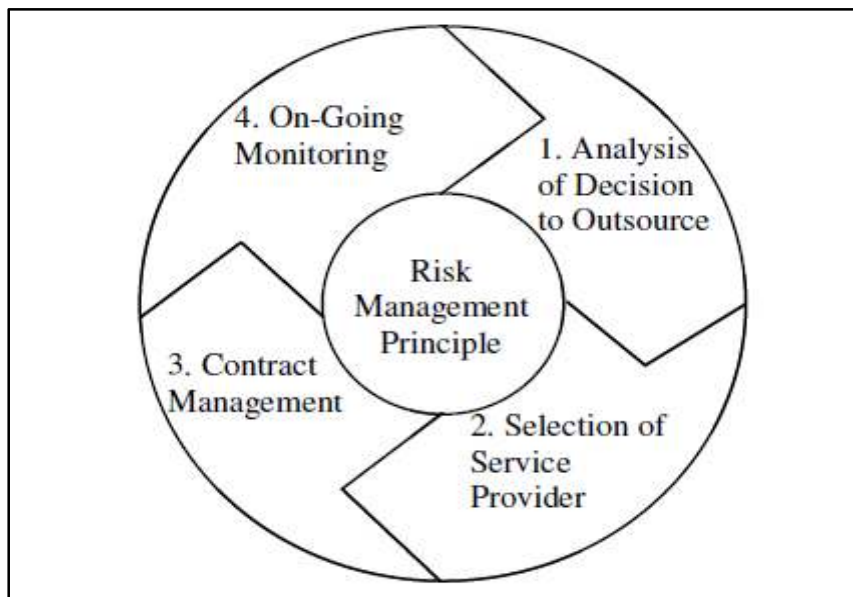


Figure (2.7): Conceptual Framework of Risk Management in IT Outsourcing (Aris et al., 2008)

According to Samantra et al. (2014), risk assessment is a process that determines quantitative or qualitative value of risk that associated with

specific situation. Therefore, risk assessment is required and significant to manage the risk successfully.

Samantra et al. (2014) proposed a unified hierarchical risk understanding model as a risk assessment approach in IT outsourcing to support qualitative risk analysis. The model containing eleven different source of IT outsourcing risks including: strategic, business, technical, financial, legal, operational, environmental, information, managerial, relationship and time management risks. They described the degree of risk as a function of two parameters: the likelihood of occurrence and the impact.

According to Zhu (2015), the three main factors for outsourcing management are: cost, outsourcing quality, and time to market, changing one of them will affect the other two factors. Hence, lack of information about any of these three factors leads to increase the risk of decision making. Therefore, Zhu developed an outsourcing contract that can be used under asymmetric information (lack of information) and managing the information risks.

Willcocks et al. (1999) proposed an analytical risk framework for analyzing IT outsourcing as seen in figure (2.8). The framework is used to provide a good practice at the start of and during the IT outsourcing contract. In their research, they investigated the Logistics Information System Agency (LISA) as a large-scale outsourcing arrangement, to

identify the types of risks associated with IT outsourcing and how the client organization seeks to mitigate these risks.

Bahli and Rivard (2003) proposed a conceptual definition of IT outsourcing risk as a risk assessment tool. In their research, they defined risk as a quadruplet consist of scenarios, the likelihood of that scenarios, their associated consequences and the risk mitigation mechanisms that can help avoid or reduce the impact of scenarios.

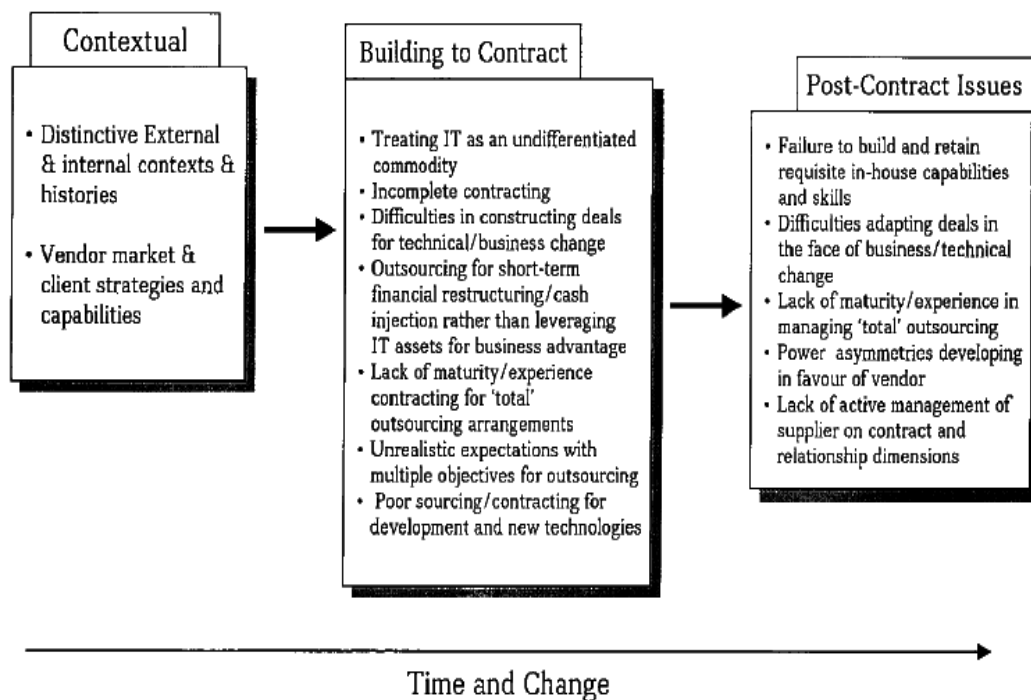


Figure (2.8): Outsourcing Risk Analysis Framework (Willcocks et al., 1999)

Soares et al. (2014) developed a conceptual schema based on literature that could provide a basis for developing a theory of information systems outsourcing risks as seen in figure (2.9). Moreover, they listed 127 mitigation actions for information systems outsourcing risks to reduce their effects.

Aubert et al. (2001) studied three successive IT outsourcing contract at British Petroleum. The analysis of those three cases revealed that each IT outsourcing contract presents different threats and opportunities. Thus, managers should adopt different risk management strategies to deal with IT outsourcing arrangements.

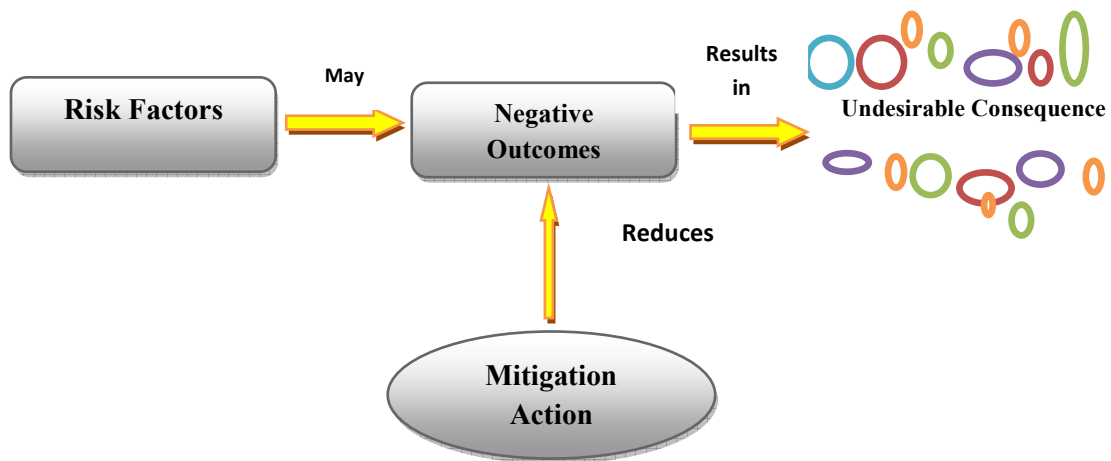


Figure (2.9): Conceptual Scheme (Soares et al., 2014)

To consider the second objective of this study, to assess the current risk management practices that adopted in the West Bank's ICT sector through outsourcing life cycle. Based on an extensive literature review as in the previous sections in this chapter, 30 elements of risk management practice through outsourcing life cycle were identified as shown in tables (2.3), (2.4), and (2.5). Table (2.3) shows the general risk management principles (the basic process of risk management) that should be conducted continuously during outsourcing life cycle, table (2.4) shows the outsourcing risk management activities that should be conducted during pre-contract phase, and table (2.5) shows the outsourcing risk management activities during contract and post contract phases.

Table (2.3): the General Risk Management Principles through Outsourcing Life Cycle

General Risk Management Principles
Identify all risks that might affect the smooth flowing of the outsourcing process in each phase
Identify and evaluate the effectiveness of current control available to manage the risk
Enhance the current control if it is ineffective
Figuring out new and effective ways to deal with risks
Analyzing the probability of occurrence and the impact of the occurrence of the risk
Prioritize risks to select risk that need active management
Determine the most effective and necessary actions to manage the risks (Recommend the action necessary to manage the risk to select the best risk response from several control options)
Develop and document a detailed and comprehensive risk management plan (RMP)
Report to senior management regularly
Assign qualified personnel who are responsible to address the risks
Implementation of control and risk management plan
Continuous review and feedback on risk management performance to measure the effectiveness of the selected control that taken to manage the risks
Ensuring the execution of risk plans and evaluating their effectiveness by top management
Provide lesson learned by dealing with the risks

Table (2.4): the Outsourcing Risk Management during Pre-Contract Phase

Outsourcing Risk Management During Pre-Contract Phase
Gathering information on market and economic situation to detect unexpected risks
Creation of risk management committee
Gathering information on clients' firms and the risk of dealing with them
The involvement of stakeholder with risk committee to address risk and create RMP
Determination the type of relationship with clients' firms (strategic partnership or buyer/ seller relationship)
Identify the success factors for outsourcing
Providing formal training in risk management

Table (2.5): the Outsourcing Risk Management during Contract and Post-Contract Phases

Outsourcing Risk Management During Contract and Post-Contract Phases
Negotiation with the client's firm on outsourcing contract to ensure that all requirements and aspects are defined and written clearly
Legal counsel to review the contract and to assist in the preparation of it
Formal agreement which includes scope, cost and durations to complete the projects, description of relationship, penalty and rewards etc.
On-going performance monitoring to maintain relationship with client's firm and to ensure the goal is achieved
Regular meeting to ensure the development of the project is on the right way and complied with the agreed contract.
Conducting inspection and testing to make sure that the deliverables are fully functional
Assess the outsourcing project
Reporting to top management, departments and stakeholders so that the stakeholders will always keep side by side with the development of the project
Providing maintenance and support after the deliverables to the clients' firms

2.4.2 Risk and Risk Factors of Outsourcing

The review of literatures reveals that there are a wide array of outsourcing risks has been identified, and each author has their own method of classifying outsourcing risks.

Risk factors can be defined as different sources of risks that can lead to a serious threat to the outcome (Samantra et al., 2014). The identification of risk factor that associated with outsourcing is significant to capture the source of outsourcing risk, and it is considered as a subsidiary stage of risk management process. Thus, risk factor identification helps to support the decision makers (Fan et al., 2012).

Fan et al. (2012) developed a method for identifying risk factors associated with IT outsourcing and their interrelationships. In addition, they listed eight risk factors of IT outsourcing composed of: technological indivisibility, technological complexity, weak management, cultural fit, requirements instability, reliability of selected vendor(s), uncertainty about the legal environment and coordination between client and vendor. In the same context, Tafti (2005) provided a framework for risk assessment that associated with IT outsourcing. Figure (2.10) shows the main categories of risk associated with IT outsourcing.



Figure (2.10): A Framework for IT Outsourcing Risk Assessment (Tafti, 2005)

According to Chou and Chou (2009), they identified the risk factors of outsourcing through outsourcing life cycle as seen in figure (2.11).



Figure (2.11): Risk Factors through Outsourcing Life Cycle (Chou and Chou, 2009)

According to Zhu (2015), information risk is one of the outsourcing risk factors. In the case of full information, each party of outsourcing makes optimal decision about price, time or outsourcing quality. By contrast, in asymmetric information the supplier does not have sufficient information about client internal cost. Thus, this situation increases the risks of decision making process.

The outsourcing risks are either come from the outsourcing organization, from business environment or from supplier (Hietalahti and Kuoppala, 2009). Therefore, the risk factors of outsourcing are relevant to risk factors from client perspective, risk factors from vendor perspective and risk factors that are relevant to the nature of the outsourcing activities, from pre-contract phase to post-contract phase (Abdullah and Verner, 2012).

It is important to understand the risks associated with IT outsourcing from the provider perspective, for sustaining its successful growth. Harter

et al. (2000) showed that maturity of service provider's process and risks reduces the effort and time in application development.

Ahmed et al. (2014) divided the risks from the service providers point of view into three categories of economic, managerial and process risks. Each category composed of many risks type as bellow:

- **Economic risks:** concern about the business-related risks, like financial risk, pricing risk, increased competition, client concentration, geographical concentration, forex volatility and economic conditions.
- **Managerial risks:** cover the aspects of human resource management, policies and strategies such as attrition of skilled workers, policy and process compliance, laws of protectionism and strategy risk.
- **Process risks:** concern about technical aspects of the process such as security risk, intellectual property risk and technology risk.

In the same context, Aundhe and Mathew (2009) conducted a study about risks from outsourcing provider's perspective and risk mitigation strategies. They classified the risks into three broad categories: project specific, relationship specific and macroeconomic as shown in figure (2.12). Each of these categories has many risk factors as explained bellow:

- **Project specific risks category:** appear due to factors affect the project delivery like management of schedule and budget, client expectations, requirements capture, knowledge transfer and staffing.

- **Relationship specific risks category:** arise from cultural differences, change in corporate structure, client size and the client opportunistic behavior.
- **Macroeconomic risks category:** occur due to exchange rate fluctuations and changes in government policies.

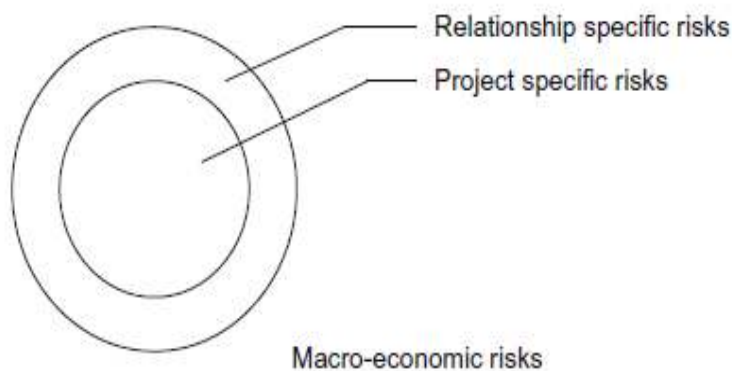


Figure (2.12): Categories and Interactions of Service Provider Risks (Aundhe and Mathew, 2009)

Dhar and Balakrishnan (2006) identified the main risk factors, benefits, best practices and sixteen different risk assessment factors that are sensitive to global IT outsourcing. From their study on two IT firms, they observed that 75% of respondents indicated that knowledge transfer is the main risk factor in IT outsourcing. While 50% indicated to quality standards.

In the same context, Aundhe and Mathew (2009) conducted a study about risks from outsourcing provider's perspective and risk mitigation strategies. They classified the risks into three broad categories: project specific, relationship specific and macroeconomic. Barki et al. (1993) have

identified five broad categories of risks associated with software development: technological newness, applications size, software development team lack experience, application complexity and organization environment.

Bahli and Rivard (2001) based on behavioral perspective for their definition of risk. Their research model was built on two main negative consequences of IT outsourcing: cost escalation and services debasement, and four main scenarios related with IT outsourcing as seen in table (2.6).

Table (2.6): Scenarios, Likelihood and Negative Consequences of IT Outsourcing Risk

Likelihood (Risk Factors)	Scenario	Consequences
<ul style="list-style-type: none"> ○ Asset specificity ○ Small number of suppliers 	<ul style="list-style-type: none"> ○ Lock-in 	<ul style="list-style-type: none"> ○ Cost escalation ○ Service debasement
<ul style="list-style-type: none"> ○ Uncertainty 	<ul style="list-style-type: none"> ○ Costly contractual amendments 	<ul style="list-style-type: none"> ○ Cost escalation ○ Service debasement
<ul style="list-style-type: none"> ○ Uncertainty ○ Degree of the client's expertise with the operation ○ Degree of the client's expertise with outsourcing contracts. ○ Relatedness 	<ul style="list-style-type: none"> ○ Unexpected transition and management costs 	<ul style="list-style-type: none"> ○ Cost escalation ○ Service debasement
<ul style="list-style-type: none"> ○ Degree of the client/supplier's expertise with outsourcing contracts ○ Measurement problems ○ Degree of the supplier's expertise in IT operations 	<ul style="list-style-type: none"> ○ Disputes and litigation 	<ul style="list-style-type: none"> ○ Cost escalation ○ Service debasement

(Bahli and Rivard, 2001)

Abdullah and Verner (2012) introduced a risk classification schema through the development of a conceptual risk framework for strategic IT

outsourcing. In their research, they investigated nine cases of unsuccessful experiences in strategic IT system development outsourcing. They classified the critical client risks for strategic IT outsourcing into ten risk categories.

To consider the first objective of this thesis; to identify the main risk factors that affect the success of outsourcing in the West Bank's ICT firms, this research assumes that the risk factors of outsourcing through outsourcing life cycle, based on the literature review, are:

- **Pre-contract phase related risks:** as shown in figure (2.13), these risks are: (1) uncertainty about the legal environment, (2) unrealistic estimation of schedule, budget and other required resources, (3) poor and lack of project planning, (4) unrealistic expectations, (5) provider's firm overstated claims, (6) lack of information available about market, the clients' firms and others providers' firms, (7) different rules and regulations between the firms and the client's firm, (8) social responsibility, (9) poor cultural fit (i.e. language, communication, time zone etc.), (10) Israeli occupation and socio-political instability, and (11) financial instability.
- **Contract phase related risks:** as shown in figure (2.14), these risks are: (1) failure to determine appropriate measures and procedures, (2) inadequate terms and requirements in the contract, (3) conflicting requirements, (4) unclear requirements of the client's firm, (5) inflexible contract, (6) incomplete and ambiguous outsourcing contract,

(7) lack of experience, expertise and maturity of the client's firm with outsourcing contract management, and (8) lack of experience, expertise and maturity of the provider's firm with outsourcing contract management.

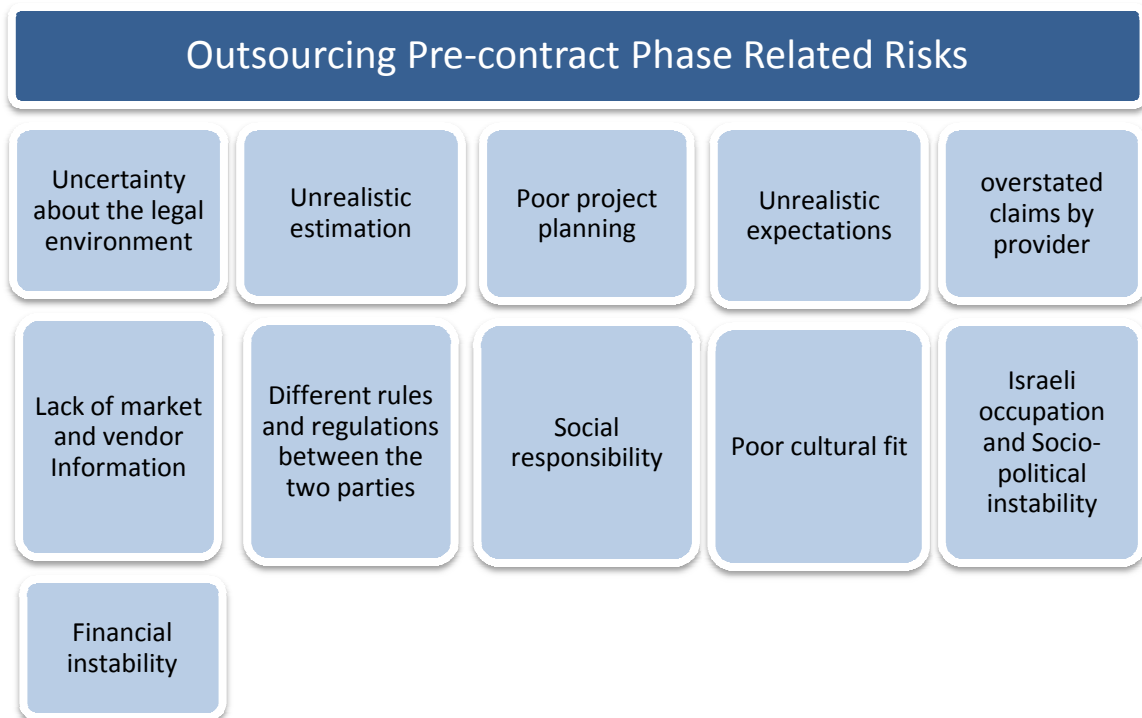


Figure (2.13): Pre-Contract Phase Related Risks

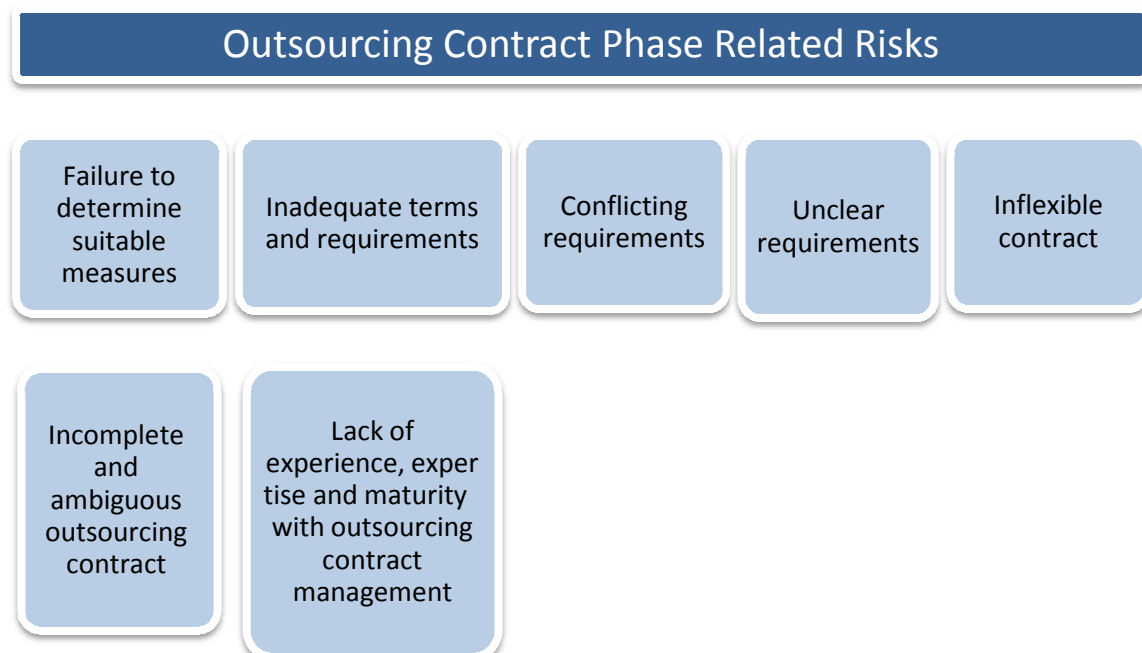


Figure (2.14): Contract Phase Related Risks

- **Post-contract related risk:** as shown in figure (2.15), these risks are:
 (1) poor management, (2) instability of business and organizational environment, (3) poor audit and control of outsourcing related services, (4) breach of the contract's requirements by the provider's firm, (5) changing and creeping objectives or requirements, (6) hidden cost in outsourcing process, (7) lack of technical knowledge and education of the provider's firm, (8) loss of control by the client's firm or provider's firm, (9) communication problems, (10) lack of experience and expertise with the project tasks and IT operation, (11) lack of assess measurement, metrics and tools, (12) client-supplier conflict, (13) loss of provider's key technical persons and critical skills, and (14) insufficient funds and bankruptcy of the provider's firm.



Figure (2.15): Post-Contract Phase Related Risks

2.4.3 Outsourcing Risk Mitigation

The risk factors are not 'acts of God': rather they can be controlled by the use of risk mitigation mechanisms. Risk mitigation mechanisms would influence the IT outsourcing risk likelihood of occurring or help prevent them altogether. Hence, risk assessment can only be a meaningful if the firms use effective mitigation mechanisms (Bahli and Rivard, 2003).

In IT outsourcing, building and retaining internally distinctive core human resources capabilities and constantly revisited are IT outsourcing risk mitigation needs. These capabilities must be ready before the start of outsourcing contract. Moreover, the use of more informed forms of contracting, and develop and sustaining of client-vendor relationship are important to mitigate risks a cross long-term outsourcing arrangement (Willcocks et al., 1999).

Bahli and Rivard (2001) and (2003) suggested four main scenarios related with IT outsourcing: (1) Lock-in, (2) Costly contractual amendments, (3) Unexpected transition and management costs and (4) Disputes and litigation. In addition, they identified seven mitigation mechanisms that can prevent the four scenarios or reduce the severity of the consequences.

According to Koss and Eaton (1997), the reciprocal exposure to specific assets that called mutual hostaging is considered as risk mitigation mechanism associated with lock-in scenario. Moreover, multiple sourcing

strategy by using several competing vendors is a second mechanism to deal with lock-in scenario (Richardson, 1993).

In costly contractual amendments scenario, developing a sequential contracting within an ongoing relationship reduce the uncertainty risk factor (Williamson, 1985). In addition, flexible contracting is considered as a mitigation mechanism for contractual amendments (Bahli and Rivard, 2003).

The hiring of a contract or relationship manager who has knowledge about both outsourced activity as well as the overall firm business, and the hiring of external expertise who understand the core contract management process are mitigation mechanisms associated with unexpected transition and management costs, and disputes scenarios (Bahli and Rivard, 2003; White and James, 1996).

Moreover, clan mechanisms are soft measures that have influence on behavior through shared organizational goals, values and norms. Clan mechanisms reduce the impact of unexpected transition and management costs, and disputes scenarios (Bahli and Rivard, 2003).

According Bahli and Rivard (2003), there are two alternative methods of dispute resolution without litigation. These methods are mediation and arbitration. In mediation, a neutral third party helps to resolve a dispute who plays an advisory role. In arbitration, one or more impartial persons give a final and a legally binding decision.

In the same context, Aubert et al. (2001) in their research presented several means that would reduce the undesirable consequences, such as outsourcing to multiple providers, using short term contracts and using a general agreement.

Bahli and Rivard (2001) proposed risk mitigation mechanisms that help avoid the four scenarios, or influence their likelihood in IT outsourcing. They used seven risk mitigation mechanisms in their model.

As shown in figure (2.16), to consider the third objective of this thesis; to identify how to mitigate the impact of outsourcing related risks, this research assumes that the risk mitigation actions of outsourcing associated risks, based on the literature review, are: (1) creating flexible and more informed outsourcing contracts, (2) establish risk committee to review and manage risk, (3) hiring of external technical and legal expertise, (4) socialization and shared organizational goals, values and norms between team, (5) socialization and shared organizational goals, values and norms between provider's firms and client's firm, (6) appointing a contract/relationship manager, (7) mediation and arbitration for dispute resolution, (8) building and retaining internal capabilities before the contract, (9) carefully delineated performance measures, (10) regular supplier- business review and audit, (11) distribution of responsibilities clearly, (12) setting a benchmark or reference point for comparison on a regular basis, (13) use suitable communication media between provider's-client's firms, and (14) establish contingency plan.



Figure (2.16): Mitigation Actions for Outsourcing Risk

2.5 Outsourcing Success Factor

Critical success factors are very important to achieve successful IT outsourcing, many articles addressed those factors. Méndez et al. (2008) defined the critical success factor as any activity and task where it is required for the organization in order to correct performance contributes to achieve the goals of successful IT outsourcing project.

A review of the literature of outsourcing reveals many factors that affecting the success of the outsourcing relation. The most important success factors that increase the likelihood of outsourcing success including: the provider should understand the client's goals and objectives to build deep relation between them, top management's support to engage in outsourcing, choosing the right provider, keeping frequent meetings between client and provider, drawing up a detailed thorough outsourcing

contract, the client must have a clear notion about the objectives sought through the use of outsourcing, having a clear idea of what is the possibility of achieving a good value of money relation, keeping people informed every step and ensuring good communication, considering all stakeholders, negotiating a reasonable and fair contract for both parties and hiring outsourcing experts (Claver et al., 2002; Jones, 1997; Lacity and Hirschheim, 1993).

Moreover, building IT outsourcing relationship between the provider and client will decrease the number of risk factors that affect the outsourcing process. According to Chou and Chou (2009), if the relationship between client and provider became disintegrate, many risk factors would be appeared.

In the same context, Saitta and Fjermestad (2005) proposed a model as a vehicle for IT managers who make decisions regarding IT outsourcing to build a strategic partnership with external partners, in an effort to gain competences and competitive advantage for the business. The model provides managers with a good understanding of staff skills necessary to continue success of IT outsourcing. They listed some of success factors for the basic IT Outsourcing model as in the following points:

- **Alignment to business strategy:** Henderson and Venkatraman (1999) defined the strategic alignment as aligning organization strategies to several component including IT strategy, organizational infrastructure and IT infrastructure and processes.

- **Management Support:** it's an important element to reduce resistance to change.
- **Culture:** Carmel and Agarwal (2002) identified the challenges of offshore outsourcing related to cultural differences between providers and recipients e.g. time zone, work hours, communication, telecommunication infrastructure, domain knowledge and security of data.
- **Infrastructure:** technical environment which important for a successful IT engagement.
- **Contracts:** an agreements that define roles, goals, service level requirements etc.
- **Strategic Partnership:** it is the collaborative efforts of both the provider and the client. In strategic partnership, the outsourcing relationship becomes a strategic alliances rather than a fee of services.
- **Governance:** both tactical and strategic committees to govern IT outsourcing decisions. (Saitta and Fjermestad, 2005).

According to Saini et al. (2005) in outsourcing relationship building, the parties should avoid static relationship at all cost. Successful outsourcing relationship needs to establish a steering committee that comprising specialist people within the organization, and a few from the outsourcing partner to monitor the project outcome.

Vorontsova and Rusu (2014) emphasized the importance of a successful relationship. They addressed the outsourcing relationships from both parties: the outsourcing provider and the client point of view simultaneously through the construction of sixteen of IT outsourcing relationship determinants which affected the success of IT outsourcing relationship.

Claver et al. (2002) used the case of Spanish public universities in their study. They found that the most important success factor in an outsourcing relation is understanding the client's objectives and goals. In the same context, Gonzalez et al. (2005) revealed in their research that the provider's understanding of client's objectives is the most outsourcing success factor for large Spanish firms.

As shown in figure (2.17), to consider the first part of the third objective of this thesis; to identify the significant success factors for outsourcing in West Bank's ICT firms, this research assumes that the success factors for outsourcing, based on the literature review in outsourcing, are: (1) understand the client's objectives and specific problems, (2) frequency of client-provider meetings, (3) the accurate definition of the project's scope and specifications, (4) cultural proximity between client and provider, (5) the top management's support, (6) a detailed, flexible and proper contract structuring, (7) building strong outsourcing relationship between the provider's firm and the client's firm, (8) consider governmental regulations and legal issues, (9) conflicts

handling and solve it properly, (10) hiring outsourcing experts, (11) negotiating a reasonable and fair contract for both parties, (12) relatively lower labor costs than some competitors, (13) specialists in Palestinian ICT firms have a very good language skills at Arabic, Hebrew and English languages, and (14) geographical proximity to the Middle East, Europe and North Africa.



Figure (2.17): Success Factors for Outsourcing

2.6 Summery

The aims of this chapter are to make a comprehensive picture of the risk management topics and risk management of outsourcing, and to discuss these topics through the literature review, in order to provide a better understanding of the concepts. Based on this chapter, the researcher designed the elements of the questionnaire. At first, this chapter discussed

different risk management models, where the researcher depending on it to identify the main general risk management principles as shown in table (2.3). After that, outsourcing life cycle and different outsourcing risk management models were addressed in order to identify outsourcing risk management practices during pre-contract phase, and contract and post-contract phases, which were used in this study as shown in tables (2.4) and (2.5) respectively. Then, the outsourcing risk factors were addressed from client's and provider's point of view, to identify the main outsourcing risk factors that can be affected the success of outsourcing process in ICT firms during pre-contract, contract and post-contract phases, as shown in figures (2.13), (2.14) and (2.15) respectively. Finally, outsourcing risk mitigation actions and success factors were discussed depending on previous research to determine the main outsourcing mitigation actions and success factors as shown in figures (2.16) and (2.17) respectively. Depending on what has been reviewed and discussed, the research questionnaire is designed and refined as seen in Appendix-A, then the framework is developed.

Chapter Three

ICT Sector in Palestine

Chapter Three

ICT Sector in Palestine

3.1 Chapter Overview

This research addresses the outsourcing risk management in the case of the West Bank's ICT firms, therefore it is important to give a brief description and information about the ICT sector in general and the Palestinian ICT sector in particular. In this chapter, general overview of ICT industry is addressed, including the definition of ICT sector, its budget and its development index. Moreover, this chapter discusses some topics which are related to Palestinian ICT sector, including: ICT sector in Palestine, Palestinian ICT competitive advantages and outsourcing in Palestine.

3.2 General Overview of ICT Sector

3.2.1 ICT Sector

The ICT concept has appeared in academic research since the 1980 (Melody et al., 1986). A standard definition for ICT sector is very important to be used as a base to monitor its development, to develop its related policies and to make international comparisons (April, 1999). In 1996, Statistics Canada and Industry Canada defined the ICT sector in their working document as a list of industries which mainly involved in producing goods or intangible services, or supplying technologies, that used to process, receive or transmit information (April, 1999).

In 1998, Organization for Economic Co-operation and Development (OECD) member countries defined the ICT sector as "*a combination of manufacturing and services industries that capture, transmit and display data and information electronically*" (OECD, 2002).

The implementation of effective measurement tools is necessary to harness ICT for development, especially in economic and social development. Therefore, a collaborative efforts between the Partnership on Measuring ICT for Development, the first World Summit on the Information Society, statistical agencies and policymakers have been made to establish a core list of ICT indicators for measuring ICT (Roberts, 2008).

Nowadays, the ICT sector composes of software, hardware, the internet, telephony, application and support services that are provided by ICT firms and entities (Kramer et al., 2007). The literature review shows that ICT sector has shown continuous growth in products and services, and has become the foundation of every economy, in everywhere. In the case of developing countries, ICT offers enormous potential to work around a number of critical economic opportunity obstacles. The reasons for this are related to (Kramer et al., 2007):

- ICT improves productivity by reducing transaction costs.
- ICT provides instant connectivity.
- ICT provides alternatives for other costly means of communicating and transacting.

- ICT increases choice in the marketplace.
- ICT expands the potential markets through access to global markets.
- ICT is considered as means to share knowledge and information.

3.2.2 The ICT Budget

Around the world, the total money spent on IT has been estimated as \$3.5 trillion and is nearly doubling every 15 years (Luxembourg, 2013). According to the Federal Information Technology, the IT budget of US federal government is \$81,996 million for 2014 (VanRoekel, 2013). Based on OMTCO's report, the IT cost or budget has four main categories as seen in figure (3.1) (Luxembourg, 2013).

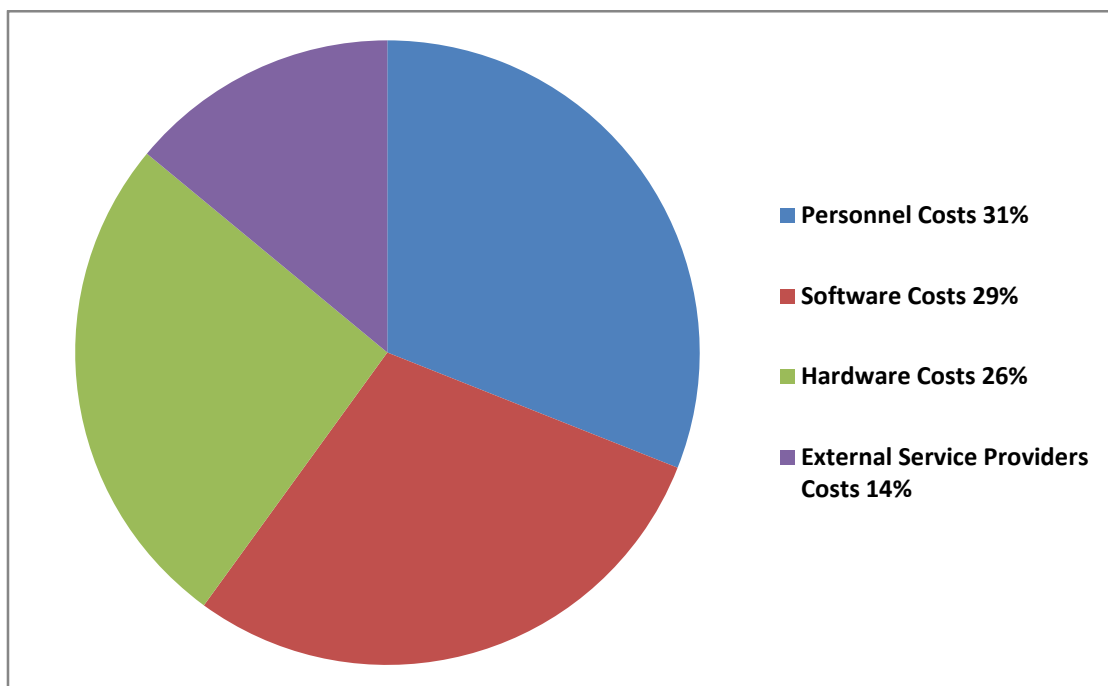


Figure (3.1): IT Cost Breakdown (Luxembourg, 2013)

Based on WITSA (2010), an estimation of the global ICT spending by all four technology groups (i.e. communications, services, software and

hardware) was provided as shown in figure (3.2). Figure (3.2) shows that approximately 58% of spending on communications technology, this means it dominates the global ICT sector.

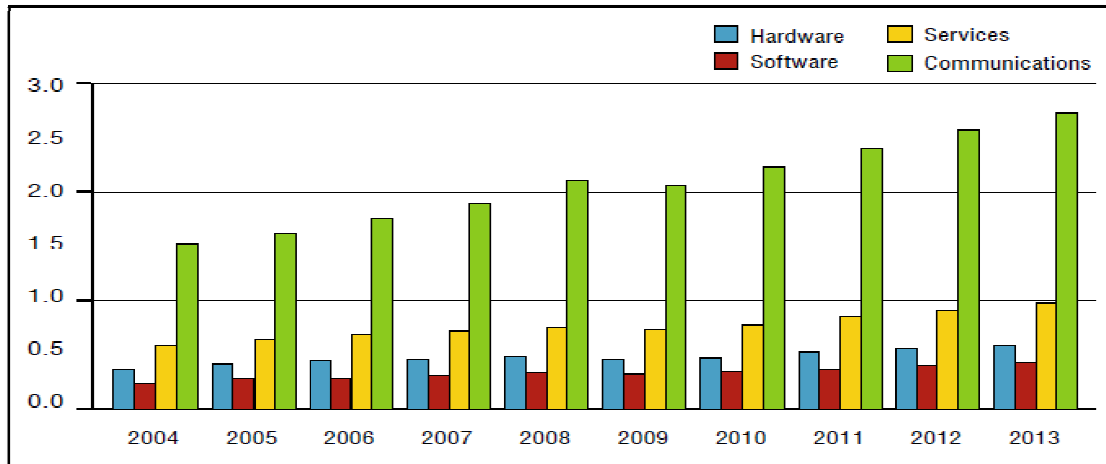


Figure (3.2): Global ICT Spending by Technology in \$US Trillions (WITSA, 2010)

3.2.3 The ICT Development Index

The world has witnessed continuous growth in ICT services and applications provided over the internet and on mobile (Sanou, 2011). According to International Telecommunication Union (ITU), there is an increasing growth in ICT services especially in mobile Internet imbibitions and in household access to the Internet, across both developed and developing regions (Sanou, 2013). In 2014, the growth rate of Internet use was 6.6% globally (ITU, 2014). In addition, the number of consumers worldwide who are using the services and applications related to ICT is increasing (Sanou, 2013).

The latest data on ICT deployment and uptake by individuals and households are presented in figure (3.3) over the period 2000 to 2015 (ITU, 2015; Sanou, 2015). As the numbers of people use the ICT services are

increasing, there is a necessary need to measure and track ICTs development. Thus, the ICTs Development Index (IDI) is used for this purpose. In 2008, ITU developed the IDI and it was first introduced in 2009 edition of measuring the information society (ITU, 2009).

ICT development Index (IDI) is a benchmark measure that is used to monitor, rank and compare the level of information and communication technology development and use between countries around the world. Such that index composed of 11 indicators and the possible IDI values range from 0 to 10 (Sanou, 2013).

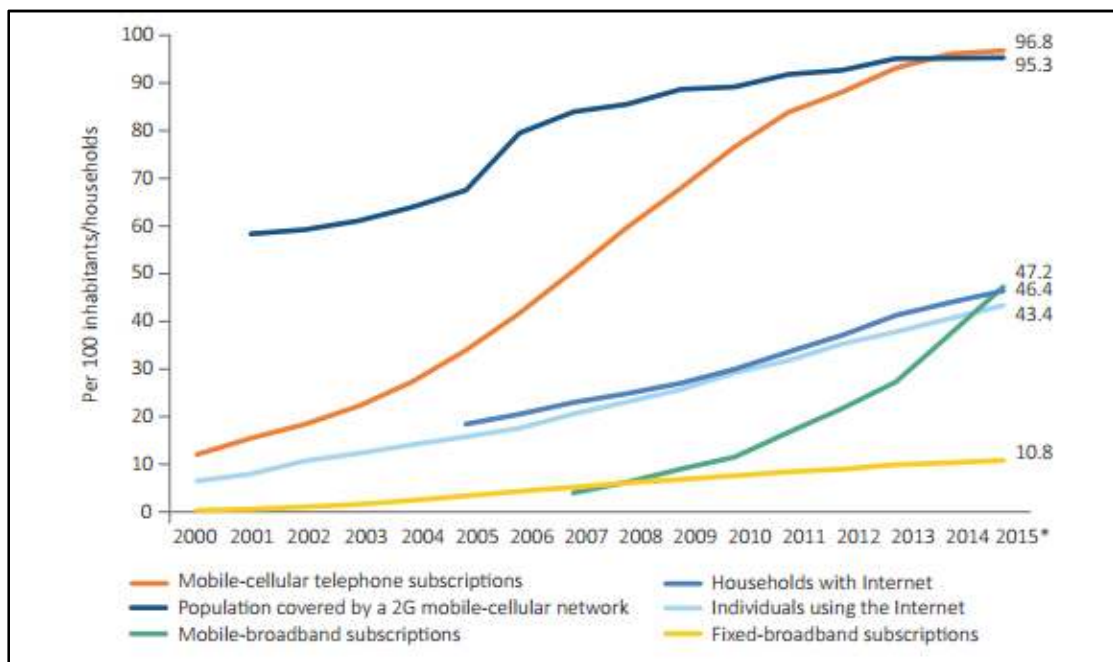


Figure (3.3): Global ICT Developments, 2000-2015 (ITU, 2015)

According to ITU (2015) results, the Republic of Korea attaining the top spot in ITU's ICT Development Index, with an IDI value of 8.93, followed by Denmark, Iceland and United Kingdom respectively as seen in table (3.1). In contrast, Chad had the lowest IDI value of 1.17 in 2015. A comparison between 2010 and 2015 shows that the average IDI 2015 value

climbed to 5.03 from 4.14 in 2010. Thus, most of the countries increased their IDI values between the period 2010 to 2015. This is evidence that ICT progress continue to mature over time, throughout the world (Sanou, 2015). The top 20 countries in the IDI 2015 rankings are predominantly from Europe and Asia as seen in table (3.1).

Table (3.1): Top 20 IDI Overall Rankings and Ratings, 2015 and 2010

Economy	Rank 2015	IDI 2015	Economy	Rank 2015	IDI 2015
Korea (Rep.)	1	8.93	Japan	11	8.47
Denmark	2	8.88	Finland	12	8.36
Iceland	3	8.86	Australia	13	8.29
United Kingdom	4	8.75	Germany	14	8.22
Sweden	5	8.67	United States	15	8.19
Luxembourg	6	8.59	New Zealand	16	8.14
Switzerland	7	8.56	France	17	8.12
Netherlands	8	8.53	Monaco	18	8.1
Hong Kong, China	9	8.52	Singapore	19	8.08
Norway	10	8.49	Estonia	20	8.05

(Sanou, 2015)

3.2.4 Characteristics of IT projects

IT projects have special characteristics. According to Butler (2004), the following points discuss these characteristics:

- **Lack of constraints:** IT projects are not subjects to physical laws and constraints, unlike physical projects such as construction projects. This because IT projects tend to be abstract and difficult to understand. However, there are some of limitations on IT projects.
- **Visualization:** software is invisible and intangible in nature. This characteristic increases IT projects failures.

- **Flexibility:** the intangible nature of software encourages people to change their mind about software project requirements. This characteristic is considered as a source of IT projects risk.
- **Complexity:** complexity in large scale of IT projects can be significant obstacle of successful delivery of IT projects. This because complexity in such projects is harder to detect.
- **Uncertainty:** the problem here is knowing what to produce. Uncertainty characteristic make IT project risky.

According to Milis and Mercken (2004), ICT investments have particular characteristics, such as high risk, long-term return and large proportion of intangible costs and benefits. Thus, all these characteristics of IT projects make IT projects more risky than others projects.

3.3 ICT Sector in Palestine

Palestine suffers from political instability and largely influenced by the colonial constraints of Israeli occupation, which imposes restrictions on inter-trade between West Bank, Gaza and Jerusalem, as well as on foreign trade. With regards to the political situation and the constraints imposed by Israeli occupation, Palestinian manufacturing and agriculture sectors are the most sectors affected, in comparison with service sector, the least sector affected by the political situation, in comparison with other sectors due to its high flexibility.

ICT sector is one of the important sectors in Palestine which also affected by the Israeli constraints, for example, Israel still not allow the Palestinian telecommunication companies from using of third and fourth generations of mobile services (Morrar et al., 2014). Meanwhile, ICT is considered more resilient than many other sectors in the political and economic situations (USAID, 2006).

In the last two decades, the Palestinian ICT sector; as one of the service sectors; has experienced a fast growth (Morrar et al., 2014), with average growth rate of 25-30% since 2000, according to national statistics (Gaza E-Consulate, 2015). Among small economy with a young and well-educated Palestinian population, the ICT sector has the ability to make a strong contribution to obtain sustainable growth (The Palestine Economic Policy Research Institute (MAS), 2012).

The trend to invest in ICT sector to expand it, allowing Palestine to become engaged in one of the fastest growing economic sectors that based on knowledge in the 21st century (Paltrade, 2014). Moreover, the number of people who work in ICT sector increased, also the number of ICT companies increased to be above 500. This growth is being driven by many factors which will be addressed in other section. In 2005, the National Strategy of IC in Palestine, mentioned that the ICT sector has a base among Palestinians, which means the information society is not starting from zero in Palestine (Khoury-Machool, 2007).

3.3.1 History of ICT sector in Palestine

During the 1980s, the ICT related activities started in the West Bank and Gaza through a handful of companies which mainly resell the ICT related services and products provided by Israeli dealers. After that, some software companies emerged focusing on developing accounting software programs and providing word processing solutions to replace the accounting software packages provided by Israel, in order to be used by end user in the local market. At the beginning of the 1990 and after the Oslo agreements in 1993, the ICT sector really took off and started to show further growth through providing additional ICT solutions, software products and internet services, responding to the large demand of ICT related services and products which is coming from private sector, local agencies government, universities and colleges and Non-Governmental Organizations (NGOs). Moreover, the Palestinian ICT sector has experienced a significant growth after the establishment of the Palestinian Authority (PA) which is considered the biggest end-user of ICT related products and services, and especially after the creation of the first Palestinian Telecommunications Company (PALTEL) in 1997. Also, the Internet became available to use among universities, companies and individuals (USAID, 2006).

In 2001, the average annual growth rate for ICT firms was estimated at 25%. Nowadays, the number of ICT companies are increasing significantly which provide a wide array of ICT related services and

products, including: hardware products, software development, Internet services, enterprise consultancy and office automation equipment. Moreover, in all areas of ICTs (i.e. software, hardware, and other ICT related services and products), the offshore outsourcing opportunities are increasing substantially. However, the majority of ICT sector's activities and market demand are concentrated in three geographical locations: Jerusalem, Ramallah, and Gaza (Paltrade, 2014).

During the year of 2003, the ICT sector's revenues decreased from \$120 million in 2000 to reach \$87 million due to second Intifida in 2001, forcing many of international companies including: IDS, HP, and Timex to close down their sales operations and activities in Palestine (USAID, 2006). In 2010, about (36%) of ICT firms are software development firms, whereas (35%) are hardware firms, (18%) are telecommunication firms and (11%) are training and consulting firms (Paltrade, 2014).

Based on a survey of the Palestinian IT Association (PITA) which was conducted on 69 ICT companies, the main two categories of products and services offered by ICT firms are developing software (29%) and hardware sales (28%), while only (5%) of ICT firms are engaged in product manufacturing (Wihaidi, 2009). There were around 15,267 employees who are performing ICT related jobs in the Palestinian economy, 5,200 of them are directly employed in the ICT sector (Wihaidi, 2009). According to Paltrade (2014), ICT services exports have been increasing from about (5.4%) of total services export of Palestine in 2008 to reach (6.0%) in 2009). Moreover, the Palestinian ICT sector has shown notable increase in

the number of employees to reach (8,310) in 2012 from (6,400) in 2011 (PCBS, 2013).

3.3.2 Key Players in the Palestinian ICT Sector

The development of ICT sector should be based on a collaborative efforts between all Palestinian bodies (the public sector, the private sector, and non-governmental sector), which will lead to an effective ICT sector. Here are the main players or actors in the ICT sector in Palestine:

- **Ministry of Telecommunication & Information Technology (MTIT)**

It is one of the official Palestinian institutions that is responsible for information and telecommunication sector in Palestine and provides policy instruction and regulation to ICT sector, thus it plays an important role in building an information society that can keep up with all technological developments (MTIT, 2015). It plays an important role for allowing an open, competitive information and telecommunications market (Paltrade, 2014).

- **Ministry of Education and Higher Education (MoEaHE)**

It is considered as governmental institution that is responsible for developing and organizing education and higher education sector, and provides the ICT sector with the human resources which considered a key factor in the development of ICT sector.

- **Palestine Telecommunication Companies (PalTel, Wataniyya, Jawwal, Hadara, etc)**

PalTel is a private company which was established in 1990s. PalTel invests and develops a Palestinian telecommunication infrastructure and provides landlines telephone, ADSL services and a wide range of other communication services. Before the foundation of PalTel, it was impossible to get a telephone line in the household because of the colonial measures of Israeli occupation (Wihaidi, 2009). By 2012, the percentage of Palestinian households that have telephone line reached to (40%) and (32.1%) have Internet at home (PCBS, 2013). Moreover, by 2012s, the number of fixed line subscribers reached 396,000 lines which grew at 2.9% from 2011s. In the same year, the total number of ADSL reached 185,000 lines which grew at 18.9% from 2011s (PalTel Group, 2012). Figure (3.4) below provides some data on the number of fixed lines in Palestine since 2008.

In 2000, PalTel established the Palestinian cellular operator, known as Jawwal. By 2012, Jawwal subscribers reached about 2.58 million from 1.31 million subscribers in 2008. In the same year, PalTel employees reached 1238 and Jawwal 897 employees (PalTel Group, 2012).

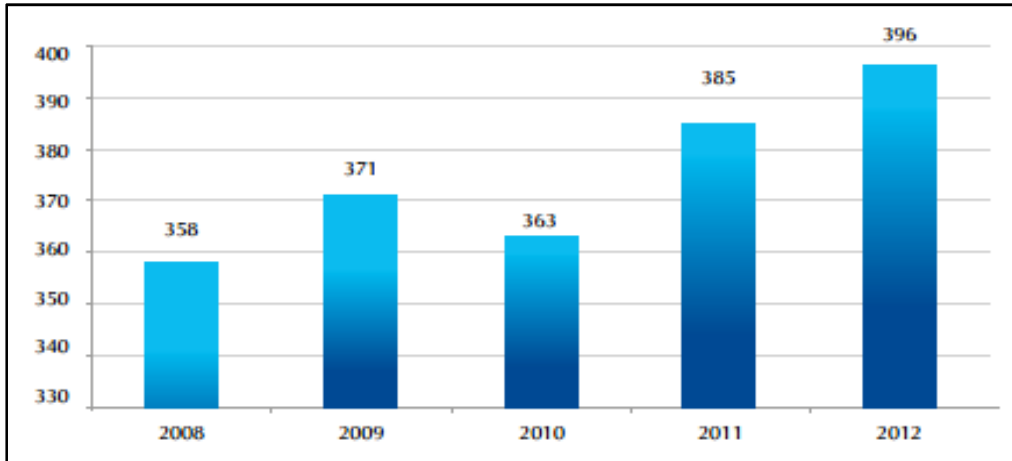


Figure (3.4): Number of Active Fixed Lines in Palestine for the Years 2008-2012 (PalTel Group, 2012)

Wataniya mobile is a cellular company that provides mobile services in Palestine. In 2006, it won a license for launching second mobile services. At the end of the first quarter of 2016, Wataniya subscribers reached 709,000 (Wataniya Mobile, 2016).

However, there are many companies in the private sector, which play an important role in the ICT sector, but the previous companies are the most prominent of these companies.

- **Palestinian Information Technology Association of Companies (PITA)**

PITA is the professional association, established in 1998 in Ramallah which represents the private ICT sector in Palestine. PITA represents the collective interest of its members by advocating dialogue with the government and all key stakeholders (USAID, 2006). PITA has more than 90 members representing 80% of Palestinian ICT firms in the private sector (Wihaidi, 2009).

- **Palestine Information and Communication Technology Incubator (PICTI)**

An independent organization that provides professional business services to entrepreneurs who have mature concepts for unique and innovative products and related ICT ideas assessed to have strong market potential (Wihaidi, 2009).

- **Palestine Chapter of the Global Internet Society (ISOC.PS)**

Nongovernmental organization that aims to advance and extend the development of the Internet and its use in Palestine. In addition, ISOC.PS aims to use the expertise of Palestinian professionals of the Internet and the Palestinian Diaspora for the advancing and maintaining of the Internet and its associated technologies and applications in Palestine (Wihaidi, 2009).

- **Palestinian National Internet Naming Authority (PNINA)**

PNINA aims to formulate the necessary registration policies for the Palestinian country code Top-Level-Domain (ccTLD), and to enhance the use of Internet in Palestine through appropriate policies (USAID, 2006).

- **ICT Centres of Excellence in Universities**

As we have mentioned earlier that universities are key player in the human resources development in ICT sector. Palestinian universities include centers of excellence like: Korean Palestinian IT Institute of Excellence (KPITIE) at An-Najah National University, Friends of Fawzi

Kawash IT Center of Excellence at Palestine Polytechnic University, Hasib Sabbagh IT Center of Excellence (HSITCE) at the Arab American University of Jenin, innovation center (NAIBac) at An-Najah National university etc.

3.3.3 The Structure of the Palestinian ICT Sector

According to PITA (2012), there are around 250 ICT firms in Palestine mainly located in Ramallah, Jerusalem and Gaza. Most of ICT firms are considered as Small and medium-sized enterprises (SMEs) which mainly oriented towards domestic market (Paltrade, 2014). Based on a survey conducted by Avasant (2013), which is a leading management consulting firm, on Palestinian ICT firms, 83% of ICT firms have less than 50 employees, while 13% have 50 to 100 employees and 4% have 500 to 1000 employees.

Palestinian ICT firms provide a wide range of ICT related services and products, ranging from software development (health programs and solutions, accounting and finance programs, education-related programs and solutions, entertainment programs, etc.) through telecommunications services and products (fixed and mobile phone lines, mobile applications, Internet services, etc.), hardware products (hardware assembly, or direct agents), ICT outsourcing, ICT consulting and training, office automation equipments, office support services, geospatial information systems, quality assurance and testing, advertising and marketing services, BPO,

web development and products to manufacturing ICT products (The staff of PMDP, 2014; Paltrade, 2014).

In the same context, OECD classified the ICT goods and services as following: (1) computer hardware, (2) telecom equipment, (3) telecommunications services, (4) software products, (5) manufacturing ICT goods, (6) diverse ICT components and goods, (7) leasing services for ICT hardware, (8) electronic equipment (radio, television, audio equipment, etc.), (9) IT consultancy and services and (10) other ICT goods and services (Avasant, 2013).

Based on the 2010 survey of ICT services and products that were implemented by PITA members, 32% of the firms are engaged in software development and 32% in hardware, whereas 16% are engaged in telecoms, 10% in consulting, and 10% in training (PITA, 2011). According to PITA (2012), 50% of Palestinian ICT firms provide software development, online and consulting services. In 2013, Avasant conducted a survey on ICT services and products were offered by ICT firms. Figure (3.5) shows the result, where the number above the bar represents the number of firms providing that type of ICT service. It is clear that software related services are the most services offered by the Palestinian ICT Firms.

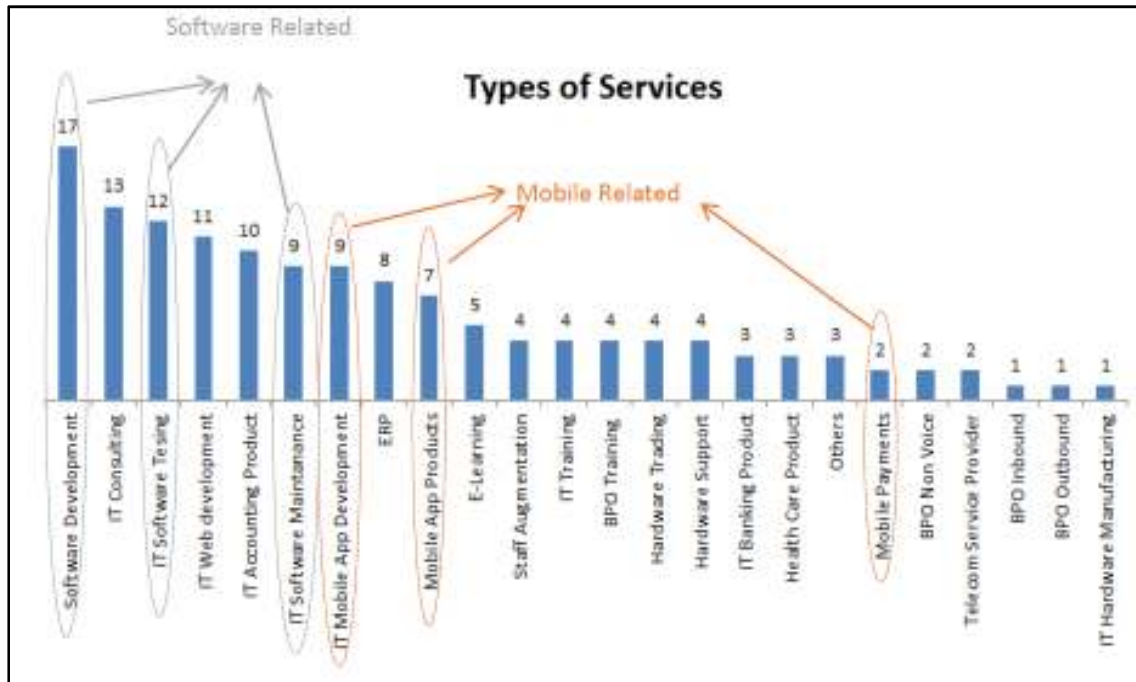


Figure (3.5): Types of ICT Services and Products Offered (Avasant, 2013)

3.3.4 Domestic Demand for ICT

ICT sector in Palestine provides many of its products as an intermediate product in other local service and industrial sectors. Based on Avasant (2013) report, these sectors including:

- Government and municipalities: which demand different types of ICT goods and services (geographic information systems (GIS) applications, document management system, telecommunication services and equipment, e-services, etc.).
- Banking, financial and insurance services: ICT plays an essential role in organizing of banking business, as well as in Palestine. Hence, ICT sector provides ICT solutions to the financial and banking services, such as ATM solutions, online payment, automation of business process, mobile apps, etc. The main challenge face Palestinian ICT

sector to target the local banking market is that most of the procurement of banking ICT solutions comes from Jordan.

- Higher education: Palestinian universities buy various ICT goods and services (e-learning systems, storage, budgeting system, network solutions, etc.) in order to reach to their students online and automate their process.
- Commercial agribusiness: demands different types of ICT goods and services (packaging technology, traceability software package for staff attendance and farmers, e-procurement, etc.) to compliance to international quality standards and increase the sector efficiency.
- Tourism: tourism sector demands different ICT goods and services (booking and reservation systems, mobile applications, virtual visits, online payment, application to control the work of tourism staff, etc.) to enhance its competitive advantage.
- Professional services: demand various types of ICT goods and services (document management solution, speech to text conversion, graphic design applications, GIS applications, etc.).

3.3.4.1 Availability of ICT Infrastructure

Based on PCBS data about the ICT tools, usage and access, it can be observed that there is a significant growth in the usage and demand for ICT goods and services in Palestine, at both individuals and institutional levels. Figure (3.6) shows that the percentage of households that own computer

increased from (32.8%) in 2006 to (63.1%) in 2014, as the percentage of households that have access to internet increased from (15.9%) in 2006 to (48.3%) in 2014, also the percentage of households who have at least one mobile phone increased from (81%) in 2006 to (97.8%) in 2014, while the percentage of households who have fixed phone line decreased from (50.8%) in 2006 to (39.8%) in 2014, due to the use of mobile phone and Internet service from different internet distributors (PCBS, 2006; PCBS, 2014).

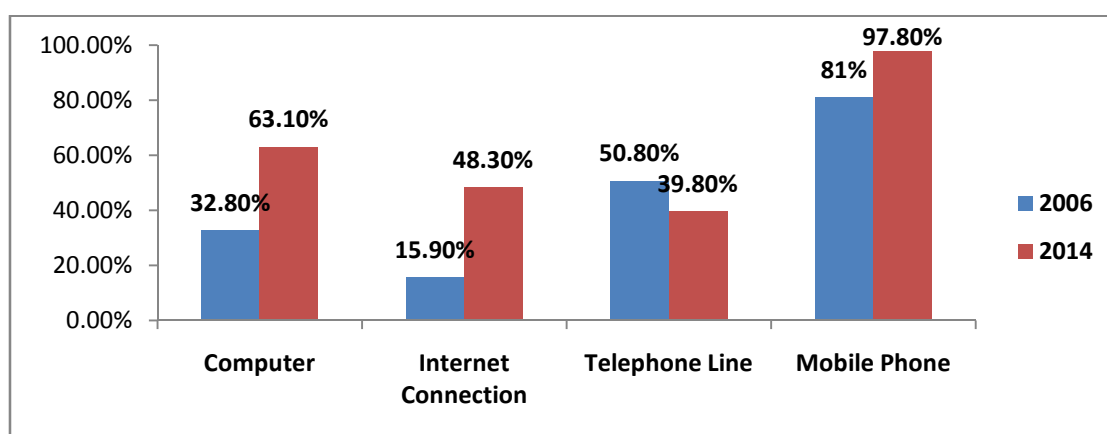


Figure (3.6): Percentage of Households in Palestine with Availability of ICT Goods and Services at Home (PCBS, 2006; PCBS, 2014)

With regards to the availability of ICT infrastructure in the Palestinian firms and based on statistical data from PCBS (2014), table (3.2) illustrates the main indicators for the use of ICT goods and services in the Palestinian firms in 2011. According to the usage of computer in Palestine, table (3.2) shows that 47.0% of the Palestinian firms used computer in 2011, of which 49.6% in the West Bank and 40.8% in Gaza Strip. In addition, the number of computers in Palestinian firms per 100 employees was 22.3 and the number of employees who use the computer per 100 employees was 47.9 at the same period.

As for the usage of the Internet, table (3.2) shows that 39.2% of the total number of Palestinian firms accessed Internet services, of which 41.3% in West Bank and 34.0% in Gaza Strip. West Bank has an advantage in the use of Internet compared with Gaza, due to the negative impact of instable political situation in Gaza which impedes the firm's ability to employ and develop ICT tools. Also the number of employees who are using the Internet per 100 employees was 42.9.

Regarding telecommunications, the number of telephones was 25.9 fixed telephone per 100 employees in Palestine in 2011 (26.4 fixed telephones in West Bank and 24.1 in Gaza). In addition, the number of mobile phones in firms per 100 employees was 40.2 mobiles at the same period of time.

As for electronic commerce, table (3.2) reveals that 11.2% of the total number of firms in Palestine carried electronic transactions in 2011 (10.8% in West Bank and 12% in Gaza). Also, only 4.8% of the total number of Palestinian firms had a website at the same period. Regarding research and development (R&D) in ICT, table (3.2) reveals that in 2011 only 2.5% of Palestinian firms engaged in R&D activities associated with ICT. The low rate of R&D in ICT is explained by that most of R&D in ICT is developed outside Palestine. However, the R&D sector is considered as the smallest economic sector in Palestine (Morrar, et al., 2014).

Table (3.2): Percentage of Main Indicators for the Use of ICT Goods and Services in Palestinian Firms, 2011

Indicator	Region		
	Palestine	West Bank	Gaza
Percentage of firms using computers out of total	47.0	49.6	40.8
Percentage of firms using Internet out of total	39.2	41.3	34.0
Percentage of firms using electronic transactions out of total	11.2	10.8	12.0
Percentage of firms having website out of total	4.8	5.2	3.7
Percentage of firms engaged in R&D in ICT	2.5	1.5	5.0
Number of computers in firms per 100 employees	22.3	21.5	25.0
Number of telephones per 100 employees	25.9	26.4	24.1
Number of mobile phones in firms per 100 employees	40.2	37.3	50.3
Number of employees who are using computer per 100 employees	47.9	52.6	31.7
Number of employees who are using the Internet per 100 employees	42.9	48.0	25.0
Number of employees who are ICT specialist per 100 employees	5.2	5.1	5.6

(PCBS, 2014)

3.3.5 SWOT Analysis for Palestinian ICT Sector

Based on the studies that were conducted by Avasant (2013), Paltrade (2014), The Palestine Economic Policy Research Institute (MAS) (2012) and Wihaidi (2009) about ICT sector in Palestine, we develop a SWOT (strengths, weaknesses, opportunities, and threats) analysis for the ICT sector in Palestine, that summarized the following key factors in term of:

➤ **Strengths**

The growth in the Palestinian ICT sector is being driven by many factors:

- The international fund or external financial and technical support, mainly from EU, USA and Japan.
- A wide variety of proven ICT goods and services supported by experienced and skilled human resource provided through local universities and educational system.
- Robust and accessible basic telecom infrastructure including ADSL, ISDN and leased lines which make the process of delivering ICT related services and deliverables easy.
- Established business relations with Israeli ICT firms.
- Low rate of labor turnover due to the context of high unemployment rates.
- The relatively lower labor costs than some competitors.
- The relative openness of the Palestinian society, which is important in building business relations with foreign countries.

➤ **Weaknesses**

However, Palestinian ICT sector still faces numerous internal weaknesses and obstacles hinder its growth:

- Lack of investment in ICT sector due to political instability and unawareness of the importance of ICT sector.
- ICT sector lacks the presence of comprehensive and harmonized legal and regulatory framework.
- International perception of development and security toward the region, in addition about the existing capabilities in Palestinian ICT sector which primarily limit IT services outsourcing to outside markets and limit the access to external markets for most ICT firms.
- ICT firms suffer from a lack of commercial and business skills such as marketing and sales skills, public relations skills and management competencies, as well as business development skills (Paltrade, 2014).
- Lack of knowledge of global market's trends and needs.
- Academic training is not enough to meet the needs of ICT sector, thus, there is a lack of professional readiness in graduates in specialties related to ICT.
- The lack of essential ICT penetration.
- Insufficient innovation and creativity.
- The small average size of ICT firms.

➤ **Opportunities**

The following are important opportunities for the development of Palestinian ICT sector:

- Availability of outsourcing capabilities but untapped completely.
- A pool of skilled and trained workforce.
- Significant donor projects can help jumpstart and accelerate growth in the ICT sector if proper policy is there.
- Proximity to Israel that may give Palestinian ICT sector an opportunity to benefit some software outsourcing operations.
- Increase competition in ICT sector due to shrinkage of government-induced monopoly in telecommunications.
- Strong demand for IT Outsourcing.
- The political situation especially the blocked on Gaza has contributed to make a very creative and innovative population to solve their problems.
- Geographical and cultural proximity to Arab and European markets creates potential for providing outsourcing activities.
- Palestinian Investment Promotion Agency (PIPA) offers tax breaks to ICT firms based on number of firm's employees instead of the size of its capital investment.
- Reverse brain drain in the long run, therefore they could bring back their expertise in ICT to Palestine and may establish new firms.
- International investments like Cisco and the presence of multinational companies initiatives.

➤ **Threats**

Despite the available opportunities for Palestinian ICT sector, it faces some threats that affect sector development, some of these threats are:

- Instable political situation which leads to immigrate investment to other stable areas, constrains economic development and hinders the movement of products and people.
- Lack of enforcement of policies and regulations, such as less seriousness to enforce intellectual property rights protection.
- Loss of highly-qualified ICT individuals due to ICT brain drain abroad.
- Israeli control of some telecommunications infrastructure such as the Israeli refusal to allow Palestinian mobile operators to have three and fourth generations (3G and 4G) access of mobile services and other transmission frequencies and international gateways.
- Economic recession due to financial crisis and colonial measures of Israeli occupation.
- Lack of awareness among governmental bodies of the importance of the creation of a knowledge-based economy and give it a low priority.

Moreover, the ICT sector's weaknesses can be related to the lack of capacity of MTIT, to influence the evolution of the sector, low level of most ministries' commitment to ICT initiatives and low government's

prioritization of the creation of knowledge-based economy (International Trade Center, 2014).

3.4 The Competitive Advantage of the Palestinian ICT Sector

The Palestinian ICT sector has experienced a high growth since 1994 along with the growth in other economic sectors and the increased demand for goods and services from the consumers, accompanied with the positive indicators for political stability mainly after Oslo agreement in 1993, and after 2008 which experienced the launched of Prime minister Salam Fayyad economic plan. The effect of ICT sector not limited to the sector himself but expanded to the other economic sectors through the creation of ICT solutions needed to improve these industries resulting in increased value added and the demand on its services, therefore increased its contribution to GDP (Wihaidi, 2009).

According to Wihaidi (2009), some ICT firms started exporting their product to external market, especially with software solutions. They have established partnership with different countries in other mainly in the Arabic region (Jordan, United Arab Emirates (UAE), Iraq, Saudi Arabia and Yemen). In addition, some ICT firms serve customers in the US and Europe. According to Paltrade (2014) report, in 2012 the revenues of Palestinian ICT sector were estimated to range from \$350 million to \$1 billion, while its exports are estimated to range from \$20 million to \$50 million at the same period. In 2006, some of Palestinian ICT firms had built business partnerships and had succeeded in exporting ICT services and

products in regional markets, such as: Saudi Arabia, Jordan, Yemen, UAE and Iraq (USAID, 2006).

Meanwhile, the domestic market remains the major consumer of ICT goods and services. Palestinian ICT sector faces strong competition locally from international firms mainly Israeli ICT firms, accompanied with high competition to reach foreign markets.

ICT sector in Palestine own a competitive advantages in local market in comparison with other economic sectors, this is due to its elasticity to the political situation due to the nature of ICT product which descriptive by intangibility and invisibility, and also considered knowledge-based dependent on technological infrastructure rather than physical infrastructure, thus it was more resilient than many other sectors (USAID, 2006).

According to Wihaidi (2009), the main competitive advantages of the Palestinian ICT sector are:

- Abundance of graduating students in ICT.
- Diversity of ICT workforce specializations (management information systems (MIS), software languages, networking, etc.).
- The labor cost is relatively low compared with other markets (the average salary of employee per month is US\$ 650 in Palestine, compared to US\$ 800 in Jordan, US\$ 700 in India, US\$ 1200 in Lebanon, US\$ 3,000 in Israel and US\$ 500 in Egypt).

- Wide range of ICT companies specialization which ranging from software, hardware and office equipment, Internet and telecom, multimedia, training to consultancy.

According to diagnostic survey with 20 of Palestinian ICT firms, the study showed that firms believe it is gaining their current competitiveness due to their common business language, their geographic location, their low labour costs, their low input costs and their innovation capabilities. By contrast, surveyed firms didn't believe that quality standards, exchange rate, time zone, labour legislation, quality of labour, turnaround time, design and development competencies or advantageous trade agreements contributed in building significant competitive edges. While they agreed that they are not competitive for the political conflict, lack of IPR protection and disadvantaged at logistics (Barreto et al., 2013).

3.5 Outsourcing in Palestine

ICT firms started their work in the West Bank and Gaza in the early 1980's, with hardware retailing and other basic services. After that, they started to provide software solutions to local companies and hospital. Recently, the ICT firms expand their goods services to include: (1) telecommunications, (2) software industry solutions and packages and (3) web products (MAS, 2012).

Outsourcing has become a key activity in Palestine, recently Palestine becomes one of the attractive destinations for providing outsourcing activities for different markets (domestic markets and foreign

markets) and particularly for multinational enterprises (MNEs), this related to its geographical and cultural proximity to Europe, the Arab World and Israel (MAS, 2012). In the last 10 years, outsourcing activities becomes popular in the Palestinian ICT firms. Nowadays, Palestinian ICT firms have relationships with other firms in Israel, approximately 32% of Palestinian ICT firms have common activities with Israeli firms through outsourcing and sales agreements, while 50% of them have external relationship with foreign markets in a form of outsourcing (Ackerman, 2011; MAS, 2012). Several multinational firms outsource software development to Palestinian firms in order to take the advantage from lower labor costs, vast talent pool and lower attrition rates than doing it in-house (Gaza E-Consulate, 2015), such as Cisco, Microsoft, HP and other MNEs that have successful experiences with outsourcing business to Palestinian ICT firms (Paltrade, 2014). In 2008, Cisco was one of the first firms that outsource work to less expensive Palestinian firms, such as Asal technologies and Exalt technologies, which helped jump-start the growth of Palestinian ICT sector and expanded the MNEs solutions outsourcing industry in Palestine (Cisco, 2012). Cisco supported the growth of Palestinian ICT sector by the investment of US\$ 15 million in the sector in order to encourage its R&D teams to outsource to Palestinian firms (Paltrade, 2014).

According to The staff of Palestinian Market Development Programme (PMDP) (2014), the Palestinian ICT firms provide three main

types of services to the Multinational Enterprises (MNEs) Solutions Market (the global industry) as seen in the following points:

1. Team augmentation: is an outsourcing strategy that is used to provide staff in order to expand teams for companies. This service accounts about 40-45% of the total outsourcing in Palestine.
2. Unit software coding and testing product delivery: aims to Provide writing code for software solutions and contract services for quality assurance for programs developed elsewhere. This service accounts about 40-45% of the total outsourcing in Palestine.
3. End-to-end product development: contacting with the end-user and providing the full range of functions for ICT development. This service accounts about 10-20% of the total outsourcing in Palestine.

3.5.1 Outsourcing Obstacles in the Palestinian Market

According to PMDP (2014), one of the main sources of the factors that constrain the growth of Palestinian ICT services to global markets, specially MNEs is the limited ability to manage a full project due to limited project management skills and other management skills in Palestinian ICT firms. For this reason, this research is significant to address the topics that related to outsourcing risk management and to develop risk management framework to enhance outsourcing risk management practices in ICT firma in Palestine.

Moreover, lack of awareness of Palestine as an outsourcing destination, which holds outsourcing capabilities among international buyers, is another major constraint for outsourcing to Palestine. Many of international buyers of outsourcing capabilities and MNEs are relatively unaware of the outsourcing capabilities and advantages of Palestinian ICT firms. On the other hand, many of international buyers, who are aware of Palestine as outsourcing destination are likely to be reluctant to enter into contracts with Palestinian firms because they have a poor perception of Palestinian firms, including: (1) they perceive that Palestinian firms have few qualified engineers and (2) they perceive Palestine as a region that suffers from conflicts and high political risk and consequently unreliable to do business in (Paltrade, 2014).

A global survey of 368 international buyers of outsourcing capabilities, which was conducted by Cisco, revealed that 55% of the respondents are unaware of Palestinian ICT outsourcing capabilities, while 45% of them are aware that Palestine holds outsourcing capabilities. Only 15% of these have already outsourced to Palestine (Cisco, 2012). (See figure (3.7))

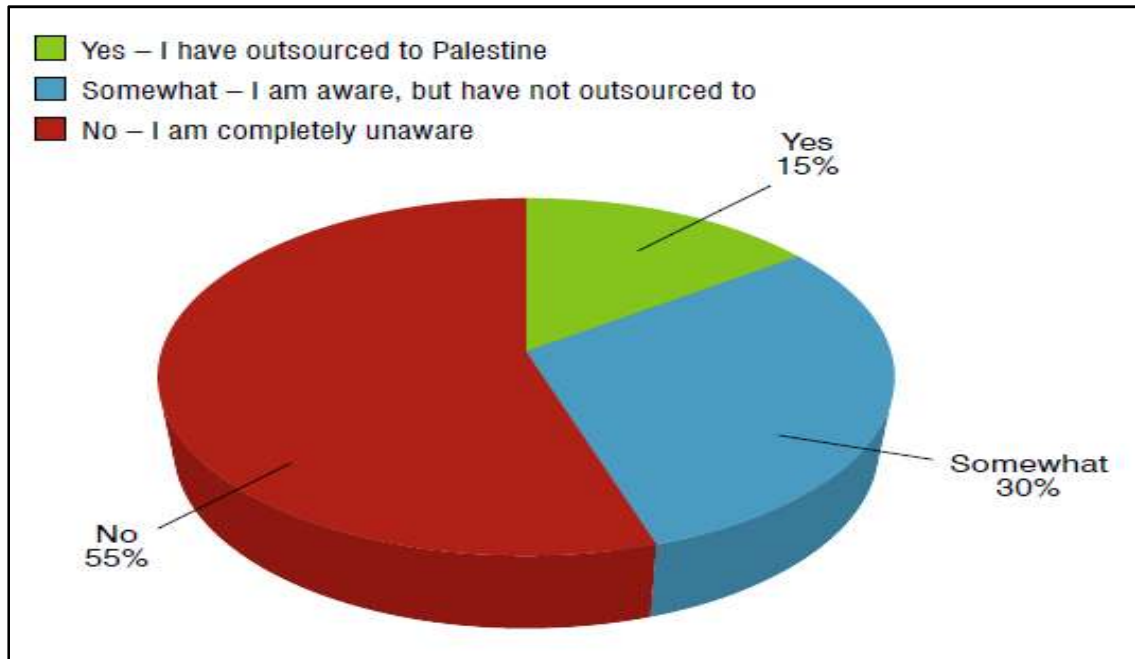


Figure (3.7): Awareness of Palestinian IT Outsourcing Capabilities Among International Buyers (Cisco, 2012)

All the above are substantial constraints on the development of Palestinian ICT sector and its ability to reach international markets, thus more efforts required to improve the sector and the awareness of international buyers to change their negative perception about Palestinian ICT sector capabilities. According to Paltrade (2014), the ICT focus group recommended launching branding campaigns which targeted international buyers to change their perceptions. Moreover, Barreto et al. in their Diagnostic study in 2013 recommended that the Palestinian education system should be reformed to improve the quality of learning such as critical thinking, creativity and problem solving.

Based on Paltrade (2014) survey, it can be concluded that Palestinian ICT firms need to improve their business skills (communication skills, sales skills, marketing skills, innovation skills, project management skills, etc.) through access to management and marketing training and classes. In

addition, marketing and management courses should be systematically delivered to universities' ICT students.

3.5.2 Palestine's Main Competitors

As an industry, ICT is a global industry which is considered one of the fastest growing industries around the world, where there are many competitors who are available or potentially to appear everywhere. According to a survey of 20 Palestinian firms in the 2013 Diagnostic Study about their major ICT competitors in the foreign market, the respondents have identified Egypt, Israel, Jordan, the UAE (Dubai), Lebanon, the Syrian Arab Republic, the United Kingdom, Romania, Ukraine, Poland, and Serbia in Europe, Bangladesh and India in Asia and the United States as the major ICT competitors (Barreto et al., 2013).

The global management consulting firms A. T. Kearney has used an index to rank the top 50 countries around the world as the top destinations for providing outsourcing activities. Based on its report in 2011, it is apparent that the Middle Eastern and North Africa (MENA) countries became more attractive as a destination for providing outsourcing activities due to its proximity to Europe and the pool of skilled people. In addition, the report showed different Palestine's main competitors as the top 50 countries while Palestine is still not one of them, therefore it should properly brand its ICT sector (A.T. Kearney Consulting, 2011). In spite of Palestinian ICT competitive advantages that have been mentioned previously comparing with its direct competitors, Palestinian firms still

face difficulties competing because they have insufficient technical, project management, marketing and other business skills. Moreover, the political situation plays a key role such as the Israel refusal to allow Palestinian mobile operators to access 3G and 4G (Paltrade, 2014).

Chapter Four

Research Methodology

Chapter Four

Research Methodology

4.1 Chapter Overview

Research methodology is defined as a philosophy or general principle that describes how the researcher is going to do in his study and guides him (Dawson, 2002). In the previous chapters, the researcher introduced a literature review, which addressed various topics related to outsourcing risk management as the first source of data and information in this research. Moreover, a convenient research methodology is needed to test the research hypotheses and answer its questions.

As we have mentioned previously, the main objective of this work is to develop a framework for risk management through outsourcing life cycle in the West Bank's ICT sector, from a provider perspective of view.

This chapter provides the methodological approach that has been followed by researcher to explore the current outsourcing risk management practices that are adopted in the West Bank's ICT firms. A description of data collection techniques is also addressed.

As Kumar (2008) and Wiid and Diggines (2010), research steps were followed, in this thesis, the researcher followed a sequence of steps to collect the data and to solve the research problem as shown in figure (4.1). Firstly, the researcher observed and defined the research problem, then the research objectives and research design, followed by the collection of secondary data, define the hypothesis, design the questionnaire, sample

selection, conduct the survey, data analysis and finally the result interpretation.

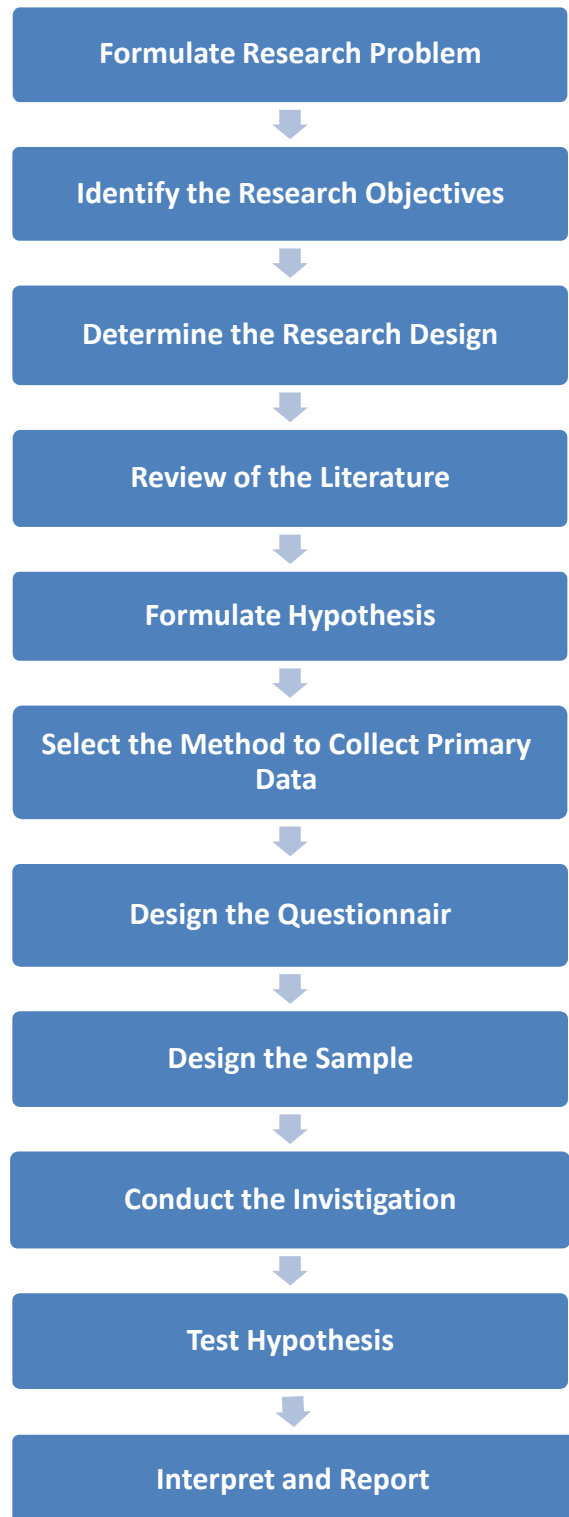


Figure (4.1): Research Steps followed by Research (Kumar, 2008; Wiid and Diggins, 2010)

4.2 Research Design

Jaikumar (2014) defined the research design as a master plan or a blueprint for the research project that is used to specify the procedures and methods for collecting and analyzing the data in a research study. Research projects can be classified into three basic types: exploratory, descriptive and causal (Wiid and Diggines, 2010).

Exploratory research is conducted to identify and discover new experience, phenomenon, opportunity, new understanding, and to help the researcher for collecting data and gaining greater understanding of the research problem (Wiid and Diggines, 2010; Brink and Wood, 1998). This type of research sometimes is considered as a pilot studies (McNabb, 2015). It is conducted through different common approaches: reviewing available literature, conducting personal interviews with key informants, focus group interview sessions and surveying a random small-sample which is called pilot survey (McNabb, 2015; Saunders et al., 2003).

Descriptive research tends to provide an accurate description of the phenomena in real life situations with respect to important variables, and what exists to justify current practices (Burns and Grove, 2011). It aims to obtain information used to demonstrate associations or relationships and to devise hypotheses (Monsen and Horn, 2007). Generally, any measurable variables can be used in descriptive research, such as demographic characteristic, opinions, attitudes, characteristic of families, firms, groups etc. (McNabb, 2015).

While, *causal research* is used to testing hypotheses and assesses the relationships between variables which is important to a subject (Shi, 2007). The purpose of causal research is to establish cause and effect relationships among the dependent and independent variables (Wiid and Diggines, 2010).

In this work, both an exploratory research and a descriptive analytical approach were used. Exploratory research is used to explore the conceptual framework to manage outsourcing related risks in the West Bank's ICT firms. While, the descriptive work is used to describe and understand to what extent the West Bank's ICT firms are applying outsourcing risk management, and to understand existing mitigation actions that reduce the effects of outsourcing related risks facing ICT firms in the West bank.

4.3 Research Methodology Paradigms

Johnson and Christensen (2010) identified research paradigm as a set of shared practices and techniques which is shared by a community of researchers and which determine your research procedures. In general, there are three major research paradigms: quantitative research, qualitative research and mixed research.

Qualitative research is a type of research that focuses on words rather than numbers in data collection and analysis (Bryman and Bell, 2015). Such research is concerned with accessing deep understanding

which means it focuses on depth rather than breadth (Blaxter et al., 2010). There are many techniques and methods used in qualitative research, which include open-ended questions, interviews, document data, focus groups, observations and text and image analysis (Creswell, 2003).

Quantitative research is a large scale survey research which focuses on numerical measurements and amounts (Thomas, 2003), and depends on numerical measurements using statistical methods. Generally, quantitative research is more oriented to causal and descriptive researches than exploratory research. Thus, it aims to test hypotheses, make general description, look at relationships between phenomena and make prediction (Shukla, 2008). Closed-ended questions, structured interviews and predetermined response choices such as questionnaires are considered as quantitative methods which use to apply statistical analysis (Dawson, 2002).

While *mixed research* is a type of research that combines quantitative and qualitative approaches together in a single research, in order to take advantage from the strengths of each approach and minimize their weaknesses (Spratt, 2004).

In this work, the researcher used quantitative method approach in the data collection. The structured questionnaire was used as quantitative method to collect valid data. Inside the quantitative method, literature review and pilot study are used to benefit from expert's opinions.

4.4 Research Methodology Process

This research adopts the methodological framework described in figure (4.2), which divides the research methodology into five main steps as following:

Step one: conduct a literature review

A literature review is considered as the foundations upon which new researches can be built. A literature review therefore is one of the most significant parts of any academic research (Oliver, 2012). The main purpose of the literature review is to establish what previous researchers have been conducted about the risk associated with outsourcing, to feed our understanding and to gain insight of previous research, both for developing and refining research framework. In this research, the researcher reviewed previous studies, the internet sites, books, journal papers, articles and annual reports as a literature sources.

Step two: empirical survey and data collection

Empirical survey depends on observation of reality, which derived data from social respondents through survey questionnaires or interviews (Dahlberg and McCaig, 2010). The researcher conducted the survey through questionnaire to obtain the required information needed to address outsourcing risk management in Palestinian ICT firms, and outsourcing related information to complete this work. The respondents were given a detailed questionnaire to answer.

Step three: data analysis

Data was processed and analyzed using the Statistical Package for the Social Science (SPSS), which consistent with such data and prospected results.

Step four: a framework development

Based on research findings, the researcher developed a framework for risk management of outsourcing for the West Bank's ICT firms. The framework consists of outsourcing risk management practices that were divided into general risk management principles that applied continuously through outsourcing life cycle, and outsourcing risk management activities that applied at each phase of outsourcing process (pre-contract, contract, and post-contract phases), from the provider's point of view.

Step five: conclusions and recommendations

Based on data analysis, the researcher finished this work by the conclusions and recommendations. Also some suggestions for future work are submitted to go further in outsourcing risk management processes either in ICTs sector or other economic sectors.

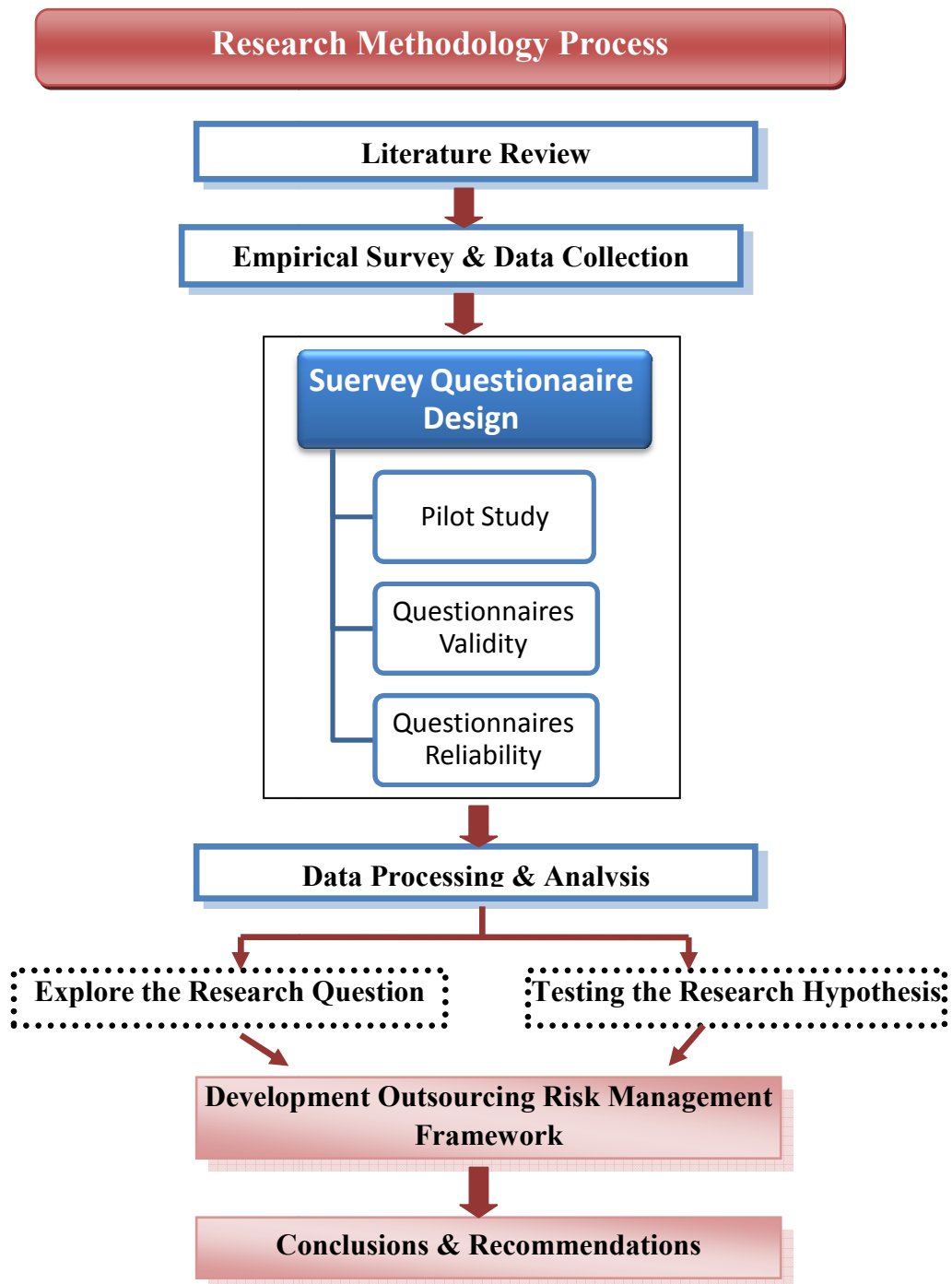


Figure (4.2): Research Methodology Diagram

4.5 Research Data

Research data can be divided into primary data, which is collected by the researcher for his/her own research project, and secondary data, which has been collected by others for another purpose and then has been made

reachable for reuse in other research projects (Kara, 2013). A secondary data may be an excellent way of finding overview and background and exploring a research questions in order to give justifications and foundations for your own research project (Kara, 2012). In this research, the data used were both primary and secondary data.

- Primary data: this type of data was collected through structured questionnaire which was distributed to ICT firms.
- Secondary data: is the data collected by reviewing the literature, which including internet sites, books, journal papers, articles and Palestinian Statistical Center reports.

4.6 Research Population and Sample Size

4.6.1 Population

Our target population in this study is the Palestinian Information and Communications technology (ICT) firms in the West Bank, which provide information and communications related services and products to their clients in other sectors. The client companies include: governments, municipalities, universities, hospitals, banks, and other companies etc., which are located inside or outside Palestine.

4.6.2 Sample Size

According to Palestinian Central Bureau of Statistics (PCBS) (2013), the Palestinian ICT firms were accounted to 633 firms in the West Bank and 305 firms in Gaza. In this research, the targeted population is limited

with ICTs firms in West Bank, which have three employees or more. we excluded firms which employ less than 3 employees to ensure that they have sufficient experience in the field of ICT and they deal with outsourcing contract. The number of West Bank's ICT firms with 3 employees or more is only 284 firms which is our targeted population¹.

For determining the sample size for this research, the researcher applied the following equations (Kapoor, 2010):

$$n = ss / (1 + (ss - 1) / N)$$

Where:

- n = correction for limited population (the final sample size)
- N = population
- ss = sample size

to calculate the value of ss , the following equation is used:

$$ss = (z^2 * p * (1 - p)) / \varepsilon^2$$

Where:

- z = Z value (e.g. if the confidence level=95%, the Z value is 1.96)
- p = percentage picking a choice (0.5 used)
- ε = maximum error (0.05)

¹ Contact Musaab Abu baker from PCBS

the results based on applying the two equations are:

$$ss = \frac{(1.96)^2 * 0.5 * (1 - 0.5)}{(0.05)^2} = 384.16 \quad n = \frac{384.16}{1 + \frac{384.16-1}{284}} = 164$$

Based on the above equations, the sample size was 164 ICTs firms. The sample including senior managers, project teams, project managers and executive managers with experience about IT outsourcing and those have been involved in outsourcing contract. However, only 150 valid questionnaires were returned and analyzed in this study. The response rate for this survey was 83% which is considered acceptable response rate.

4.7 Empirical Survey and Data Collection

Survey methodology depends on asking respondents questions in order to measure variables and test relationships between them. According to many researchers, the survey used one, or some combination of two, instrument(s): interviews and questionnaire (Coldwell and Herbst, 2004). This work depends on structured questionnaire as data collection method, which was applied to meet the research objectives.

4.7.1 Structured Questionnaire

The structured questionnaires are the most commonly research method, which are used in large scale descriptive study (Bechhofer and Paterson, 2012). The questionnaire is usually used to gather data and information which achieve the research objectives through a sequence of

closed-ended questions, which allow the targeted audiences to choose an appropriate answer from a list of choices (Nunamaker, 1991).

To design a structured questionnaire has many advantages like the efficient use of time to do the research, providing standardized questions to all participants with a common meaning and providing an ideal method for statistical descriptions in quantitative research (Bechhofer and Paterson, 2012). On the other hands, structured questionnaires face different disadvantages such as the pre-coded answer choices may not be appropriate and not represent the views of respondents in the right way, moreover, the researcher sometimes faces delay in getting results or low response rate (Bowling and Ebrahim, 2005; Kumar, 2008). It is important to denote that the questionnaire survey can be conducted through different methods such as through the mail, by the Internet using web applications, by telephone or distributed face to face (Wiid and Diggines, 2010).

In this study, structured questionnaire was conducted to collect relevant data and information from top managers, risk manager, project managers and engineers in ICT firms. We used face to face contact with the ICT firms to fill the questionnaire. Face-to-face survey distribution returns a higher response rate than other methods (Dahlberg and McCaig, 2010).

4.7.1.1 Design of the Questionnaire

According to Wiid and Diggines (2010), the first and the most important step in the questionnaire design is to identify what variables must be measured and who are the respondents. Thus, the questionnaire design is

important to ensure it covers all the research questions, hypotheses and concepts to achieve the research objectives and obtain accurate results.

According to Coldwell and Herbst (2004), there are several tips for effective questionnaire design which include: using closed-ended questions rather than open-ended questions, the questionnaire design should look simple and easy to fill in, using ticking boxes rather than putting a circle on appropriate answers and parts of the questionnaire should be ordered in a logical structure.

The questionnaire in this study was designed and conducted based on a deep literature review. The researcher owns experience as well as the recommendation from supervisor and local experts in risk management and outsourcing. Research questionnaire was divided into four parts, where each part addresses an aspect of the study, which contributes to reach the research objectives and to develop the research framework.

These parts include:

Part one of the questionnaire which comprises:

- Cover letter, which includes: brief description of outsourcing definition, purpose of the research and the questionnaire, and promises to use the information just in academic research. This section aims to make the questionnaire easy to be understood by participants who read and fill in.
- Demographic information about participants and ICT firms, which includes: the participants' gender, the educational level, years of

experience in ICT field, firm's geographical location, type of firm, firm's market segment, participant's position, firm's revenue, number of firm's employee, ICT related services/products provided by ICT firm and type of firm's outsourcing contract. This information is important to know the nature of respondents and their ICT firms, moreover it could be used for more research purpose.

Part two of the questionnaire which:

Aims to assess the risk management practices through outsourcing life cycle among the West Bank's ICT firms, and assess the ability of the firm and its success in building a strategic outsourcing relationship with the clients firms. This part consists of four sections:

- The general risk management principles through outsourcing life cycle, which includes 14 items.
- The outsourcing risk management elements during pre-contract phase, which includes 7 items.
- The outsourcing risk management elements during contract and post-contract phases, which includes 9 items.
- Building strategic outsourcing relationship factors, which include 9 items.

In the first three sections of this part, the respondents were asked to assess and rate their firm's practices of outsourcing risk management,

according to their practical experience in such firms and their own opinion. A five-point Likert scale was used in all questions, thus the responses ranged between not at all (1), a slight degree (2), a moderate extent (3), a great extent (4) and a very great extent (5). Moreover, the fourth section in this part used a five-point Likert scale ranging from poor (1) to excellent (5).

Part three of the questionnaire which:

Illustrates the main risk factors of outsourcing in ICT firm. This part consists of three sections:

- Outsourcing pre-contract phase related risk factors, which includes 11 items.
- Outsourcing contract phase related risk factors, which includes 8 items.
- Outsourcing post-contract phase related risk factors, which includes 15 items.

The respondents were asked to rank the risk factors of outsourcing, according to their experience in outsourcing in ICT sector. The ranking has been done according to three considerations: the likelihood of risk factors, their impact and their difficulty to mitigate. A five-point Likert scale was used which ranged between very low (1), low (2), medium (3), high (4) and very high (5). The purpose of this part is to identify the main risk factors of outsourcing in ICT firms, and to do risk assessment. For this purpose, the researcher used risk priority number (RPN) as a measurement to prioritize

the risk, which is useful for helping the risk management team to decide how to allocate the limited resources among the most important problems.

RPN is a numerical measurement or ranking of the potential risk, which is made up of the product of the three rating elements: severity of the risk (S), occurrence of the cause (O) and detection (D) (Carlson, 2012). RPN is used to assess risk, such as, risk with longer RPN value means it has more priority and its more critical (FMEA-FMECA, 2006).

Part four of the questionnaire which:

Aims to identify the risk mitigation actions which would contribute to the reduction of the impact of outsourcing related risk, and to identify the key success factors of outsourcing in ICT firms. This part comprises of:

- Risk mitigation actions, which includes 14 items.
- The key success factors of outsourcing, which includes 14 items.

All items in this part were ranked by using a five-point Likert scale ranging from affects with little degree (1) to affects with very large degree(5).

All the questionnaire's items in each section used a five-point Likert scale, which is suitable to make statistical analysis of the responses. According to (Brace, 2008), Likert scale is a rating scale technique which was first published in 1932 by Rensis Likert.

4.7.1.2 Pilot Study

Even if the researcher follows all the guidelines and the rules for developing effective questionnaire questions, the pilot study is still important to make pre-test of the initial forms of survey questions which aims to identify the weaknesses in the questionnaire design, and improve the clarity of questionnaire questions (Thomas, 2003). A rough draft of survey questions is tried out with a small; non-random of respondents in order to see if it has any ambiguity that has not been noticed by the researcher, moreover, to ensure it obtains the information which is required in the study (Dawson, 2002; Schwester, 2015).

The pilot study in this work was implemented using online questionnaire which was distributed via email to nine experts, in order to find out if it is easily understood and to ensure that the questions are clear and easy to answer without any confusion. In addition, a copy of the questionnaire was sent to the supervisor of this research for the same purpose. The researcher asked the selected evaluators to forward any feedback or comments about the initial questionnaire. Based on the received comments, the questionnaire was revised and modified to be at the final revision (see Appendix-A). The questionnaire was translated from English language to Arabic language (see Appendix-B), to increase the responding rate. According to (Coldwell and Herbst, 2004), it is important to translate the survey questions into the language of respondents, to be clear and easy to answer. To increase the response rate, the researcher

conducted a pre-survey phone calls to ask the target ICT firms if they are willing to answer the questionnaire's questions, and when the researcher can send it, whereas the respondents are free to fill in.

4.8 Research Validity

Determining the validity and the reliability of the research instrument is important to determine how much to rely on the research results, thus it's a critical phase in the research process (Wood and Kerr, 2010). Validity refers to the ability of the research instrument to measure what it is supposed to be measured, also it indicates the degree of accuracy of the instrument (Schwester, 2015; Wood and Kerr, 2010). For this research, the questionnaire validity was examined through the following methods:

- Face validity: at the beginning of the study, the researcher developed the questionnaire's questions which are relevant to the research subjects. After that, the researcher reviewed the questions to determine if they are appropriate to find out what the researcher wants to find out. This method is considered as the lowest level of instruments validation (Wood and Kerr, 2010).
- The research questionnaire was derived mainly from the reviewing of the literature and secondary data sources which are relevant to the research topics.
- The questionnaire was distributed via email to nine experts, in order to find out if it is easily understood and to ensure that the questions are clear and easy to answer without any confusion (pilot study).

4.9 Research Reliability

Reliability is also a fundamental stone for evaluating research instrument. Therefore, the term reliability refers to the consistency and stability of the research instrument, hence leading to increase the degree of accuracy and predictability (Kumar, 2011). A test is considered reliable if it gives the same result, when repeated over time under constant conditions (Trochim, 2006). There are different ways of estimation the reliability of a research instrument:

External reliability procedures, such as:

- Inter-rater reliability: using different rater to estimate the same phenomena, which aims to assess the degree of consistency between the different estimations. This procedure is good to do as a pilot study (Trochim, 2006).
- Test-retest: aims to assess the consistency of an instrument from time to time, under the constant conditions (Kumar, 2011).
- Parallel forms: aims to assess the consistency of the results that obtained from two instruments for the same populations, under the same phenomena (Kumar, 2011).

Internal reliability procedures: aims to assess the consistency of the produced results across different items, which is measuring the same phenomena. There are various of statistical procedures, that are used to

measure the internal consistency such as Cronbach's Alpha test (Trochim, 2006).

In this research, Cronbach's Alpha test was used to assess the internal consistency across items within the questionnaire as shown in table (4.1). Therefore, this test is useful to check the questionnaire reliability. Cronbach's coefficient alpha value (α) ranging between 0 to 1 (Burns and Grove, 2011).

Table (4.1): Cronbach's Alpha for Reliability Test

Cronbach's Alpha (α)	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

(Farrell, 2012)

According to table (4.2), the Cronbach's Alpha values are ranging between 0.877 and 0.947 and all the variables of the questionnaire are above 0.7, that indicates a high level of internal consistency for the questionnaire. Thus, the research's scale is reliable.

Table (4.2): Cronbach's Alpha Coefficient of the Questionnaire

Item	Number of Items	Cronbach's Alpha coefficient (α)	Internal Consistency
General risk management principles	14	0.945	Excellent
Outsourcing risk management during pre-contract phase	7	0.920	Excellent
Outsourcing risk management during contract & post-contract phases	9	0.924	Excellent
Building strategic outsourcing relationship	9	0.927	Excellent
Pre-contract phase related risk/ the impact	11	0.882	Good
Pre-contract phase related risk/ the likelihood	11	0.877	Good
Pre-contract phase related risk/ difficulty to mitigate	11	0.884	Good
Contract phase related risk/ the impact	8	0.877	Good
Contract phase related risk/ the likelihood	8	0.902	Excellent
Contract phase related risk/ difficulty to mitigate	8	0.893	Good
Post-contract phase related risk/ the impact	15	0.947	Excellent
Post-contract phase related risk/ the likelihood	15	0.940	Excellent
Post-contract phase related risk/ difficulty to mitigate	15	0.937	Excellent
Risk mitigation actions	14	0.934	Excellent
Success factors of outsourcing	14	0.920	Excellent

4.10 Research Limitations

- ✓ The study sample is limited to Palestinian ICT firms that located in the West Bank only.
- ✓ The current political situation and the Israeli barriers that impede access to the Palestinian cities and their ICT firms.
- ✓ Lack of prior research addresses the outsourcing related risks from the provider's point of view, compared with research about the same topic from client's point of view.
- ✓ Dealing with ICT firms is not easy due to security issues and need more effort from the researcher to get information.

Chapter Five

Data Analysis

Chapter Five

Data Analysis

5.1 Chapter Overview

Data analysis is defined as the process of gathering, classifying, tabulating, manipulating and testing of collected data about relevant aspects, in order to discover meaningful results that support decision maker (Monette et al., 2013; Yin, 2003). This part includes the data analysis in order to answer the research questions, and to obtain results and recommendations. The computer software SPSS was used to analyze the data, it is highly consistent with this kind of statistical analysis (see Appendix-A).

This chapter firstly discusses population characteristics (demographic variables). After that, descriptive statistical methods are addressed in order to answer the research questions. At the end of this chapter, the research hypotheses are tested using mainly the bivariate correlation analysis.

5.2 Respondents' Characteristics

This section aims to describe and analyses the data concerned with the respondents' demographic variables.

5.2.1 Respondents' Gender

Figure (5.1) shows that males represent around 73% of respondents, while only 27% were females. This result might be consistent with the female ratio in Palestinian labor market.

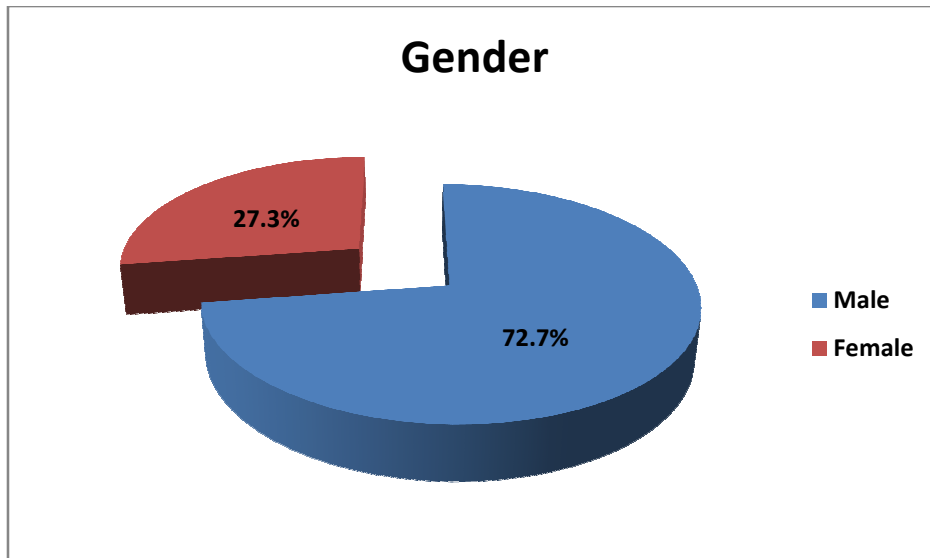


Figure (5.1): The Distribution of Respondents' Gender

5.2.2 Respondents' Qualification

Figure (5.2) shows that the majority of respondents have a bachelor degree with 74.7%, whereas only 12.7% of them have a diploma degree and the same percentage for a higher education degree. This is a good indicator of the ability of respondents to response the questionnaire's questions easily and in a right way.

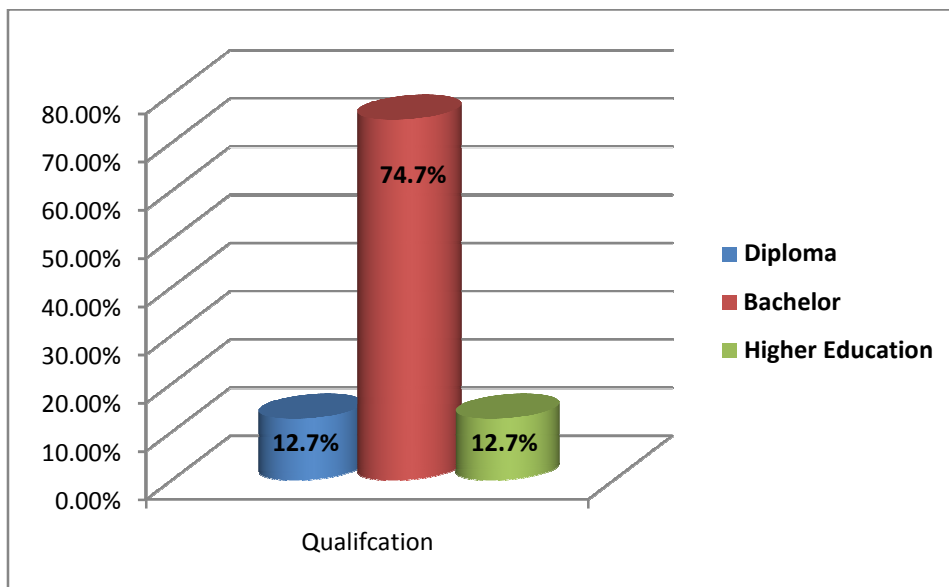


Figure (5.2): The Distribution of respondents' Level of Education

5.2.3 The Experience of ICT Firms in Palestine

As shown in figure (5.3), 57.3 % of the respondents have at least five years of working experience in ICT sector, while 42.7% of the them have less than 5 years of experience. This indicates that the respondents have a good experience in ICT sector which allow for them to answer the questionnaire fairly and so enhance the validity of data.

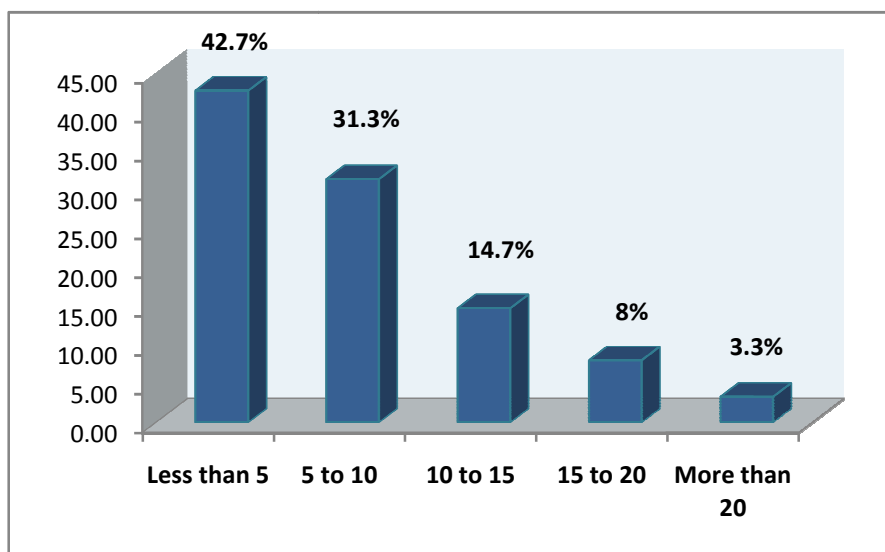


Figure (5.3): Respondents Experience

5.2.4 The Location of ICT Firms

It's clear from figure (5.4) that 33 % of the ICT firms are located in Ramallah, 16.7% are located in Nablus, 15.3% in Hebron, 10% in Jerusalem, 7.3% in Toulkarm, 6% in Bethlehem and only 2.7% in Jenin. This result is consistent with the USAID report issued in 2006, which shows that the majority of ICT sector and its associated market demand are concentrated in Ramallah and Jerusalem areas (USAID, 2006).

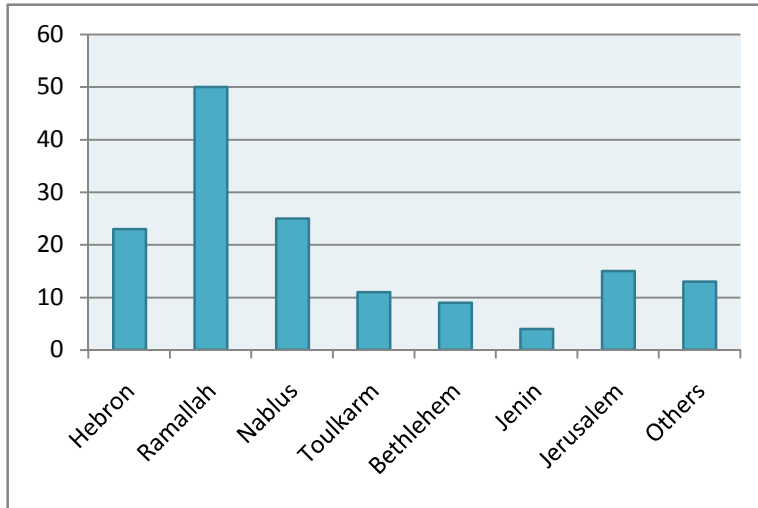


Figure (5.4): The Location of ICT Firms

5.2.5 Types of ICT Firms

Firms in ICT sector are classified into a group of subsectors based on the activities that firms apply. Each firm can be classified under one or more types. As shown in figure (5.5), 28% of the participating firms are suppliers of computers/ communications/ electronic equipments firms, 36.7% are telecommunications firms, 9.3% are computational consulting offices, 6% provide office automation firms, and 23.3% of the respondents' firms are considered software firms.

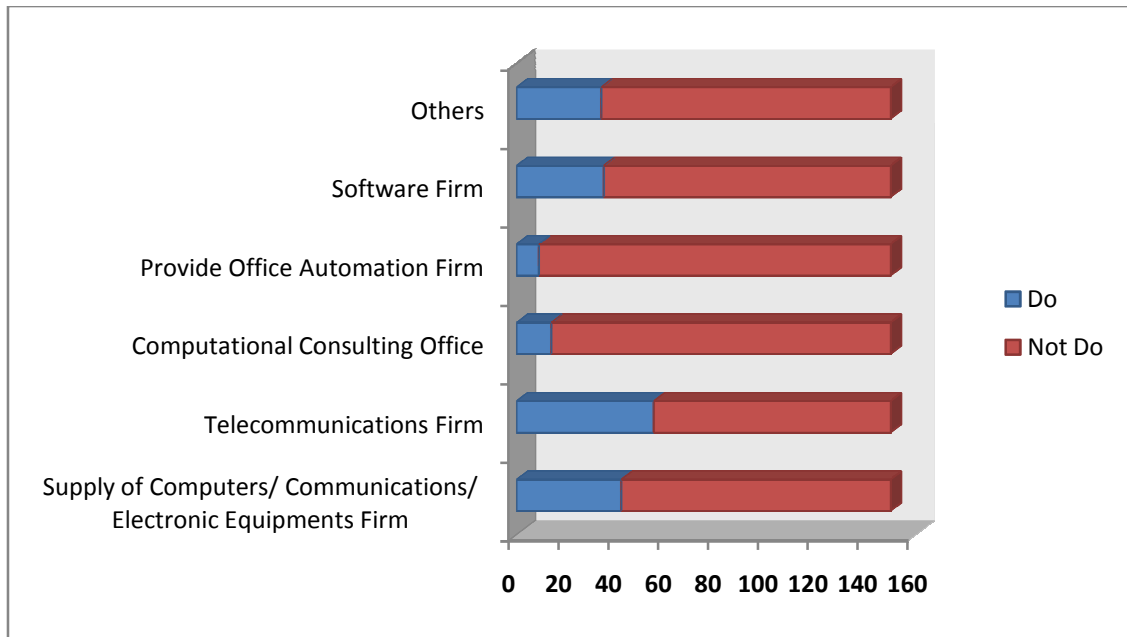


Figure (5.5): Types of ICT Firms

5.2.6 The Market of ICT Firms

Figure (5.6) shows that most of the ICT firms in Palestine (72%) targets domestic market, while only 7.3% of the firms target foreign market and 20.7% of them sell their products to domestic and foreign markets.

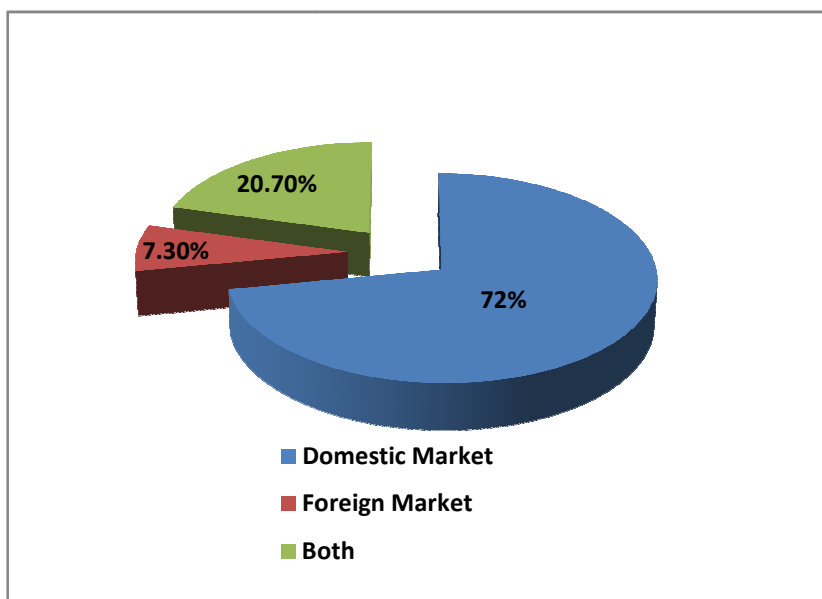


Figure (5.6): Distribution of ICT Firms' Markets

5.2.7 Respondents' Job Title

With regards to the respondents' job title, figure (5.7) shows that 18.7% of the respondents are firm managers, 16% are engineers, 10.7% are project managers, 2.7% are risk managers and 52% are in others positions.

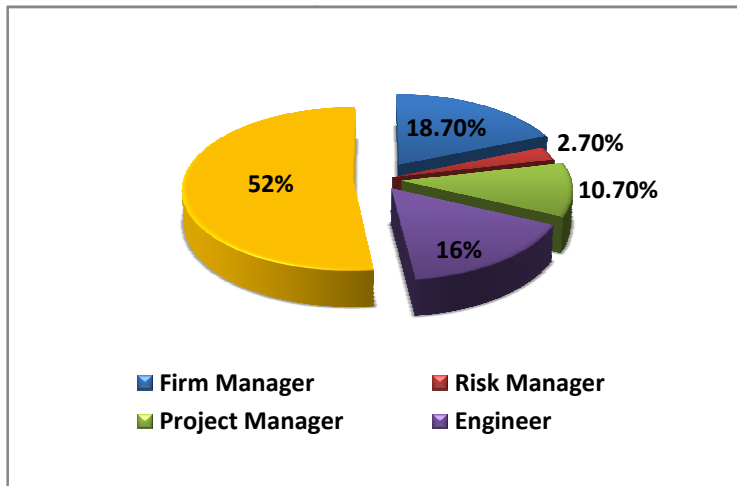


Figure (5.7): Respondents' Job Title

5.2.8 ICT Firms' Average Revenues (Yearly)

Figure (5.8) shows that most of the ICT firms gain revenues less than \$100,000 with 77.3%, while 18% of the ICT firms have average revenue between \$100,000 to 1 million yearly and only 4.7% of the firms have revenue more than \$1 million yearly.

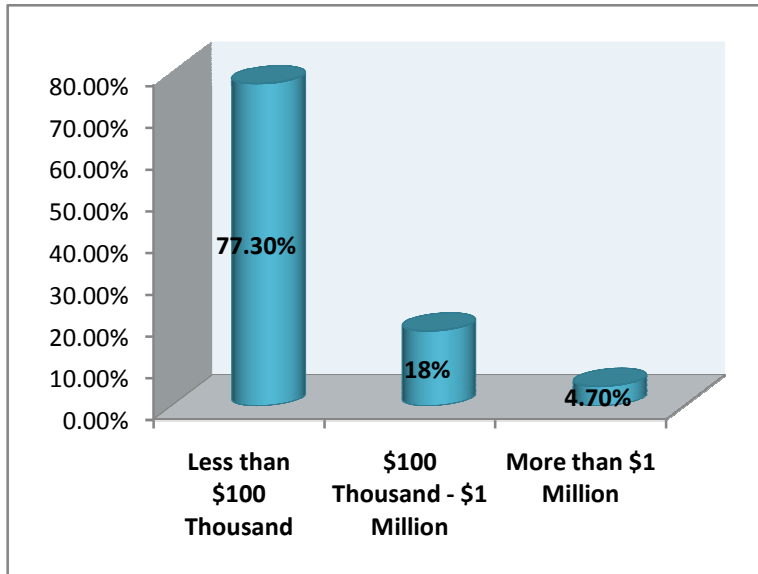


Figure (5.8): ICT Firms' Revenues

5.2.9 The Average Number of Employees in ICT Sector

Based on table (5.1) the minimum number of employees was three employees while the maximum number of employees was 600 employees. Moreover, the average number of employees in the ICT sector is 39 employees/firm. Firms with 15 employees or 10 employees have the most percentage among the participating firms.

Table (5.1): Descriptive Statistics for Firms' Employees Number

	Minimum	Maximum	Mean	Mode	Std. Deviation
Employees Number	3	600	38.39	15, 10	73.886

5.2.10 ICT Firms' Related Products

Regarding the products or services that ICT sector in Palestine provide to other clients' firms, figure (5.9) shows that 36% of the ICT firms provide application development, 24% provide application hosting services, 32% provide database and software management, 31.3% provide

hardware installation and maintenance, 32% provide help desk-support to end users, 21.3% provide security-related functions, 34% provide network equipment, 39.3% provide telecommunication network and internet services, 26.7% provide software development, testing and maintenance, 24% provide website or an e-commerce system development, 26.7% provide programming, 26.7% provide computer hardware equipment, 22% provide web-designing, 29.3% provide telecommunication services, 20% provide mobile applications development, 17.3% provide mobile applications products, 18% provide staff and/or user training, 20.7% provide ICT consulting, 25.3% provide business and IT enterprise solutions and 16% of the firms provide other ICT related products and services that were not listed in the questionnaire.

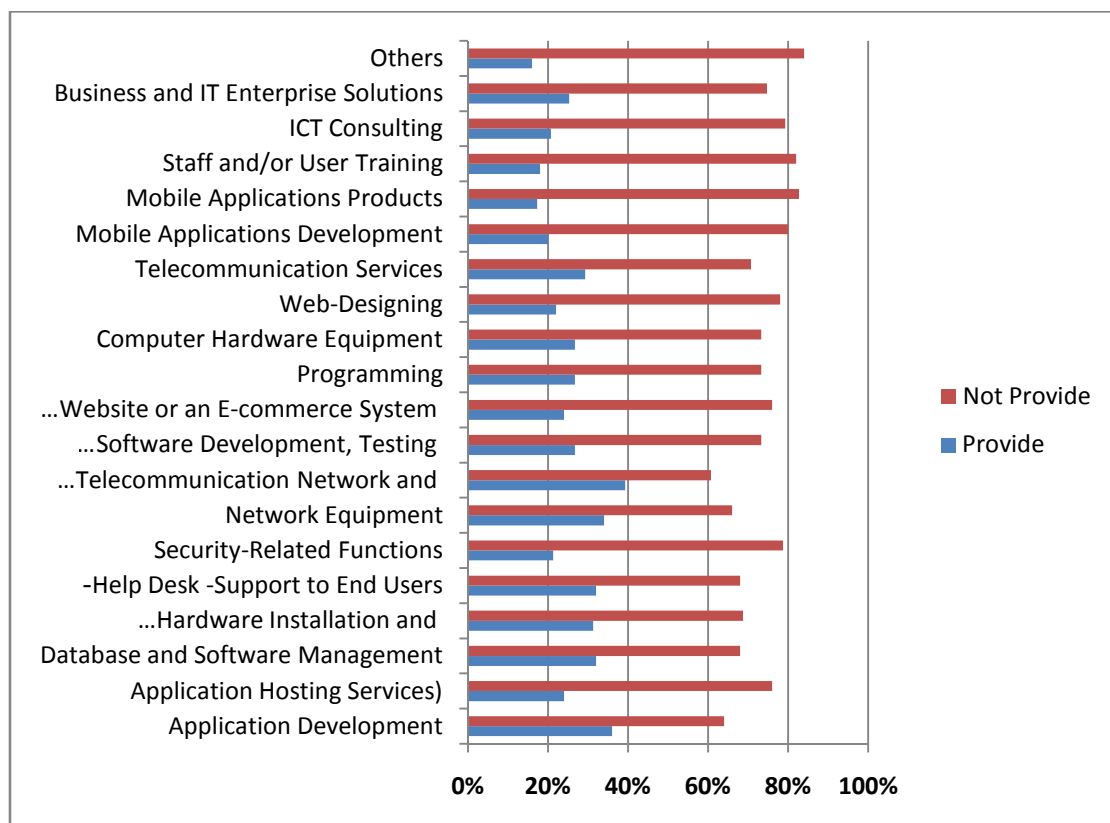


Figure (5.9): Distribution of ICT Firms' Related Services/ Products

5.2.11 ICT Firms' Outsourcing Contracts

ICTs firms' outsourcing contracts are classified based on their time periods, each firms can sign many types of outsourcing contracts with different clients firms. It's clear from figure (5.10) that 84% of the firms sign short-term contracts, 29.3% sign medium-term contracts, and 12.7% of the firms sign long-term contracts.

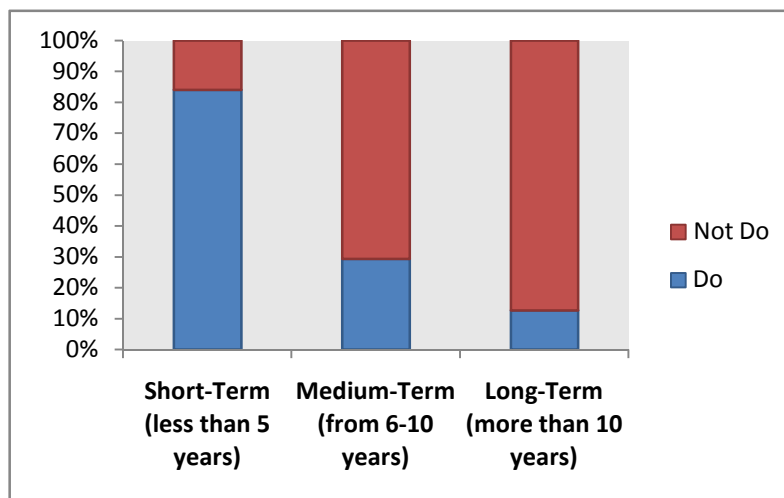


Figure (5.10): Firms' Outsourcing Contracts

5.3 Risk Management Assessment

The main objective in this section is to assess the current risk management practices that adopted by the West Bank's ICT sector through outsourcing life cycle. In other words, this section answers the following questions:

- How to manage risks effectively through outsourcing life cycle in Palestinian ICT firm?

- To what extent do risk management practices applied in Palestinian ICT firms through outsourcing life cycle?

To achieve this objective and answer the questions, a descriptive statistics was implemented using mean, standard deviation (S.D.) and the degree of application for each practice in (1) general risk management principles, (2) outsourcing risk management during pre-contract phase and (3) outsourcing risk management during contract and post-contract phases (see tables (5.3), (5.4) and (5.5)).

In the questionnaire, the respondents were asked to assess the rate of practicing the outsourcing risk management items, using a five-point Likert scale (not at all (1), a slight degree (2), a moderate extent (3), a great extent (4) and a very great extent (5)).

The researcher classified the response average mean into five degrees, which are related to five intervals as shown in table (5.2):

Table (5.2): Scaling Degrees

Interval	Degree
1.00-1.80	Very low
> 1.80-2.60	Low
> 2.60-3.40	Moderate
> 3.40-4.20	High
> 4.20-5.00	Very High

The interval length is calculated by dividing the response range by the number of intervals, $\text{interval length} = (5-1) / 5 = 0.8$. The Response range = 5 (which presents a very great extent) minus 1 (which presents not at all).

Moreover, one sample t-test is used to assess the current risk management practices that adopted in Palestinian ICT firms through outsourcing life cycle. The population mean is not known, but it is assumed to be 3. The researcher uses the value of 3 as a comparison mean because the values of 3 up to 5 represent a very good application degree of risk management. To test the hypothesis, we use a null hypothesis (H_0) which supposes that the mean of applying risk management practices is less than 3. The null hypothesis is rejected if the significance level is less than $\alpha = 0.05$.

5.3.1 General Risk Management Principles

Based on table (5.3), it can be noticed that the total average response rate for general risk management principles was 3.45, which is considered high. Therefore, we conclude that there is a high application degree of general risk management principles in Palestinian ICT firms. The null hypotheses for the 14 practices under this group are rejected, and they all have average mean ranging between 3.38 to 3.59 which is very good but still need more improvements on the firms' practices. This result supports the finding reached by KPMG (2005) that firms realize the importance of risk management practices, but the implementation of them is still low.

Table (5.3): Application Degree for General Risk Management Principles

Rank	Risk Management Principle	Mean	S.D.	Application Degree
1	Determine the most effective and necessary actions to manage the risks	3.59	0.997	High
2	Report to senior management regularly	3.58	1.088	High
3	Prioritize risks to select risk that need active management	3.55	0.887	High
4	Develop and document a detailed and comprehensive risk management plan (RMP)	3.48	0.988	High
5	Provide lesson learned	3.46	1.060	High
6	Enhance the current control if it's ineffective	3.45	0.924	High
7	Figuring out new and effective ways to address the risks	3.45	1.090	High
8	Analyzing the probability of occurrence and the impact of the occurrence of the risk	3.41	1.024	High
9	Continuous review and feedback on risk management performance to measure the effectiveness of the selected control that taken to manage the risks	3.41	0.997	High
10	Identify and evaluate the effectiveness of current control available to manage the risk	3.40	0.905	Moderate
11	Implementation of control and risk management plan	3.40	1.010	Moderate
12	Assign qualified personnel who are responsible to address the risks	3.40	1.068	Moderate
13	Ensuring the execution of risk plans and evaluating their effectiveness by top management	3.40	1.056	Moderate
14	Identify all risks that might affect the smooth flowing of the outsourcing process in each phase	3.38	1.041	Moderate
Total		3.45	0.773	High

Table (5.3) shows that the application degree for the risk management principles are sorted as following: determine the most effective and necessary actions to manage the risks with average mean equal 3.59, report to senior management regularly (3.58), prioritize risks to select risk that need active management (3.55), develop and document a detailed and comprehensive RMP (3.48), provide lesson learned (3.46), enhance the current control if it's ineffective (3.45), figuring out new and effective ways to address the risks (3.45), analyzing the probability of occurrence and the impact of the occurrence of the risk (3.41), continuous review and feedback on risk management performance to measure the effectiveness of the selected control that taken to manage the risks (3.41), identify and evaluate the effectiveness of current control available to manage the risk (3.40), implementation of control and risk management plan (3.40), assign qualified personnel who are responsible to address the risks (3.40), ensuring the execution of risk plans and evaluating their effectiveness by top management (3.40) and identify all risks that might affect the smooth flowing of the outsourcing process in each phase (3.38).

5.3.2 Outsourcing Risk Management During Pre-Contract, Contract and Post-Contract Phases

Based on table (5.4), it can be noticed that the total average response rate for outsourcing risk management during pre-contract phase is 3.35. Thus, there is a moderate application degree of outsourcing risk management during pre-contract phase in the West Bank's ICT firms. So,

ICT firms need to shed more attention and improvements on the their practices of risk management before signing the contract with the client's firm, because the implementation of risk management at early stage of outsourcing life cycle is very important to ensure the success of outsourcing project, and this is what has been indicated by many researchers such as Aris et al. (2008), Chou and Chou (2009) and Misra (2004).

Table (5.4): Application Degree for Outsourcing Risk Management During Pre-Contract Phase

Rank	Outsourcing Risk Management During Pre-Contract Phase	Mean	S.D.	Application Degree
1	Identify the success factors for outsourcing	3.51	0.939	High
2	Determination the type of relationship with clients' firms (strategic partnership or buyer/seller relationship)	3.47	0.865	High
3	Gathering information on clients' firms and the risk of dealing with them	3.47	0.946	High
4	Gathering information on Market and economic situation to detect unexpected risks	3.42	1.095	High
5	Providing formal training in risk management	3.25	1.227	Moderate
6	The involvement of stakeholder with risk committee to address risk and create RMP	3.19	1.185	Moderate
7	Creation of risk management committee	3.15	1.134	Moderate
Total		3.35	0.868	Moderate

Table (5.4) shows that identify the success factors for outsourcing with average mean equal 3.51, determination the type of relationship with

clients' firms (3.47) and gathering information on clients' firms and the risk of dealing with them (3.47) are the top three practices of outsourcing risk management during pre-contract phase that have been applied in Palestinian ICT firms. On the other hand, creation of risk management committee (3.15), the involvement of stakeholder with risk committee to address risk and create RMP (3.19), and providing formal training in risk management (3.25) are the least three practices of outsourcing risk management during pre-contract phase that have been applied in Palestinian ICT firms.

Table (5.5): Application Degree for Outsourcing Risk Management During Contract and Post-Contract Phases

Rank	Outsourcing Risk Management During Contract and Post-Contract Phases	Mean	S.D.	Application Degree
1	On-going performance monitoring to maintain relationship with client's firm and to ensure the goal is achieved	3.77	0.862	High
2	Providing maintenance and support after the deliverables to the clients' firms	3.71	1.014	High
3	Conducting inspection and testing to make sure that the deliverables are fully functional	3.67	0.930	High
4	Negotiation with the client's firm on outsourcing contract to ensure that all requirements and aspects are defined and written clearly	3.61	1.073	High
5	Regular meeting to ensure the development of the project is on the right track and complied with the agreed contract	3.58	1.070	High
6	Formal agreement which includes scope, cost and durations to complete the projects, description of relationship, penalty and rewards etc.	3.52	0.865	High
7	Reporting to top management, departments and stakeholders so that the stakeholders will always keep side by side with the development of the project	3.45	1.033	High
8	Legal counsel to review the contract and to assist in the preparation of it	3.33	1.109	Moderate
9	Assess the outsourcing project	3.22	1.048	Moderate
Total		3.54	0.792	High

Table (5.5) shows that the average mean of the response for outsourcing risk management during contract and post-contract phases is 3.54. We can conclude that there is a good application degree of outsourcing risk management during contract and post-contract phases in the West Bank's ICT firms. All the 9 practices under this group have averages vary between 3.22 to 3.77.

On-going performance monitoring with average mean equal 3.77, providing maintenance and support after the deliverables to the clients' firms (3.71) and conducting inspection and testing to make sure that the deliverables are fully functional (3.67) are the top three practices of outsourcing risk management during contract and post-contract phases that have been applied in Palestinian ICT firms. On the other hand, assess the outsourcing project (3.22) and legal counsel to review the contract and to assist in the preparation of it (3.33) are the least two practices of outsourcing risk management during contract and post-contract phases that have been applied in Palestinian ICT firms.

5.3.3 One Sample T-test for the Application of Outsourcing Risk Management Practices

According to table (5.6) which shows one sample t-test for the three outsourcing risk management practices (general risk management principles, outsourcing risk management during pre-contract phase, and outsourcing risk management during contract and post-contract phases). We rejected the null hypothesis that the mean of applying outsourcing risk

management practices is less than 3, since the P-values for all risk management practices were smaller than 0.05 which represent the level of significance. This means that the most of the ICT firms in the West Bank's practicing outsourcing risk management.

Table (5.6): One Sample T-test for Application of Outsourcing Risk Management Practices

Rank	Outsourcing Risk Management Practices	Mean	S.D.	Df	P-Value (Sig.)	Application Degree
1	Outsourcing Risk Management During Contract and Post-Contract Phases	3.54	0.792	149	0.000	High
2	General risk management principles	3.45	0.773	149	0.000	High
3	Outsourcing Risk Management During Pre-Contract Phase	3.35	0.868	149	0.000	Moderate
Total		3.45	0.714	149	0.000	High

Table (5.6) shows that the total average response to the outsourcing risk management practices is 3.45 out of 5. We conclude that there is a high application degree of outsourcing risk management practices in the West Bank's ICT firms through outsourcing life cycle. One of the most important findings in this part is that the West Bank's ICT firms are more appropriate in managing outsourcing risks during contract and post-contract phases, followed by managing general outsourcing risk and finally managing risk during pre-contract phase. Thus, we recommend that ICT firms need more improvements on its practices of risk management before signing the

contract with any client's firm, this recommendation is justified as risk management should be conducted at early stage in outsourcing arrangement to expect risks that affect the outsourcing process and reduce its effect if they occur.

The contract is considered one of the most important risk management vehicles (Artto, 1997). So, the above finding is justified, as managing risks during contract and post-contract phases are considered critical to the success of outsourcing arrangements, in order to ease the process of the contract management and designing to avoid ambiguous and incomplete contract, ensure the achievement of outsourcing's goal, and maintain the relationship with the clients.

Generally, it can be noticed that the top five outsourcing risk management practices that have been applied in the West Bank's ICT firms through outsourcing life cycle are: (1) on-going performance monitoring with average mean equal 3.77, (2) providing maintenance and support after the deliverables to the clients' firms (3.71), (3) conducting inspection and testing to make sure that the deliverables are fully functional (3.67), (4) negotiation with the client's firm on outsourcing contract to ensure that all requirements and aspects are defined and written clearly (3.61), and (5) determination the most effective and necessary actions to manage the risks (3.59).

It can be noticed that most of these practices are related to outsourcing risk management during contract and post-contract phases. The

above findings are justified, as on-going monitoring, conducting inspection and testing the deliverables, and providing maintenance and support after the service is delivered are important to ensure the achievement of outsourcing project's goal, maintain the relationship with the client, and enhance the firm's ability to manage and mitigate risks before they affect the success of outsourcing process. This supports the research done by Aris et al. (2008). Negotiation with client's firm also is important to avoid the designing of an ambiguous and incomplete outsourcing contract which reduces the effect of outsourcing risks during contract phase. Moreover, determination the most effective and necessary action is necessary to mitigate and manage the risk in an appropriate manner.

On the other hand, the least five outsourcing risk management practices that have been applied in Palestinian ICT firms are: (1) creation of risk management committee (3.15), (2) the involvement of stakeholder with risk committee to address risk and create RMP (3.19), (3) assess the outsourcing project (3.22), (4) providing formal training in risk management (3.25), (5) legal counsel to review the contract and to assist in the preparation of it (3.33). These results, however, was contrary to the research done by many researchers about the importance of creation risk management committee and the involvement of stakeholders in risk assessment. Creation the committee is the first step in risk management process, where the firms should create it to expect risks and monitor the control action taken to deal with risks, also the involvement of stakeholders in the committee is most important to assess the risks from managers' point

of view (Federal Financial Institution Examination Council, 2004). The reason for the finding that creation risk management committee is the least outsourcing risk management practices that have been applied in the West Bank's ICT firms is that these firms are considered SMEs, where the creation of risk management committee needs various participants and effort.

The finding that providing formal training in risk management is one of the least outsourcing risk management practices in the West Bank's ICT firms, supports the findings of previous research that concluded only 8% of IS project developers practice risk management because of no formal training in risk management (Arshad et al., 2006). Thus, we recommend that ICT firms should improve its practice of providing formal training in risk management for their staff in order to enhance its practice of risk management through outsourcing life cycle.

Risk management is considered as one of the critical success factors of outsourcing process and it should be conducted continuously through outsourcing life cycle to manage and mitigate any related risks that may appear at any phase. According to Collier et al. (2007), the implementation of risk management could enhance the project management, the use of resources, and the service delivery. From the findings with regards to outsourcing risk management practices in the West Bank's ICT firms, there is a need to develop a framework for risk management through outsourcing life cycle to enhance the firms' outsourcing risk management practices.

5.4 Outsourcing Risk Factors in ICT Firms

The main objectives for this section are to:

- Identify the main risk factors that affect the success of outsourcing in the West Bank's ICT firms.
- Identify the impact of each risk factor on outsourcing from the perspective of ICT service providers.

In other words, this section answers the following question:

- What are the major factors that contribute to outsourcing risk in the West Bank's ICT firms?

To achieve the above research's objectives and answer the above question, the respondents were asked to rank the outsourcing risk factors, using a five-point Likert scale (very low (1), low (2), medium (3), high (4) and very high (5)). The ranking has been done taking into account three considerations: the likelihood of risk factors, their impact and their difficulty to mitigate. The researcher classified the response averages mean into five degrees as shown in table (5.2).

Descriptive statistics as shown in table (5.7) to table (5.12), were applied in order to get means, standard deviation (S.D.), impact degree and likelihood of occurrence degree for each outsourcing risk factor in pre-contract, contract and post-contract phases.

5.4.1 The Impact of Outsourcing Risks on the Outsourcing Process

With regards to outsourcing risk factors, tables (5.7), (5.8) and (5.9) show the impact of outsourcing related risks on outsourcing process in the West Bank's ICT firms, considering both pre-contract, contract and post-contract outsourcing risks.

5.4.1.1 The Impact of Outsourcing Pre-Contract Risks on the Outsourcing Process

Table (5.7) shows that the average response mean of the impact of pre-contract related risks on the outsourcing process of the ICT firms is 3.453 out of 5 which is high. The risk factor represented by Israeli occupation and socio-political instability has the highest impact on outsourcing process with a mean of 3.86, followed by financial instability with a mean of 3.81 and poor project planning with 3.51 mean. On the other hand, poor cultural fit between client and provider (3.21), social responsibility (ethics, dealing with Israel) (3.31) and different rules and regulations between the firms and the client's firm (3.31) have the lowest effect on the outsourcing process in ICT sector.

Table (5.7): the Impact Degree of Risk Factors at Pre-Contract Phase on the Outsourcing Process in ICT Firms

Rank	Pre-Contract Phase Related Risks	Mean	S.D.	Impact Degree
1	Israeli occupation and socio-political instability	3.86	1.135	High
2	Financial instability	3.81	1.079	High
3	Poor and lack of project planning	3.51	1.157	High
4	Unrealistic expectations either from the provider's firm or the client's firm	3.43	1.039	High
5	Unrealistic estimation of schedule, budget and other required resources	3.43	1.077	High
6	Lack of information available about market, the clients' firms and others providers' firms	3.39	1.003	Moderate
7	Overstated claims by provider's firm	3.38	1.014	Moderate
8	Uncertainty about the legal environment of the firm or clients' firms	3.33	1.109	Moderate
9	Different rules and regulations between the firms and the client's firm	3.31	0.956	Moderate
10	Social responsibility (ethics, dealing with Israel)	3.31	1.106	Moderate
11	Poor cultural fit between client and provider (language, communication, time zone etc.)	3.21	1.101	Moderate
Total		3.453	0.726	High

5.4.1.2 The Impact of Outsourcing Contract Risks on the Outsourcing Process

Table (5.8) shows that the average response mean of the impact of contract related risks on the outsourcing process of the ICT firms is 3.38. It can be seen that: lack of experience, expertise and maturity of the client's firm with outsourcing contract management (3.49), lack of experience,

expertise and maturity of the provider's firm with outsourcing contract management (3.45) and unclear and ambiguous requirements of the client's firm (3.41) are the top three risk factors of contract related risks that have the most impact on outsourcing process in ICT sector. On the other hand, failure to specify suitable performance measures and procedures (3.24), inflexible outsourcing contract (3.29) and incomplete and ambiguous outsourcing contract (3.35) are the least three factors of contract related risks that affect on outsourcing process in ICT sector.

Table (5.8): the Impact Degree of Risk Factors at Contract Phase on the Outsourcing Process in ICT Firms

Rank	Contract Phase Related Risks	Mean	S.D.	Impact Degree
1	Lack of experience, expertise and maturity of the client's firm with outsourcing contract management	3.49	1.060	High
2	Lack of experience, expertise and maturity of the provider's firm with outsourcing contract management	3.45	1.097	High
3	Unclear and ambiguous requirements of the client's firm	3.41	0.971	High
4	Conflicting between the requirements of the clients' firms and what is available at the provider's firm	3.41	0.928	High
5	Inadequate requirements and terms of the client's firm	3.38	0.857	Moderate
6	Incomplete and ambiguous outsourcing contract	3.35	1.068	Moderate
7	Inflexible outsourcing contract	3.29	1.053	Moderate
8	Failure to specify suitable performance measures and procedures	3.24	1.047	Moderate
Total		3.38	0.743	Moderate

5.4.1.3 The Impact of Outsourcing Post-Contract Risks on the Outsourcing Process

Finally based on table (5.9), the total average response to the impact of post-contract related risk is 3.44. It can be observed that: business and organizational environment instability with a mean of 3.7, insufficient funds (3.67) and breach of the contract's requirements by the provider's firm (3.61) are the top three risk factors of post-contract phase that have the most impact on outsourcing process in ICT sector. On the other hand, communication problems (3.21), lack of assess measurement, metrics and tools (3.26) and poor management in the provider's firm (3.27) are the least three risk factors of post-contract phase that affect on outsourcing process in ICT sector.

Table (5.9): the Impact Degree of Risk Factors at Post-Contract Phase on the Outsourcing Process in ICT Firms

Rank	Post-Contract Phase Related Risks	Mean	S.D.	Impact Degree
1	Business and organizational environment instability	3.70	0.903	High
2	Insufficient funds and bankruptcy of the provider's firm	3.67	1.121	High
3	Breach of the contract's requirements by the provider's firm	3.61	1.073	High
4	Lack of technical knowledge and education of the provider's firm	3.57	1.058	High
5	Poor audit and control of outsourcing related services in the provider side	3.51	1.041	High
6	Loss of provider's key technical persons and critical skills	3.51	1.035	High
7	Loss of control by the client's firm or provider's firm	3.51	1.073	High
8	Changing and creeping objectives or requirements of the client's firm	3.47	1.066	High
9	Client-supplier conflict	3.41	1.094	High
10	Lack of experience and expertise with the project tasks and IT operation	3.33	1.167	Moderate
11	Hidden cost that are not apparent in the contract (as unexpected transition and management costs, costly contractual amendments etc.)	3.30	1.060	Moderate
12	Poor management in the client's firm	3.29	1.102	Moderate
13	Poor management in the provider's firm	3.27	1.198	Moderate
14	Lack of assess measurement, metrics and tools	3.26	1.019	Moderate
15	Communication problems between the client-provider firms	3.21	1.121	Moderate
Total		3.44	0.816	High

5.4.2 Occurrence Likelihood of the Outsourcing Related Risks

Tables (5.10), (5.11) and (5.12) show the likelihood of risk occurrence at pre-contract, contract and post-contract phases through outsourcing process.

5.4.2.1 Occurrence Likelihood of Outsourcing Related Risks at Pre-Contract Phase

Table (5.10) shows that the average mean of risk likelihood at pre-contract phase is 3.09. Financial instability with a mean of 3.71, Israeli occupation and socio-political instability (3.49) and unrealistic expectations (3.07) have the most likelihood of occurrence through outsourcing process at pre-contract phase in ICT sector. On the other hand, uncertainty about the legal environment of the firm or clients' firms (2.81), lack of information available about market, the clients' firms and others providers' firms (2.95) and poor and lack of project planning (2.96) have the lowest probability of occurrence through outsourcing process in ICT sector.

Table (5.10): the Likelihood of Occurrence Degree for Pre-Contract Phase Related Risks

Risk Icon	Rank	Pre-Contract Phase Related Risks	Mean	S.D.	Likelihood of Occurrence Degree
R1	1	Financial instability	3.71	1.161	High
R2	2	Israeli occupation and socio-political instability	3.49	1.140	High
R3	3	Unrealistic expectations either from the provider's firm or the client's firm	3.07	0.953	Moderate
R4	4	Social responsibility (ethics, dealing with Israel)	3.06	1.082	Moderate
R5	5	Overstated claims by provider's firm	3.02	1.000	Moderate
R6	6	Different rules and regulations between the firms and the client's firm	3.01	0.993	Moderate
R7	7	Unrealistic estimation of schedule, budget and other required resources	2.98	0.959	Moderate
R8	8	Poor cultural fit between client and provider (language, communication, time zone etc.)	2.97	1.099	Moderate
R9	9	Poor and lack of project planning	2.96	1.080	Moderate
R10	10	Lack of information available about market, the clients' firms and others providers' firms	2.95	0.985	Moderate
R11	11	Uncertainty about the legal environment of the firm or clients' firms	2.81	0.839	Moderate
Total			3.09	0.691	Moderate

5.4.2.2 Occurrence Likelihood of Outsourcing Related Risks at Contract Phase

Table (5.11) shows that the average mean of risk likelihood at contract phase is 2.79. It can be noticed that lack of experience, expertise and maturity of the provider's firm with outsourcing contract management with a mean of 2.91, incomplete and ambiguous outsourcing contract (2.85) and lack of experience, expertise and maturity of the client's firm with outsourcing contract management (2.85) have the most likelihood of occurrence through outsourcing process at contract phase in ICT sector. On the other hand, failure to specify suitable measures and procedures (2.65), conflicting between the requirements of the clients' firms and what is available at the provider's firm (2.68) and inflexible outsourcing contract (2.75) have the lowest probability of occurrence through outsourcing process at contract phase in ICT sector.

Table (5.11): the Likelihood of Occurrence Degree for Contract Phase Related Risks

Risk Icon	Rank	Contract Phase Related Risks	Mean	S.D.	Likelihood of Occurrence Degree
R12	1	Lack of experience, expertise and maturity of the provider's firm with outsourcing contract management	2.91	1.187	Moderate
R13	2	Incomplete and ambiguous outsourcing contract	2.85	1.155	Moderate
R14	3	Lack of experience, expertise and maturity of the client's firm with outsourcing contract management	2.85	1.101	Moderate
R15	4	Unclear and ambiguous requirements of the client's firm	2.83	1.048	Moderate
R16	5	Inadequate requirements and terms of the client's firm	2.76	0.988	Moderate
R17	6	Inflexible outsourcing contract	2.75	1.142	Moderate
R18	7	Conflicting between the requirements of the clients' firms and what is available at the provider's firm	2.68	1.076	Moderate
R19	8	Failure to specify suitable measures and procedures	2.65	0.955	Moderate
Total			2.79	0.835	Moderate

5.4.2.3 Occurrence Likelihood of Outsourcing Related Risks at Post-Contract Phase

Finally table (5.12) shows that the average mean of risk likelihood at post-contract phase is 2.95. It can be noticed that business and organizational environment instability with a mean of 3.32, hidden cost

(3.05) and lack of technical knowledge and education of the provider's firm (3.01) have the most likelihood of occurrence through outsourcing process at post-contract phase in ICT sector. On the other hand, poor management in the provider's firm (2.79), communication problems between the client-provider firms (2.8) and changing and creeping objectives or requirements of the client's firm (2.88) have the lowest probability of occurrence through outsourcing process at post-contract phase in ICT sector.

Table (5.12): the Likelihood of Occurrence Degree for Post-Contract Phase Related Risks

Risk Icon	Rank	Post-Contract Phase Related Risks	Mean	S.D.	Likelihood of Occurrence Degree
R20	1	Business and organizational environment instability	3.32	0.985	Moderate
R21	2	Hidden cost that are not apparent in the contract (as unexpected transition and management Costs, costly contractual amendments etc.)	3.05	1.025	Moderate
R22	3	Lack of technical knowledge and education of the provider's firm	3.01	1.030	Moderate
R23	4	Lack of assess measurement, metrics and tools	2.98	1.046	Moderate
R24	5	Insufficient funds and bankruptcy of the provider's firm	2.97	1.049	Moderate
R25	6	Loss of control by the client's firm or provider's firm	2.97	1.099	Moderate
R26	7	Loss of provider's key technical persons and critical skills	2.95	1.002	Moderate
R27	8	Poor audit and control of outsourcing related services in the provider side	2.92	0.980	Moderate
R28	9	Breach of the contract's requirements by the provider's firm	2.91	1.049	Moderate
R29	10	Poor management in the client's firm	2.91	0.944	Moderate
R30	11	Client-supplier conflict	2.90	1.140	Moderate
R31	12	Lack of experience and expertise with the project tasks and IT operation	2.89	1.096	Moderate
R32	13	Changing and creeping objectives or requirements of the client's firm	2.88	0.962	Moderate
R33	14	Communication problems between the client-provider firms	2.80	1.111	Moderate
R34	15	Poor management in the provider's firm	2.79	1.012	Moderate
Total			2.95	0.764	Moderate

5.4.3 Risk Assessment Matrix for the Outsourcing Risk Factors

Risk assessment matrix is a quick method to visualize risk based on the probability of risk and its severity (impact), which is considered as the second step in risk management process (Thakur, 2015). In the previous parts, outsourcing related risks have been identified and analyzed based on their likelihood of occurrence and their effects (impact degree), so in this section we categorize these risks in order to be represented in one focal point, and to facilitate the decision making processes. Hence, the researcher uses risk assessment matrix for this purpose.

Figure (5.11) clarifies the risk assessment matrix for the outsourcing risk factors. In this matrix, the researcher uses five categories of rating risk which is adopted by WorkSafe WA (2015), these categories are:

- **Low risk:** it is considered as acceptable risk and it needs to be reviewed from time to time (falls in the green cells).
- **Moderate risk:** acceptable risk but requires further actions to minimize it, also it needs to be reviewed from time to time (falls in the orange cells).
- **High risk:** acceptable risk and requires further actions to minimize it, but it needs to be reviewed continuously (falls in the yellow cells).
- **Critical risk:** which is considered as unacceptable risk and requires further actions immediately to minimize it (falls in blue cells).

- **Catastrophic:** which is considered as unacceptable risk and requires accelerated actions to minimize it (falls in red cells).

Based on the risk assessment matrix in figure (5.11), most of the outsourcing related risks are considered as a high risks, while financial instability (R1) and Israeli occupation and socio-political instability (R2) are considered as critical risks. These results are justified, as the West Bank's firms and economy are surrounded by many risks, but the most significant risks are financial and political instability, which hinder the firms' ability to compete other foreign firms and this is the case of outsourcing Palestinian ICT firms, where the financial and political instability as external risks affect the success of outsourcing arrangements with other firms if not managed. So, the firms should take more attention and actions to deal with these two risks in order to reduce their effects and increase the likelihood of outsourcing success.

		Likelihood				
		1.00-1.80	> 1.80-2.60	> 2.60-3.40	> 3.40-4.20	> 4.20-5.00
Severity (Impact)		Very Low	Low	Moderate	High	Very High
1.00-1.80	Very Low					
> 1.80-2.60	Low					
> 2.60-3.40	Moderate			R4,R5,R6,R10,R11,R13,R16,R17,R19,R21,R23,R29,R31,R33,R34		
> 3.40-4.20	High			R3,R7,R8,R9,R12,R14,R15,R18,R20,R22,R24,R25,R26,R27,R28,R30,R32	R1,R2	
> 4.20-5.00	Very High					
		Low	Moderate	High	Critical	Catastrophic

Figure (5.11): The Risk Assessment Matrix for the Outsourcing Risk Factors

5.4.4 Risk Priority Number (RPN)

Risk priority number is used to prioritize the risks in order to determine which risks are more critical than others, and which risks need management and mitigation actions in priority. The larger RPN value the more critical risk is. RPN can be calculated by multiplying the three risk components (severity (impact), likelihood of occurrence and detection) (Sharma and Pratap, 2013).

RPN = Impact x Likelihood of occurrence x Detection

Based on risk factors in this work, the RPN can range from 1 to 125. Table (5.13) shows the RPN values for each outsourcing risk factor based on the average mean of response rate.

Table (5.13): Risk Priority Number for Outsourcing Related Risk Factors

RPN for Outsourcing Risk Factors				
Pre-Contract Phase Related Risks	Impact Mean	Likelihood of Occurrence Mean	Difficulty to Mitigate Mean	RPN
Uncertainty about the legal environment of the firm or clients' firms	3.33	2.81	2.87	26.86
Unrealistic estimation of schedule, budget and other required resources	3.43	2.98	3.13	31.99
Poor and lack of project planning	3.51	2.96	3.03	31.48
Unrealistic expectations either from the provider's firm or the client's firm	3.43	3.07	3.04	32.01
Overstated claims by provider's firm	3.38	3.02	3.05	31.13
Lack of information available about market, the clients' firms and others providers' firms	3.39	2.95	3.11	31.10
Different rules and regulations between the firms and the client's firm	3.31	3.01	3.16	31.5
Social responsibility (ethics, dealing with Israel)	3.31	3.06	3.09	31.30
Poor cultural fit between client and provider	3.21	2.97	3.16	30.13
Israeli occupation and socio-political instability	3.81	3.49	3.62	48.13
Financial instability	3.86	3.71	3.74	53.56

Contract Phase Related Risks	Impact Mean	Likelihood of Occurrence Mean	Difficulty to Mitigate Mean	RPN
Failure to specify suitable performance measures and procedures	3.24	2.65	3.01	25.84
Inadequate requirements and terms of the client's firm	3.38	2.76	2.98	27.8
Conflicting between the requirements of the clients' firms and what is available at the provider's firm	3.41	2.68	3.07	28.06
Unclear requirements of the client's firm	3.41	2.83	3.02	29.14
Inflexible outsourcing contract	3.29	2.75	3.08	27.87
Incomplete and ambiguous outsourcing contract	3.35	2.85	3.01	28.74
Lack of experience, expertise and maturity of the client's firm with outsourcing contract management	3.49	2.85	3.25	32.33
Lack of experience, expertise and maturity of the provider's firm with outsourcing contract management	3.45	2.91	3.30	33.13
Post-Contract Phase Related Risks	Impact Mean	Likelihood of Occurrence Mean	Difficulty to Mitigate Mean	RPN
Poor management in the provider's firm	3.27	2.79	3.10	28.28
Poor management in the client's firm	3.29	2.91	3.15	30.16
Business and organizational environment instability	3.70	3.32	3.25	39.92
Poor audit and control of outsourcing related services in the provider side	3.51	2.92	3.09	31.67
Breach of the contract's requirements by the provider's firm	3.61	2.91	3.21	33.72
Changing and creeping objectives or requirements of the client's firm	3.47	2.88	3.20	31.98

Post-Contract Phase Related Risks	Impact Mean	Likelihood of Occurrence Mean	Difficulty to Mitigate Mean	RPN
Hidden cost of outsourcing process	3.30	3.05	3.07	30.9
Lack of technical knowledge and education of the provider's firm	3.57	3.01	3.24	34.82
Loss of control by the client's firm or provider's firm	3.51	2.97	3.23	33.67
Communication problems between the client-provider firms	3.21	2.80	3.14	28.22
Lack of experience and expertise with the project tasks and IT operation	3.33	2.89	3.22	30.99
Lack of assess measurement, metrics and tools	3.26	2.98	3.17	30.8
Client-supplier conflict	3.41	2.90	3.28	32.44
Loss of provider's key technical persons and critical skills	3.51	2.95	3.28	33.96
Insufficient funds and bankruptcy of the provider's firm	3.67	2.97	3.59	39.13

Based on table (5.13), the top five outsourcing related risk factors that have the largest risk priority numbers are:

- Financial instability (53.56).
- Israeli occupation and socio-political instability (48.13).
- Business and organizational environment instability (39.92).
- Insufficient funds and bankruptcy of the provider's firm (39.13).
- Lack of technical knowledge and education of the provider's firm (34.82).

The risk factor, the financial instability, has the largest priority number among all the outsourcing risk factors. So, it is critical risk that leads to many financial risks that affect the outsourcing process in the West Bank's ICT sector. This result supports the research done by Al-Hamadany and Kanapathy (2012), according to their investigation of 83 outsourcing companies, they reached that the financial risk factor is the most significant factor which affects on outsourcing process, compared with other risk factors. Israeli occupation and socio-political instability has the second largest priority number. This result is justified, as the Israeli occupation poses a threat to outsourcing ICT firms in Palestine for many reasons, include: it imposes restrictions on inter-trade, as well as on foreign trade which hinder the outsourcing relationship with other firms, increases the clients' fears about dealing with Palestinian ICT firms, and it controls of some telecommunications infrastructure such as 3G and 4G of mobile services. According to Paltrade (2014), Palestinian ICT sector faces many threats such as economic recession due to financial crises and Israeli occupation.

Instability of business and organizational environment has the third largest priority number. This result is justified, as any change in the business environment will affect the outsourcing project. So, any change in the business and organizational environment will lead to a change in the organizations' needs and requirements, such as change from economic boom to economic recession. Moreover, insufficient funds and bankruptcy of the provider's firm has the fourth largest priority number. This result is

justified, as the risk of insufficient funds poses a threat to the outsourcing project, since there are no sufficient resources to support the project and to complete the outsourcing contract, this could drive the firm to bankruptcy. This outsourcing risk factor has priority number less than the above risk factors because it is internal risks rather than external risks. Finally, lack of technical knowledge and education of the provider's firm has the fifth largest priority number, this is justified, as the ICT firm with employees of low level of technical knowledge and experiences will affect the quality of services and lead to undesirable consequences such as cost escalation and service debasement. Therefore, the success of outsourcing process will be affected, as well as the relationship with clients.

5.5 Outsourcing Mitigation Actions

Risk mitigation is a crucial phase in risk management process. As the number of risks in outsourcing process is increasing, firms need effective methods and solutions to be implemented before the occurrence of undesirable results, to prevent possible outsourcing risk factors or reduce their effects, such solutions are called outsourcing mitigation actions (Garland, 2015). Once risk assessment has been made, it should be followed risk mitigation actions in order to avoid risk early in the outsourcing process.

The respondents were asked to rank the mitigation actions, according to their degree of importance to reduce outsourcing related risks in ICT sector using a five-point Likert scale: affects with little degree (1), affects

something (2), affects with average degree (3), affects with large degree (4), affects with very large degree (5).

For ranking the mitigation actions in terms of their relative importance in reducing the outsourcing related risks, a relative importance index (RII) was used and computed using the following equation (Megha and Rajiv, 2013):

$$RII = \frac{\sum W}{A * N} * 100$$

Where:

W: is the weight given to each item by the respondents (ranging from 1 to 5)

A: the highest weight (5 in this research)

N: the total number of respondents (i.e. 150 in this research)

So, the main objective for this section is to estimate how to mitigate the outsourcing related risks. In other words:

- What are the main mitigation actions of outsourcing related risks implemented in the West Bank's ICT firms?

To achieve the above research objective and answer the above question, RII was calculated for each mitigation action as shown in table (5.14) and ranked in a descending order. The results show that distribution of responsibilities clearly and socialization and shared organizational goals, values and norms between team are the most important mitigation actions

for outsourcing risks compared the other actions with a relative importance index of 82.67% for both. These findings are justified, as the process of assignment appropriate persons who have the suitable skills and experiences to address risks and implement the selected control action is important to prevent the risk occurrence, reduce the conflicts, or even mitigate its impact. This corresponds with the research done by Stoneburner et al. (2002), where they considered risk management as a management of responsibility. Socialization and shared organizational goals, values and norms between provider's firms and client's firm was ranked as the second most important mitigation action. This is justified, as socialization and shared organizational goals, values and norms are important as risk mitigation mechanisms to prevent or reduce the effect of undesirable events such as disputes and litigation. According to Leifer and Mills (1996), these mitigation mechanisms are known as clan mechanisms, that aim to influence others in order to highlight desirable behavior through informal measures such as informal control. Therefore, the availability of clan mechanisms between team members will increase their commitment, reduce conflicts, and enhance their ability to address outsourcing risks in appropriate manner. Also, the availability of these mechanisms between client's and provider's firms leads to share the outsourcing risks among them, and reduce the risks that cause disputes and litigation. Use suitable communication media between provider's-client's firms was ranked as the third most important mitigation action of outsourcing related risk in ICT sector.

On the other side, mediation and arbitration for dispute resolution was considered the least important mitigation action. This result, however, was contrary to the finding of the research done by Bahli and Rivard (2003), where they considered mediation (which a neutral third party help to resolve a dispute) and arbitration (choose a honest, neutral party to give a legally obligated judgment) as important methods to minimize the risk of future litigation and resolve disputes between parties without resorting to litigation. This result is justified, as the firm prefers the use of mitigation actions that pre-active rather than pro-active measures, since most of the above mitigation actions could prevent the outsourcing risks but mediation and arbitration methods aims to reduce their effect.

Table (5.14): Outsourcing Mitigation Actions Ranked in Descending Order

Rank	Outsourcing Mitigation Actions	RII
1	Distribution of responsibilities clearly	82.67%
1	Socialization and shared organizational goals, values and norms between team	82.67%
2	Socialization and shared organizational goals, values and norms between provider's firm and client's firm	82%
3	Use suitable communication media between provider's-client's firms	81.73%
4	Carefully delineated performance measures	80.53%
5	Establish Risk committee to review and manage risk	80.13%
6	Regular supplier- business review and audit	80%
7	Setting a benchmark or reference point for comparison on a regular basis	79.73%
7	Establish contingency plan	79.73%
8	Building and retaining internal capabilities before the contract	78.8%
9	Creating flexible and more informed outsourcing contracts	77.6%
10	Hiring of external technical and legal expertise	76.26%
11	Appointing a contract/relationship manager	74.67%
12	Mediation and arbitration for dispute resolution	72.8%

5.6 Success Factors of Outsourcing in ICT Firms

This part tries to identify the main success factors of outsourcing in ICT sector. The respondents were asked to rank the success factors, according to their degree of importance to the success of outsourcing process in the West Bank's ICT firms using a five-point Likert scale: affects with little degree (1), affects something (2), affects with average degree (3), affects with large degree(4), affects with very large degree (5).

In other words, this section answers the following question:

- What are the main success factors of IT outsourcing in the West Bank's ICT firms?

To achieve this objective, RII was calculated for each factor as shown in table (5.15) and ranked in a descending order. Table (5.15) shows that hiring outsourcing experts is the most important factors for the success of outsourcing in the West Bank's ICT firms with a relative importance index of 81.6%. The accurate definition of the project's scope and specifications and conflicts handling and solve it properly were ranked as the second most important factors and building strong outsourcing relationship between the provider's firm and the client's firm was ranked as the third most important factor for the success of outsourcing in the West Bank's ICT firms. These results are justified, as the process of hiring outsourcing experts is important who have skills and experiences in negotiation process and contract management could increase the likelihood

of outsourcing success. In addition, accurate definition of the project scope and specification helps the provider to understand the deliverables of the project, and to provide what is promised and agreed upon.

On the other side, relatively lower labor costs than some competitors (56.27%), specialists in Palestinian ICT firms have a very good language skills at Arabic, Hebrew and English languages (76%) and geographical proximity to the Middle East, Europe and North Africa (76.93%) were considered the least important factors. These results, however, were contrary to the findings of the diagnostic study in 2013. Barreto et al. (2013) surveyed 20 of Palestinian ICT firms, they founded that firms believe it is gaining their current competitiveness due to their common business language, their geographic location, their low labour costs, their low input costs, and their innovation capabilities. Meanwhile, these results support the research done by Paltrade (2014), which indicated that relatively lower labour costs in Palestinian ICT firms than their competitors are not sufficient to compete others, because they have insufficient technical, business, and project management skills which lead to reduce the labour productivity.

Table (5.15): Success Factors of Outsourcing Ranked in Descending Order

Rank	Success Factors of Outsourcing	RII
1	Hiring outsourcing experts	81.6%
2	The accurate definition of the project's scope and specifications	81.33%
3	Conflicts handling and solve it properly	81.33%
4	Building strong outsourcing relationship between the provider's firm and the client's firm	81.07%
5	A detailed, flexible and proper contract structuring	80.8%
6	Consider and understand governmental regulations and legal issues	80.8%
7	Frequency of client-provider meetings	80.53%
8	Cultural proximity between client's firm and provider's firm	80.53%
9	The top management's support	80%
10	Negotiating a reasonable and fair contract for both parties	79.07%
11	Understand the client's firm objectives and specific problems	78.93%
12	Geographical proximity to the Middle East, Europe and North Africa	76.93%
13	Specialists in Palestinian ICT firms have a very good language skills at Arabic, Hebrew and English languages	76%
14	Relatively lower labor costs than some competitors	56.27%

5.7 Success Factors for Building Strategic Outsourcing Relationship

This part aims to assess the ability of the West Bank's ICT firms and their success in building a strategic outsourcing relationship with the client firms. The respondents were asked to assess and rate the availability of building strategic outsourcing relationship factors in their firms, using a five-point Likert scale: poor (1), fair (2), good (3), very good (4), and excellent (5).

The researcher classified the response averages mean in table (5.16) into five degrees based on the methodology in table (5.2).

Table (5.16): Availability Degree for Success Factors for Building Strategic Outsourcing Relationship

Rank	Success Factors for Building Strategic Outsourcing Relationship	Mean	Availability Degree
1	Joint effort by both provider and client firms to follow up the work continuously	3.90	High
2	Understanding the client firm goals and objectives to build deep relation with them	3.84	High
3	Trying to find cultural fit between providers and clients (time zone, work hours, communication, telecommunication infrastructure, domain knowledge and security of data)	3.82	High
4	Supporting an environment of trust, moral, ethical standards with clients firms	3.79	High
5	Trying to build relationship based on alliances with clients firms	3.79	High
6	Willingness not to try to exploit the new relationship at the expense of long-term cooperation with client firm	3.76	High
7	Top management's support to engage in outsourcing and to reduce resistance to change	3.75	High
8	Keep communicating with client firm continuously even after the end of the contract	3.73	High
9	Implementing continuous risk management throughout outsourcing life cycle	3.72	High
Total		3.79	High

Table (5.16) shows that the average response mean for the availability of success factors for building a strategic outsourcing relationship is 3.79, which is considered high. Therefore, we can conclude

that there is a high availability of success factors of building a strategic outsourcing relationship with client firms in the West Bank's ICT firms.

Joint effort by both provider's and client firms to follow up the work continuously (3.90), understanding the client firm goals and objectives to build deep relation with them (3.84), and trying to find cultural fit between providers and clients (3.82) are the top three factors that have been applied in the West Bank's ICT firms to build strategic outsourcing relationship. On the other hand, implementing continuous risk management throughout outsourcing life cycle (3.72), keep communicating with client firm continuously even after the end of the contract (3.73), top management's support to engage in outsourcing and to reduce resistance to change (3.75) are the least three factors of building strategic outsourcing relationship that have been applied in the West Bank's ICT firms.

5.8 Testing the Outsourcing Risk Management Practices based on the Demographic Factors

Bivariate analysis, which is the analysis of two variables in order to explore if there are differences between them and the significance of these differences (Jekel, et al., 2007), was used to complete the analysis. To explore if there are significant differences between two variables regarding outsourcing risk management, bivariate analysis is employed, including both independent-samples t-test and One-Way ANOVA. The independent-samples t-test is used to indicate the significance difference between two unpaired groups. While, one-way ANOVA is used to allow the comparison

of more than two independent groups. We reject the null hypothesis (H_0) of no significant differences between two or more variables regarding another variables if level of significance is less than $\alpha = 0.05$.

5.8.1 Are there any Differences in Outsourcing's Risk Management Practices Related to the Location of Firms?

H₁₀: There are no statistically significant differences at $\alpha = 0.05$ in the application of outsourcing risk management practices between the West Bank's ICT firms attributed to the location.

Table (5.17): ANOVA Test for Applying Outsourcing Risk Management Practices According to the Firm's Geographic Location

Outsourcing Risk Management Practices	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
General risk management principles	Between Groups	16.256	7	2.322	0.000	Reject H_0
	Within Groups	72.858	142	0.513		
	Total	89.114	149			
Outsourcing risk management at pre-contract phase	Between Groups	31.019	7	4.431	0.000	Reject H_0
	Within Groups	81.336	142	0.573		
	Total	112.355	149			
Outsourcing risk management at contract and post-contract phases	Between Groups	14.255	7	2.036	0.001	Reject H_0
	Within Groups	79.178	142	0.558		
	Total	93.433	149			

According to the results in table (5.17), level of significance is less than $\alpha = 0.05$ in the three outsourcing risk management practices, thus, we reject the null hypothesis that is "There are no statistically significant

differences at $\alpha = 0.05$ in the application of outsourcing risk management practices between the West Bank's ICT firms attributed to the location".

We also use a Post Hoc analysis to test the variation between the eight locations (Hebron, Ramallah, Nablus, Toulkarm, Bethlehem, Jenin, Jerusalem, and Other Locations) as shown in tables (5.18), (5.19) and (5.20) in the degree of application of general risk management principles, outsourcing risk management at pre-contract phase and outsourcing risk management at contract and post-contract phases respectively.

Based on table (5.18), It is clear there is a significant difference (P-value less than 0.05) according to the firm's geographic location in the application of general risk management principles between ICT firms in Hebron and Nablus, ICT firms in Nablus and Ramallah, ICT firms in Nablus and Bethlehem, and between ICT firms in Nablus and other locations. However, there is no significant difference (P-values larger than 0.05) between ICT firms in Toulkarm and of the other locations, between Jenin and other locations, as well as between Jerusalem firms and other locations. It can be concluded that the application degree of general risk management principles in ICT firms in Nablus is better than in Hebron, Bethlehem, and Ramallah. This result can be justified, as some of risk management principles needs specific tasks, skills, experiences and techniques to implement them, these skills and experiences may not available in all individuals who are responsible to implement risk management in Hebron and Jenin. In the case of Nablus and Ramallah firms, the ICT firms in Nablus may seeks to compete Ramallah firms

through enhance their application of general risk management principles, which leads to increase the likelihood of outsourcing success. Moreover, the application degree in ICT firms in Ramallah is better than in Hebron. This result is justified, as the majority of ICT sector's activities and market demand are concentrated in three geographical locations: Jerusalem, Ramallah, and Gaza (Paltrade, 2014). Therefore, Ramallah firms needs to implement risk management principles to ensure the success of outsourcing process.

Table (5.18): Post Hoc Test for Firm's Geographic Location in the Degree of Application of General Risk Management Principles

General Risk Management Principles				
(I) Firm's Geographic Location	(J) Firm's Geographic Location	Mean Difference (I-J)	Std. Error	P-Value Sig.
Hebron	Ramallah	-0.11031	0.18047	0.999
	Nablus	-0.87888*	0.20696	0.001
	Toulkarm	-0.56719	0.26259	0.382
Ramallah	Hebron	0.11031	0.18047	0.999
	Nablus	-0.76857*	0.17546	0.001
	Toulkarm	-0.45688	0.23855	0.543
Nablus	Hebron	0.87888*	0.20696	0.001
	Ramallah	0.76857*	0.17546	0.001
	Toulkarm	0.31169	0.25917	0.930
	Bethlehem	1.11111*	0.27845	0.003
	Other Locations	0.79121*	0.24493	0.032
Bethlehem	Hebron	-0.23223	0.28163	0.991
	Ramallah	-0.34254	0.25937	0.890
	Nablus	-1.11111*	0.27845	0.003
	Toulkarm	-0.79942	0.32195	0.211
Other Locations	Hebron	0.08767	0.24855	1.000
	Ramallah	-0.02264	0.22300	1.000
	Nablus	-0.79121*	0.24493	0.032

*. The mean difference is significant at the 0.05 level.

Table (5.19) clarifies that there is a significant difference (P-value less than 0.05) according to the firm's location, in the degree of application of outsourcing risk management at pre-contract phase between ICT firms in Hebron and Ramallah, between ICT firms in Hebron and Nablus, between ICT firms in Hebron and Toulkarm, between ICT firms in Hebron and Jenin, between ICT firms in Ramallah and Nablus, between ICT firms in Ramallah and Toulkarm, between ICT firms in Nablus and Bethlehem, between ICT firms in Nablus and other locations between ICT firms in Toulkarm and Bethlehem and between ICT firm in Toulkarm and other locations. However, there is no significant difference (P-values larger than 0.05) between ICT firms in Jerusalem and any of the other locations.

It can be concluded that the application degree of outsourcing risk management at pre-contract phase in ICT firms in Ramallah, Nablus, Toulkarm and Jenin are better than in Hebron. Thus, we recommended that ICT firms in Hebron might need to improve their practices of outsourcing risk management at pre-contract phase, because risk management should be implemented at early stage of outsourcing life cycle, as was mentioned by Aris et al. (2008). Moreover, the application degree in ICT firms in Nablus and Toulkarm are better than in Ramallah. This result is justified, as these firms aim to compete the ICT firms in Ramallah by implemented risk management practices at early stage of outsourcing life cycle to ensure the success of outsourcing project with other firms and thus, increase their ability to sign more outsourcing contract with clients. ICT firms in Nablus and Toulkarm are better than in Bethlehem, because they seek to reach the

position of ICT firms in Ramallah. Also, they may have experiences and skills to implement risk management better than in ICT firms in Bethlehem.

Table (5.19): Post Hoc Test for Firm's Geographic Location in the Degree of Application of Outsourcing Risk Management at Pre-Contract Phase

Outsourcing Risk Management at Pre-Contract Phase				
(I) Firm's Geographic Location	(J) Firm's Geographic Location	Mean Difference (I-J)	Std. Error	P-Value Sig.
Hebron	Ramallah	-0.59379 [*]	0.19068	0.045
	Nablus	-1.22807 [*]	0.21867	0.000
	Toulkarm	-1.42236 [*]	0.27744	0.000
	Jenin	-1.27950 [*]	0.41000	0.044
Ramallah	Hebron	0.59379 [*]	0.19068	0.045
	Nablus	-0.63429 [*]	0.18538	0.018
	Toulkarm	-0.82857 [*]	0.25205	0.027
Nablus	Hebron	1.22807 [*]	0.21867	0.000
	Ramallah	0.63429 [*]	0.18538	0.018
	Bethlehem	1.15492 [*]	0.29420	0.003
	Other Locations	0.93758 [*]	0.25879	0.009
Toulkarm	Hebron	1.42236 [*]	0.27744	0.000
	Ramallah	0.82857 [*]	0.25205	0.027
	Bethlehem	1.34921 [*]	0.34017	0.003
	Other Locations	1.13187 [*]	0.31005	0.009
Bethlehem	Nablus	-1.15492 [*]	0.29420	0.003
	Toulkarm	-1.34921 [*]	0.34017	0.003
Jenin	Hebron	1.27950 [*]	0.41000	0.044
Other Locations	Nablus	-0.93758 [*]	0.25879	0.009
	Toulkarm	-1.13187 [*]	0.31005	0.009

^{*}. The mean difference is significant at the 0.05 level

Table (5.20) shows that there is a significant difference between ICT firms in Nablus and Ramallah, and between ICT firms in Nablus and Bethlehem. However, it can be noticed that firms in Nablus are

characterized by a higher degree of application of outsourcing risk practices than firms in Ramallah and Bethlehem.

Table (5.20): Post Hoc Test for Firm's Geographic Location in the Degree of Application of Outsourcing Risk Management at Contract and Post-Contract Phases

Outsourcing Risk Management at Contract and Post-Contract Phases				
(I) Firm's Geographic Location	(J) Firm's Geographic Location	Mean Difference (I-J)	Std. Error	P-Value Sig.
Ramallah	Nablus	-0.64000*	0.18291	0.014
Nablus	Ramallah	0.64000*	0.18291	0.014
	Bethlehem	0.93679*	0.29027	0.033
Bethlehem	Nablus	-0.93679*	0.29027	0.033

*. The mean difference is significant at the 0.05 level.

5.8.2 Are there any Differences in Outsourcing's Risk Management Practices Related to the Firms' Target Market?

H2₀: There are no statistically significant differences at $\alpha = 0.05$ in the application of outsourcing risk management practices between the West Bank's ICT firms attributed to the firms' market.

Table (5.21): ANOVA Test for Applying Outsourcing Risk Management Practices According to the Firm's Target Market

Outsourcing Risk Management Practices	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
General risk management principles	Between Groups	0.922	2	0.461	0.465	Accept H_0
	Within Groups	88.191	147	0.600		
	Total	89.114	149			
Outsourcing risk management at pre-contract phase	Between Groups	0.426	2	0.213	0.756	Accept H_0
	Within Groups	111.929	147	0.761		
	Total	112.355	149			
Outsourcing risk management at contract and post-contract phases	Between Groups	1.438	2	0.719	0.320	Accept H_0
	Within Groups	91.995	147	0.626		
	Total	93.433	149			

According to the results in table (5.21), level of significance is greater than $\alpha = 0.05$ in the three outsourcing risk management practices, thus, we accept the null hypothesis that there is "There are no statistically significant differences at $\alpha = 0.05$ in the application of outsourcing risk management practices between the West Bank's ICT firms attributed to the firms' market". Therefore, there is almost no difference between the firms attributed to the target market in terms of applying outsourcing risk management practices in the West Bank's ICT firms.

5.8.3 Are there any Differences in Outsourcing's Risk Factors Related to the Respondents' Qualification?

H3₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the impact of outsourcing risk factors on outsourcing process at pre-contract, contract and post-contract phases in the West Bank's ICT firms,

from the point of respondents' view, attributed to the respondents' qualification.

According to the results in table (5.22), there are no statistically significant differences (P-value more than 0.05) according to the respondents' qualification in the impact of outsourcing risks at pre-contract phase on outsourcing process. However, there are statistically significant differences (P-value less than 0.05) according to the respondents' qualification in the impact of outsourcing risks at contract and post-contract phases on outsourcing process.

Table (5.22): ANOVA Test for the Impact Degree of Outsourcing's Risk Factors According to the Respondents' Qualification

Outsourcing's Risk Factors	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
Outsourcing pre-contract phase related risks	Between Groups	2.568	2	1.284	0.087	Accept H_0
	Within Groups	75.985	147	0.517		
	Total	78.553	149			
Outsourcing contract phase related risks	Between Groups	4.281	2	2.140	0.020	Reject H_0
	Within Groups	77.890	147	0.530		
	Total	82.171	149			
Outsourcing post-contract phase related risks	Between Groups	5.914	2	2.957	0.011	Reject H_0
	Within Groups	93.380	147	0.635		
	Total	99.294	149			

We also use a Post Hoc analysis to test the variation between the three groups of respondents' qualification (higher education degree, bachelor degree, and diploma degree) with regards to the impact degree of

outsourcing risks at contract and post-contract phases on outsourcing process, as shown in tables (5.23) and (2.24) respectively.

Based on tables (5.23) and (2.24), It is clear there is a significant difference (P-value less than 0.05) according to the respondents' qualification in the impact degree of outsourcing contract and post-contract phases related risks on outsourcing process only between respondents who have higher education degree and bachelor degree. On the other hand, there are no differences (P-values larger than 0.05) between the diploma degree and bachelor degree, as well as between diploma degree and higher education degree. Therefore, it is clear that this difference is in favor of higher education degree. This result can be justified, as respondents with higher education degree may have skills and experiences in outsourcing risks assessment better than respondents with bachelor degree.

Table (5.23): Post Hoc Test for Respondents' Qualification in the Impact Degree of Outsourcing Contract Phase Related Risks on Outsourcing Process

Outsourcing Contract Phase Related Risks				
(I) Respondents' Qualification	(J) Respondents' Qualification	Mean Difference (I-J)	Std. Error	P-Value Sig.
Diploma	Bachelor	0.07912	0.18061	0.900
	Higher education	-0.43421-	0.23617	0.161
Bachelor	Diploma	-0.07912-	0.18061	0.900
	Higher education	-0.51333*	0.18061	0.014
Higher education	Diploma	0.43421	0.23617	0.161
	Bachelor	0.51333*	0.18061	0.014

*. The mean difference is significant at the 0.05 level.

Table (5.24): Post Hoc Test for Respondents' Qualification in the Impact Degree of Outsourcing Post-Contract Phase Related Risks on Outsourcing Process

Outsourcing Post-Contract Phase Related Risks				
(I) Respondents' Qualification	(J) Respondents' Qualification	Mean Difference (I-J)	Std. Error	P-Value Sig.
Diploma	Bachelor	0.44223	0.19775	0.068
	Higher education	-0.02807-	0.25859	0.994
Bachelor	Diploma	-0.44223-	0.19775	0.068
	Higher education	-0.47030*	0.19775	0.049
Higher education	Diploma	0.02807	0.25859	0.994
	Bachelor	0.47030*	0.19775	0.049

*. The mean difference is significant at the 0.05 level.

5.8.4 Are there any Differences in Outsourcing's Risk Factors Related to the Firms' Target Markets?

H4₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the impact of outsourcing risk factors on outsourcing process at pre-contract, contract and post-contract phases in the West Bank's ICT firms, from the point of respondents' view, attributed to the firms' target markets.

According to the results in table (5.25), there are no statistically significant differences (P-value more than 0.05) according to the firms' markets in the impact of outsourcing risks at pre-contract phase on outsourcing process. However, there are statistically significant differences (P-value less than 0.05) according to the firms' markets in the impact of outsourcing risks at contract and post-contract phases on outsourcing process.

Table (5.25): ANOVA Test for the Impact Degree of Outsourcing's Risk Factors According to the Firms' Target Markets

Outsourcing's Risk Factors	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
Outsourcing pre-contract phase related risks	Between Groups	2.365	2	1.182	0.106	Accept H_0
	Within Groups	76.188	147	0.518		
	Total	78.553	149			
Outsourcing contract phase related risks	Between Groups	7.017	2	3.508	0.001	Reject H_0
	Within Groups	75.154	147	0.511		
	Total	82.171	149			
Outsourcing post-contract phase related risks	Between Groups	5.556	2	2.778	0.015	Reject H_0
	Within Groups	93.738	147	0.638		
	Total	99.294	149			

Based on Post Hoc analysis as shown in tables (5.26) and (5.27), it is clear there is a significance difference (P-value less than 0.05) according to the firms' markets in the impact degree of outsourcing contract and post-contract phases related risks on outsourcing process only between firms deal with domestic market and firms deal with foreign market. However, there is no differences (P-values larger than 0.05) between the firms that deal with foreign market and firms that deal with both- foreign and domestic-markets, as well as between domestic market and both markets. Therefore, it is clear that the ICT firms that deal only with domestic market gave a high impact degree of outsourcing contract and post-contract phases related risks, more than firms that deal with foreign market. This result is justified, as domestic market (Palestinian universities, hospitals, banks, government etc.) might not have enough skills and experiences to deal with

outsourcing contract and outsourcing process, and perform risk management process properly, where the risks can come from provider side, client side and relation. So, in this case the ICT firms as a provider may bear more risks, which their impact is high. In the case of foreign market such as MNEs, the ICT firms not alone bear these risks because the foreign market has more skills and experiences in risk management process.

Table (5.26): Post Hoc Test for Firms' Target Markets in the Impact Degree of Outsourcing Contract Phase Related Risks on Outsourcing Process

Outsourcing Contract Phase Related Risks				
(I) Firms' Target Market	(J) Firms' Target Market	Mean Difference (I-J)	Std. Error	P-Value Sig.
Domestic market	Foreign market	0.80198*	0.22630	0.002
	Both	0.22976	0.14569	0.259
Foreign market	Domestic market	-0.80198*	0.22630	0.002
	Both	-0.57221-	0.25094	0.062
Both	Domestic market	-0.22976-	0.14569	0.259
	Foreign market	0.57221	0.25094	0.062

*. The mean difference is significant at the 0.05 level.

Table (5.27): Post Hoc Test for Firms' Target Markets in the Impact Degree of Outsourcing Post-Contract Phase Related Risks on Outsourcing Process

Outsourcing Post-Contract Phase Related Risks				
(I) Firms' Target Market	(J) Firms' Target Market	Mean Difference (I-J)	Std. Error	P-Value Sig.
Domestic market	Foreign market	0.63126*	0.25273	0.036
	Both	0.31161	0.16271	0.138
Foreign market	Domestic market	-0.63126*	0.25273	0.036
	Both	-0.31965-	0.28025	0.491
Both	Domestic market	-0.31161-	0.16271	0.138
	Foreign market	0.31965	0.28025	0.491

*. The mean difference is significant at the 0.05 level.

5.8.5 Are there any Differences in Outsourcing's Risk Factors Related to the Firms' Average Revenues?

H5₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the impact of outsourcing risk factors on outsourcing process at pre-contract, contract and post-contract phases in the West Bank's ICT firms, from the point of respondents' view, attributed to the firms' revenues.

According to the results in table (5.28), there is a statistically significant difference (P-value less than 0.05) according to the firms' revenues in the impact of outsourcing risks at pre-contract phase on outsourcing process. However, there are no statistically significant differences (P-value more than 0.05) according to the firms' revenues in the impact of outsourcing risks at contract and post-contract phases on outsourcing process.

Table (5.28): ANOVA Test for the Impact Degree of Outsourcing's Risk Factors According to the Firms' Revenues

Outsourcing's Risk Factors	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
Outsourcing pre-contract phase related risks	Between Groups	4.565	2	2.282	0.012	Reject H_0
	Within Groups	73.988	147	0.503		
	Total	78.553	149			
Outsourcing contract phase related risks	Between Groups	2.876	2	1.438	0.073	Accept H_0
	Within Groups	79.295	147	0.539		
	Total	82.171	149			
Outsourcing post-contract phase related risks	Between Groups	2.396	2	1.198	0.166	Accept H_0
	Within Groups	96.897	147	0.659		
	Total	99.294	149			

Based on Post Hoc analysis as shown in table (5.29), it is clear there is a significance difference (P-value less than 0.05) according to the firms' revenues in the impact degree of outsourcing pre-contract phase related risks on outsourcing process between firms that have less than \$100 thousand and firms that have more than \$1 million of revenues. On the other side, there are no differences (P-values larger than 0.05) between ICT firms that have less than \$100 thousand and \$100 thousand-\$1 million of revenues, as well as between firms that have more than \$1 million and firms that have \$100 thousand-\$1 million of revenues. Therefore, it is clear that this difference is in favor of firms with revenues less than \$100 thousand. This result is justified, as the ICT firms with revenues less than \$100 thousand, most of them are considered small firms, thus, outsourcing risks at pre-contract phase will impact significantly on their outsourcing

process. On the other hand, ICT firms with revenues more than \$1 million are considered medium and large firms, thus, the effect of outsourcing risks at pre-contract phase on their outsourcing process is less due to their experiences in managing these types of risks.

Table (5.29): Post Hoc Test for Firms' Revenues in the Impact Degree of Outsourcing Pre-Contract Phase Related Risks on Outsourcing Process

Outsourcing Pre-Contract Phase Related Risks				
(I) Firms' Revenues	(J) Firms' Revenues	Mean Difference (I-J)	Std. Error	P-Value Sig.
Less than \$100 thousand	\$100 thousand-\$1 million	0.24930	0.15159	0.230
	More than \$1 million	0.73992*	0.27612	0.022
\$100 thousand-\$1 million	Less than \$100 thousand	-0.24930-	0.15159	0.230
	More than \$1 million	0.49062	0.30091	0.236
More than \$1 million	Less than \$100 thousand	-0.73992*	0.27612	0.022
	\$100 thousand-\$1 million	-0.49062-	0.30091	0.236

*. The mean difference is significant at the 0.05 level.

5.8.6 Are there any Differences in Outsourcing's Risk Factors Related to the Firms' Geographic Location?

H₆₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the impact of outsourcing risk factors on outsourcing process at pre-contract, contract and post-contract phases in the West Bank's ICT firms, from the point of respondents' view, attributed to the location.

According to the results in table (5.30), level of significance is less than $\alpha = 0.05$ in the three types of outsourcing risk, this gives a basis for

rejecting the null hypothesis. Therefore, there is a statistically significant difference according to the firms' geographic location in the impact degree of outsourcing pre-contract, contract and post-contract phases related risks on outsourcing process.

Table (5.30): ANOVA Test for the Impact Degree of Outsourcing's Risk Factors According to the Firms' Geographic Location

Outsourcing's Risk Factors	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
Outsourcing pre-contract phase related risks	Between Groups	10.550	7	1.507	0.004	Reject H ₀
	Within Groups	68.003	142	0.479		
	Total	78.553	149			
Outsourcing contract phase related risks	Between Groups	8.050	7	1.150	0.037	Reject H ₀
	Within Groups	74.121	142	0.522		
	Total	82.171	149			
Outsourcing post-contract phase related risks	Between Groups	15.135	7	2.162	0.001	Reject H ₀
	Within Groups	84.159	142	0.593		
	Total	99.294	149			

Based on Post Hoc analysis as shown in tables (5.31), (5.32) and (5.33), it is clear there is a significance difference (P-value less than 0.05) according to the firms' geographic location in the impact degree of outsourcing pre-contract phase related risks on outsourcing process between ICT firms in Ramallah and Nablus, and ICT firms in Ramallah and Toulkarm. Moreover, there is a significance difference (P-value less than 0.05) according to the firms' geographic location in the impact degree of outsourcing contract phase related risks on outsourcing process between ICT firms in Ramallah and Toulkarm as shown in table (5.32), and a

significance difference (P-value less than 0.05) according to the firms' geographic location in the impact degree of outsourcing post-contract phase related risks on outsourcing process between ICT firms in Ramallah and Toulkarm, ICT firms in Bethlehem and Toulkarm, and between ICT firms in Nablus and Ramallah as shown in table (5.33).

Table (5.31): Post Hoc Test for Firm's Geographic Location in the Impact Degree of Outsourcing Pre-Contract Phase Related Risks on Outsourcing Process

Outsourcing Pre-Contract Phase Related Risks				
(I) Firm's Geographic Location	(J) Firm's Geographic Location	Mean Difference (I-J)	Std. Error	P-Value Sig.
Ramallah	Nablus	-0.57636*	0.16951	0.019
	Toulkarm	-0.81306*	0.23046	0.013

*. The mean difference is significant at the 0.05 level.

Table (5.32): Post Hoc Test for Firm's Geographic Location in the Impact Degree of Outsourcing Contract Phase Related Risks on Outsourcing Process

Outsourcing Contract Phase Related Risks				
(I) Firm's Geographic Location	(J) Firm's Geographic Location	Mean Difference (I-J)	Std. Error	P-Value Sig.
Ramallah	Toulkarm	-0.77318*	0.24061	0.034

*. The mean difference is significant at the 0.05 level.

Table (5.33): Post Hoc Test for Firm's Geographic Location in the Impact Degree of Outsourcing Post-Contract Phase Related Risks on Outsourcing Process

Outsourcing Post-Contract Phase Related Risks				
(I) Firm's Geographic Location	(J) Firm's Geographic Location	Mean Difference (I-J)	Std. Error	P-Value Sig.
Toulkarm	Ramallah	0.96000*	0.25638	0.006
	Bethlehem	1.11111*	0.34602	0.034
Nablus	Ramallah	0.63200*	0.18857	0.022

*. The mean difference is significant at the 0.05 level.

5.8.7 Are there any Differences in Outsourcing Mitigation Actions Related to the Respondents' Job Title?

H7₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the importance of the outsourcing mitigation actions to reduce outsourcing related risks in ICT sector attributed to the job title of the respondents.

Table (5.34): ANOVA Test for the Importance of the Outsourcing Mitigation Actions According to the Respondents' Position

	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
The Outsourcing Mitigation Actions	Between Groups	1.166	4	0.291	0.586	Accept H ₀
	Within Groups	59.433	145	0.410		
	Total	60.599	149			

According to the results in table (5.34), there is no statistically significant difference (P-value more than 0.05) according to the position of respondents in the degree of importance of the outsourcing mitigation actions to reduce outsourcing related risks in ICT sector, thus we accept the null hypothesis.

5.8.8 Are there any Differences in Outsourcing Mitigation Actions Related to the Firms' Target Markets?

H8₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the importance of the outsourcing mitigation actions to reduce outsourcing related risks in ICT sector attributed to firms' markets.

Table (5.35) shows that level of significance is less than $\alpha = 0.05$, this gives a basis for rejecting the null hypothesis. Therefore, there is a statistically significant difference according to the firms' markets in the degree of importance of the outsourcing mitigation actions to reduce outsourcing related risks in ICT sector. In order to get deep understanding, Post Hoc test was applied as shown in table (5.36).

Table (5.35): ANOVA Test for the Importance of the Outsourcing' Mitigation Actions According to the Firms' Markets

	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
The Outsourcing Mitigation Actions	Between Groups	2.905	2	1.453	0.027	Reject H_0
	Within Groups	57.694	147	0.392		
	Total	60.599	149			

Based on Post Hoc analysis as shown in table (5.36), it is clear there is a significance difference (P-value less than 0.05) according to the firms' markets in the importance of the outsourcing mitigation actions for reducing outsourcing related risks, only between firms that deal with foreign market and firms that deal with both -foreign and domestic-markets. Therefore, it is clear that this difference is in favor of ICT firms that deal with foreign market.

Table (5.36): Post Hoc Test for Firms' Target Markets in the Importance of the Outsourcing Mitigation Actions

Outsourcing Mitigation Actions				
(I) Firms' Target Market	(J) Firms' Target Market	Mean Difference (I-J)	Std. Error	P-Value Sig.
Domestic market	Foreign market	-0.36334-	0.19828	0.163
	Both	0.22045	0.12765	0.199
Foreign market	Domestic market	0.36334	0.19828	0.163
	Both	0.58379*	0.21986	0.024
Both	Domestic market	-0.22045-	0.12765	0.199
	Foreign market	-0.58379*	0.21986	0.024

*. The mean difference is significant at the 0.05 level

5.8.9 Are there any Differences in Outsourcing Success Factors Related to the Respondents' Gender?

H₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the importance of the outsourcing success factors in the West Bank's ICT firms, from the point of respondents' view, attributed to the respondents' gender.

To test the hypothesis, independent-samples t-test was conducted as shown in table (5.37). According to the results in table (5.37), the significant probability for the importance of outsourcing success factors is more than $\alpha = 0.05$, thus we accept the null hypothesis. Therefore, there is consistency across both genders with regard to the importance of outsourcing success factors in the West Bank's ICT firms.

Table (5.37): Independent T-Test for the Importance of the Outsourcing Success Factors According to the Gender of Respondents

The Outsourcing Success Factors	Source of Variance	F	P-Value (Sig.)	T	Df	Sig.(2-tailed)	Acceptance
	Equal variances assumed	1.502	0.222	-0.820-	148	0.413	Accept H_0
	Equal variances not assumed			-0.735-	59.428	0.465	

5.8.10 Are there any Differences in Outsourcing Success Factors Related to the Experience of Respondents?

H10₀: There are no differences denoting a statistical significance at $\alpha = 0.05$ in the importance of the outsourcing success factors in the West Bank's ICT firms, from the point of respondents' view, attributed to the experience of respondents.

According to the results in table (5.38), there is no statistically significant difference (P-value more than 0.05) between respondents according to their experience in the importance of the outsourcing success factors, thus we accept the null hypothesis. Therefore, there is consistency across all the respondents with different years of working experience in ICT sector with regard to the importance of outsourcing success factors in the West Bank's ICT firms.

Table (5.38): ANOVA Test for the Importance of the Outsourcing Success Factors According to the Respondents' Years of Experiences

	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
The Outsourcing Success Factors	Between Groups	0.245	4	0.061	0.956	Accept H_0
	Within Groups	53.915	145	0.372		
	Total	54.160	149			

5.8.11 Are there any Differences in Success Factors for Building Strategic Outsourcing Relationship Related to the Firms' Target Markets?

H11₀: There are no statistically significant differences at $\alpha = 0.05$ in the degree of availability of success factors for building strategic outsourcing relationship in the West Bank's ICT firms attributed to the firms' target markets.

Table (5.39): ANOVA Test for the Availability of Success Factors for Building Strategic Outsourcing Relationship in ICT firms According to the Firms' Target Markets

	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
Success Factors for Building Strategic Outsourcing Relationship	Between Groups	1.186	2	0.593	0.389	Accept H_0
	Within Groups	91.845	147	0.625		
	Total	93.031	149			

According to the results in table (5.39), there are no statistically significant differences (P-value more than 0.05) according to the firms' target market in the degree of availability of the success factors for building strategic outsourcing relationship. Therefore, we accept the null hypothesis

that is "There are no statistically significant differences at $\alpha = 0.05$ in the degree of availability of success factors for building strategic outsourcing relationship in the West Bank's ICT firms attributed to the firms' target markets".

5.8.12 Are there any Differences in Success Factors for Building Strategic Outsourcing Relationship Related to the Location of Firms?

H12₀: There are no statistically significant differences at $\alpha = 0.05$ in the degree of availability of success factors for building strategic outsourcing relationship in the West Bank's ICT firms attributed to the location.

According to the results in table (5.40), level of significance is less than $\alpha = 0.05$, this gives a basis for rejecting the null hypothesis. Therefore, there is a statistically significant difference according to the firms' geographic location in the availability of success factors for building strategic outsourcing relationship in the West Bank's ICT firms. We also use a Post Hoc analysis to test the variation between the eight locations (Hebron, Ramallah, Nablus, Toulkarm, Bethlehem, Jenin, Jerusalem, and Other Locations) as shown in table (5.41), in the availability of success factors for building strategic outsourcing relationship in the West Bank's ICT firms.

Table (5.40): ANOVA Test for the Availability of Success Factors for Building Strategic Outsourcing Relationship in ICT firms According to the Location

Success Factors for Building Strategic Outsourcing Relationship	Source of Variance	Sum of Squares	Df	Mean Square	P-Value (Sig.)	Acceptance
	Between Groups	15.690	7	2.241	0.000	Reject H_0
	Within Groups	77.341	142	0.545		
	Total	93.031	149			

Based on table (5.41), It is clear there is a significant difference (P-value less than 0.05) according to the firm's geographic location in the availability of success factors for building strategic outsourcing relationship, between ICT firms in Ramallah and Nablus, ICT firms in Ramallah and Toulkarm, ICT firms in Toulkarm and Bethlehem, ICT firms in Toulkarm and other locations, as well as between ICT firms in Nablus and other locations. However, there are no differences between other groups.

It can be concluded that the availability degree of success factors for building strategic outsourcing relationship, in ICT firms in Nablus and Toulkarm are more than in Ramallah. Moreover, the availability degree of success factors for building strategic outsourcing relationship in ICT firms in Toulkarm are more than in Bethlehem. This result is justified, as ICT firms in Nablus and Toulkarm seek to compete others ICT firms in Ramallah by improving their ability to build strategic outsourcing relationship with client firms.

Table (5.41): Post Hoc Test for Firm's Geographic Location in the Degree of Availability of Success Factors for Building Strategic Outsourcing Relationship

Success Factors for Building Strategic Outsourcing Relationship				
(I) Firm's Geographic Location	(J) Firm's Geographic Location	Mean Difference (I-J)	Std. Error	P-Value Sig.
Ramallah	Hebron	-0.18560-	0.18594	0.974
	Nablus	-0.60667*	0.18077	0.022
	Toulkarm	-0.89838*	0.24578	0.008
Nablus	Hebron	0.42106	0.21323	0.503
	Ramallah	0.60667*	0.18077	0.022
	Other Locations	0.85436*	0.25235	0.020
Toulkarm	Hebron	0.71278	0.27055	0.152
	Ramallah	0.89838*	0.24578	0.008
	Bethlehem	1.09764*	0.33171	0.025
	Other Locations	1.14608*	0.30234	0.005
Bethlehem	Hebron	-0.38486-	0.29017	0.887
	Toulkarm	-1.09764*	0.33171	0.025
Other Locations	Hebron	-.43330-	.25608	0.692
	Nablus	-.85436*	.25235	0.020
	Toulkarm	-1.14608*	.30234	0.005

*. The mean difference is significant at the 0.05 level.

5.9 Testing the Correlation between Risk Management Practices and the Success of Building Strategic Outsourcing Relationship

In this section, the bivariate correlation is applied using the Perason's correlation coefficient test in order to show if there is a correlation relationship between risk management practices through outsourcing life cycle (general risk management principles, outsourcing risk management at pre-contract phase and outsourcing risk management at contract and post-contract phases) and the success of the ICT firms in building strategic outsourcing relationship with client firms. The null hypothesis suppose that there is no significant relationship between the different groups of

variables. However, the null hypothesis is rejected if significance is less than $\alpha = 0.05$.

➤ **Testing the correlation between general risk management principles and the success of building strategic outsourcing relationship**

H13₀: There is no significant relationship between general risk management principles and the success of building strategic outsourcing relationship.

Based on the result in table (5.42), it can be noticed that the P-value is less than $\alpha = 0.01$ ($p = 0.00$), which means the null hypothesis (H_0) is rejected. Therefore, general risk management principles correlate positively with the success of firm in building strategic outsourcing relationship with client firm (correlation = 0.623). This result is justified, as the implementation of the basic risk management processes, from identifying the risks to controlling and monitoring them through outsourcing life cycle, is critical to the success of outsourcing project. Thus, the success of outsourcing arrangement between the provider and client leads to maintain the relationship between the two parties. This result supports the research done by Chou and Chou (2009), they indicated that the process of identifying risk factors and conducting matured risk management could increase the success of outsourcing project.

Table (5.42): Correlation Coefficient between General Risk Management Principles and the Success of Building Strategic Outsourcing Relationship

Risk Management Practices	Correlation	Success of Building Strategic Outsourcing Relationship
General Risk Management Principles	Pearson Correlation	0.623 ^{**}
	Sig. (2-tailed)	0.000

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

➤ **Testing the correlation between outsourcing risk management at pre-contract phase and the success of building strategic outsourcing relationship**

H14₀: There is no significant relationship between outsourcing risk management at pre-contract phase and the success of building strategic outsourcing relationship.

Based on the result in table (5.43), it can be noticed that the P-value is less than $\alpha = 0.01$ ($p = 0.00$), which means the null hypothesis (H_0) is rejected. Therefore, outsourcing risk management at pre-contract phase correlate positively with the success of firm in building strategic outsourcing relationship with client's firm (*correlation* = 0.710). Depending on the above analysis, it can be observed that the correlation between outsourcing risk management at pre-contract phase and the success of building strategic outsourcing relationship is greater than the correlation between general risk management principles and the success of building strategic outsourcing relationship. This result is justified as the implementation of risk management at early stage of outsourcing life cycle

(i.e. before the outsourcing contract is signed) helps the firms to identify and manage all the risks that may affect on outsourcing arrangement, analysis the current economic and market situation, obtain information about the clients, and identify the success factors that the firms have, so all that will increase the likelihood of outsourcing project success. Therefore, the client experience of a successful outsourcing project can lead to maintain the relationship between the two parties. This result supports the research done by Misra (2004), which indicates the importance of performing risk management in the earlier stage.

Table (5.43): Correlation Coefficient between Outsourcing Risk Management at Pre-Contract Phase and the Success of Building Strategic Outsourcing Relationship

Risk Management Practices	Correlation	Success of Building Strategic Outsourcing Relationship
Outsourcing Risk Management at Pre-Contract Phase	Pearson Correlation	0.710**
	Sig. (2-tailed)	0.000

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

➤ **Testing the correlation between outsourcing risk management at contract and post-contract phases and the success of building strategic outsourcing relationship**

H15₀: There is no significant relationship between outsourcing risk management at contract and post-contract phases and the success of building strategic outsourcing relationship.

Based on the result in table (5.44), it can be noticed that the P-value is less than $\alpha = 0.01$ ($p = 0.00$), which means the null hypothesis (H_0) is

rejected. Therefore, outsourcing risk management at contract and post-contract phases correlate positively with the success of firm in building strategic outsourcing relationship with client's firm (*correlation* = 0.723).

Table (5.44): Correlation Coefficient between Outsourcing Risk Management at Contract and Post-Contract Phases and the Success of Building Strategic Outsourcing Relationship

Risk Management Practices	Correlation	Success of Building Strategic Outsourcing Relationship
Outsourcing Risk Management at Contract and Post-Contract Phases	Pearson Correlation	0.723**
	Sig. (2-tailed)	0.000

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

Therefore, all risk management practices through outsourcing life cycle correlate positively with the success of firm in building strategic outsourcing relationship with client's firm. In addition, the results show that (outsourcing risk management at contract and post-contract phases) and (success of building strategic outsourcing relationship) have the greatest correlation (0.723), which means that successful outsourcing relationship with client's firm requires an effective risk management practices through contract and post-contract phases. This result is justified, as the implementation of outsourcing risk management at contract and post-contract phases helps the firm to ensure the designing of complete contract without ambiguity, reduce the risk factors that related to contract and post-contract phases, ensure the achievement of outsourcing project objectives, ensure the delivering what is promised in the outsourcing contract, and provide after service maintenance and support to the client. All that will

increase the likelihood of outsourcing project success and the client's satisfaction level more than ever. Therefore, the client may start a renewable outsourcing contract with the same provider and building strategic relationship with them. This result supports the research done by Chou and Chou (2009), which emphasized that the designing of incomplete contract could easily damage the business relationship.

As a result, the findings of this research supported an existence of a link between risk management practices and the firm's success for building strategic outsourcing relationship with client firm. Therefore, the implementation of risk management through outsourcing life cycle, and at each phase (pre-contract, contract, and post-contract phases) will increase the likelihood of outsourcing project success and that leads to maintain the relationship between the provider and client, and thus build a strategic outsourcing relationship between them.

Based on the above analysis, it can be concluded the main hypothesis:

“Outsourcing Risk Management Practices correlate positively with the Success of Building Strategic Outsourcing Relationship”

Based on the findings in this chapter, there is a need to develop a framework for risk management through outsourcing life cycle to help Palestinian ICT firms to employ outsourcing risk management practices in appropriate manner.

Chapter Six

Framework Development, Conclusions and Recommendations

Chapter Six

Framework Development, Conclusions and Recommendations

6.1 Chapter Overview

The risk may exist in any business and project during their life, therefore, the risks must be understood and identified carefully to deal with them and reduce any possible losses. Risk management process plays the major role in managing and dealing with risks that could affect the business outcomes (Dlabay et al., 2011). Outsourcing process is not straight forward and involves higher uncertainty and carries more risks than other firm task, because the firm should deal with third party (Chou and Chou, 2009), and with three categories of risk that associated with outsourcing, include: (1) the transaction, (2) the client, and (3) the provider (Bahli and Rivard, 2005). Consequently, unmanaged outsourcing risks could generate a loss and additional unexpected cost that might negatively affects the success of the outsourcing project. To obtain a successful outsourcing process, it is important to identify all the possible risks at each phase of outsourcing life cycle and perform matured risk analysis and quality control process.

As stated previously in this study that, the main objective is to develop a framework for risk management through outsourcing life cycle in the West Bank's ICT sector, that can be used to manage the outsourcing related risks effectively. According to the extensive literature review, this study including 30 elements of risk management practices through

outsourcing life cycle, that have been classified into three main groups: (1) general risk management principles through outsourcing life cycle, (2) outsourcing risk management during pre-contract phase, and (3) outsourcing risk management during contract and post-contract phases. The researcher assumed that the West Bank's ICT firms wanting to achieve success in outsourcing process with clients' firms and enhance their outsourcing risk management should adopt similar risk management practices through outsourcing life cycle.

In this chapter, the proposed risk management framework for outsourcing is developed and briefly discussed. Moreover, we summarize the thesis by providing conclusions of the study, the research contributions, recommendations, and directions for future research.

6.2 Framework Development

Based on literature reviews and findings of the questionnaire, the researcher developed a risk management framework for outsourcing from the provider's point of view, to be adopted in the West Bank's ICT providers. This framework aims to give an effective risk management tool for the outsourcing person to enhance their ability to manage and deal with outsourcing related risks at each phase of outsourcing process (pre-contract, contract, and post-contract phases). As shown in figure (6.1), the framework depends on outsourcing risk management practices that were classified under three main groups: general risk management principles, outsourcing risk management during pre-contract phase, and outsourcing

risk management during contract and post-contract phases. The proposed framework is designed using flow diagrams format in order to keep it simple and easy application.

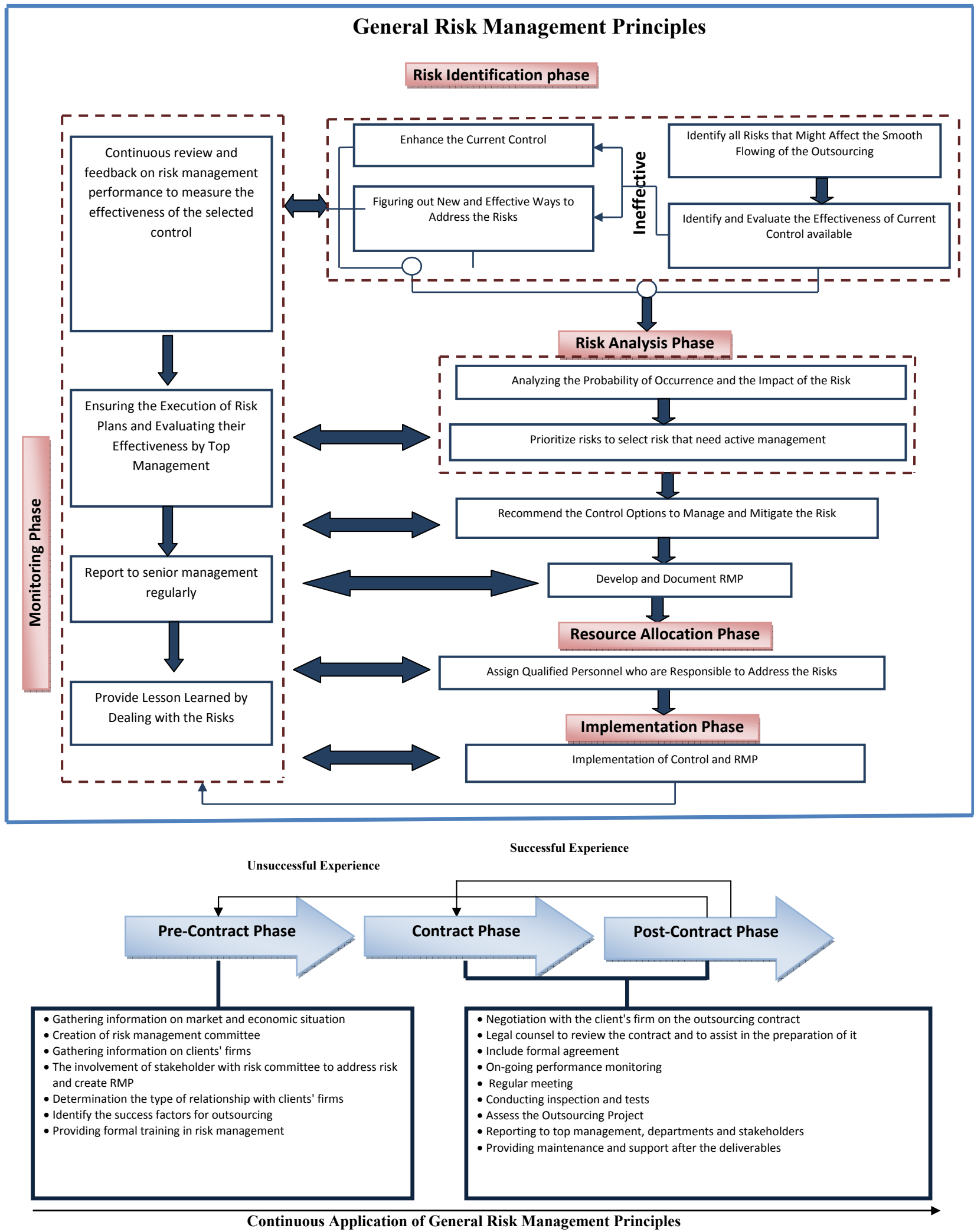


Figure (6.1): Proposed Framework for Risk Management through Outsourcing life Cycle for Palestinian ICT Firms

The framework as shown in figure (6.1) is discussed briefly as follows:

The framework illustrates a continuous risk management practice throughout outsourcing life cycle. according to Federal Financial Institution Examination Council (2004), firms should adopt an effective risk management process from the beginning and along the outsourcing life cycle. The risk management practices are divided into general risk management principles that applied continuously through outsourcing life cycle, and outsourcing risk management activities that applied at each phase of outsourcing process (pre-contract, contract, and post-contract phases), to enhance the firm's ability to manage and mitigate outsourcing related risks, and that will increase the success rate of outsourcing's projects.

General risk management principles

In order to reduce and mitigate the outsourcing related risks, the firm should apply general risk management principles continuously along the outsourcing life cycle, which is considered the basic processes of risk management. General risk management principles can be divided into five main phases as the following:

➤ Risk identification phase

At the beginning of risk management process, the firm should identify all the risks that might affect the outsourcing process at pre-

contract, contract, and post-contract phases. This phase might be done by a committee which consisted of: risk management team, outsourcing project team, other outsourcing project managers, external experts, key stakeholders and anyone in the firm has the responsibility to manage the risk. After that, it is important to identify the current risk control available in the firm and determine its effectiveness in addressing the identified risks, since the current control identification is a necessary process after the risk identification process to determine if it suitable to reduce or eliminate risks during the implementation phase (Stoneburner et al., 2002). If the current control is ineffective, the committee has to options, either to enhance it or figure out new effective control options to address the risks. According to PMBOK® (2000), the identification phase should be done repeatedly to achieve an unbiased analysis.

➤ **Risk analysis phase**

Once the risks have been identified, the firm should assess the impact of the occurrence and likelihood of occurrence of identified risks. After doing probability and impact analysis, risk should be prioritized according to their effect on outsourcing project objectives, in order to select best control option to deal with and assign the needed personnel and resources. Then, the most efficient control options are selected which fit with the management and mitigation of the risks. The risk management plan (RMP) is developed and all the previous work is documented and reported to senior management.

➤ **Resource allocation phase**

After control option selection, it is important to assign qualified personnel who are responsible to deal with risks by applying the selected actions, and assign other resources that required to manage the risks. All that additional information is add to the RMP.

➤ **Implementation phase**

This phase presents the actual implementation of the risk management plan, which consists of roles and responsibilities, tools and data sources which may be used to manage the risks, type of the risks, and control that will be taken to manage the risks.

➤ **Monitoring phase**

During this phase, risk monitoring is ongoing process through the outsourcing life cycle, since new risks might appear and others disappear over time, by time the risks change, and the information about risks that is provided by initial risk management process is not enough (Aris et al., 2008). Therefore, it can be implemented in each phase of risk management process to keep track of its activities. Monitoring phase includes the following activities:

- ✓ Follow-up identified risks
- ✓ Identify new risks

- ✓ Ensuring the execution of risk plans and evaluating their effectiveness in managing the risks.
- ✓ Continuous review and provide feedback on risk management performance to measure the effectiveness of the selected control that taken to manage the risks.
- ✓ Provide lesson learned and information by dealing with the risks that assist with making effective decisions.
- ✓ Report periodically to senior management on the effectiveness of RMP, control and any corrective action.

Outsourcing risk management activities

To enhance the effectiveness of risk management through outsourcing life cycle, the firm should apply specific activities at each phase of outsourcing life cycle as following:

➤ Outsourcing risk management at pre-contract phase

Outsourcing risk management at pre-contract phase embraces a portion of activities that should be performed before the signing of outsourcing contract, those activities include:

- ✓ Gathering information on market and economic situation to detect unexpected risks, and understand the firm's target markets and its competitiveness.

- ✓ Creation of risk management committee which is necessary to help planning for risk management, discover and identify risks, and manage them.
- ✓ Gathering information on clients' firms and the risk of dealing with them, to understand their reason for outsourcing some of their business functions to external firm.
- ✓ The involvement of stakeholders with risk management committee to assess risk and create RMP, in order to assess the risks from managers' point of view, keep trace of the development of outsourcing project, and reduce any resistance comes from them.
- ✓ Determination the type of relationship with clients' firms (strategic partnership or buyer/ seller relationship). The type of relationship should be determined at pre-contract phase because different types of relationship need different type of contract design and management at contract phase. Hence, managed relationship increases the success rate of outsourcing arrangements.
- ✓ Identification of outsourcing success factors. Outsourcing success factors can be used to guide the firm to perform a successful outsourcing project.
- ✓ Providing formal training in risk management for individuals who are responsible for managing the risks in order to conduct risk management properly.

➤ **Outsourcing risk management at contract and post-contract phases**

Outsourcing risk management at contract and post-contract phase embraces a portion of activities that should be performed from signing the outsourcing contract to the ending point of contract, and after contract termination, those activities include:

- ✓ The firm should negotiate with the client's firm on outsourcing contract to ensure that all requirements and aspects are clearly stated and written.
- ✓ Both outsourcing's parties (client and provider) should engage two parties legal counsel to help with the preparation and reviewing the final outsourcing contract.
- ✓ Include service level agreement in the outsourcing contract as a formal a agreement that provides the obligations of each party, and the division of work between the firm and the client's firm which includes scope, cost and durations to complete the projects, description of relationship, penalty and rewards etc.
- ✓ Perform on-going monitoring on performance to enhance the firm's ability to mitigate risks and to maintain relationship with the client's firm by delivering what is promised.
- ✓ Conduct regular meeting to ensure the development of outsourcing project on the right way and complied with all the promises made

during the contract, and at the same time to submit report to the committee.

- ✓ Conduct inspection and tests on the outsourcing deliverables to make sure that they work properly.
- ✓ Assess the outsourcing project regarding the quality of service or product that will be provided to ensure it satisfy the client needs and requirements.
- ✓ Regular Report to top management, departments and stakeholders so that the stakeholders will always keep abreast with the development of the project.
- ✓ Provide maintenance and support after the deliverables to the clients' firms to monitoring the outsourcing deliverables continuously and to maintain the relationship with the client.

After the deliverables is done and contract termination, the client has two choices, either to continue the relationship with the client by signing a next outsourcing contract if the client has experienced a high level of satisfaction, or to search for another provider. Thus, risk management through outsourcing life cycle is very important to reduce and mitigate the risks, that leads to a successful outsourcing project and maintains the relationship between the client and the provider.

6.3 Research Conclusion

This research has three sub objectives that aim to achieve the main objective for this research, which is "develop a framework for risk management through outsourcing life cycle in the West Bank's ICT sector". These objectives were achieved through structured questionnaires that were distributed among a sample of the West Bank's ICT firms.

The following points explain how each of the research objectives is achieved.

- **Objective 1:** identify the main risk factors that affect the success of outsourcing in the West Bank's ICT firms and the impact of each one on outsourcing from the perspective of ICT service providers.

To consider this objective, the researcher reviewed the previous research that addressed the topics in the field of outsourcing risk management. The outsourcing risks were identified as outsourcing pre-contract risks, outsourcing contract risks and outsourcing post-contract risks. Based on the literature review and the studies about the local situation in Palestine, this study addresses 11 outsourcing pre-contract risks, 8 contract risks and 15 post-contract risks. After that, the researcher asked the respondents to rank the outsourcing risk factors taking into account three considerations: the likelihood of risk factors, their impact and their difficulty to mitigate. The results for analysis this part showed that:

1. With regards with outsourcing pre-contract risks, “Israeli occupation and socio-political instability” is the highest impact on outsourcing process. Followed in order by financial instability, poor and lack of project planning, unrealistic expectations, unrealistic estimation of schedule, budget and other required resources, lack of information available about market, the clients' firms and others providers' firms, provider's firm overstated claims, uncertainty about the legal environment of the firm or clients' firms, different rules and regulations, social responsibility, and poor cultural fit (i.e. language, communication, time zone etc.), as shown in table (5.7).
2. With regards with outsourcing contract risks, “lack of experience, expertise and maturity of the client's firm with outsourcing contract management” is the highest impact on outsourcing process. Followed in order by lack of experience, expertise and maturity of the provider's firm with outsourcing contract management, unclear requirements of the client's firm, conflicting between the requirements, inadequate requirements and terms of the client's firm, incomplete and ambiguous outsourcing contract, inflexible contract, and failure to specify suitable performance measures and procedures, as shown in table (5.8).
3. With regards with outsourcing post-contract risks, “business and organizational environment instability” is the highest impact on outsourcing process. Followed in order by insufficient funds and bankruptcy of the provider's firm, breach of the contract's requirements

by the provider's firm, lack of technical knowledge and education of the provider's firm, poor audit and control of outsourcing related services, loss of provider's key technical persons and critical skills, loss of control by the client's firm or provider's firm, changing and creeping in the objectives or requirements of the client's firm, client-supplier conflict, lack of experience and expertise with the project tasks and IT operation, hidden cost, poor management in the client's firm, poor management in the provider's firm, lack of assess measurement, metrics and tools, and communication problems between the client-provider firms, as shown in table (5.9).

4. Most of the outsourcing related risks are considered as a high risks, while financial instability and Israeli occupation and socio-political instability are considered as critical risks.
5. Financial instability has the largest risk priority numbers of outsourcing related risks. Followed in order by Israeli occupation and socio-political instability, business and organizational environment instability, insufficient funds and bankruptcy of the provider's firm, and lack of technical knowledge and education of the provider's firm, as shown in table (5.13).

➤ **Objective 2:** assess the current risk management practices that adopted in the West Bank's ICT sector through outsourcing life cycle.

To consider this objective, an extensive literature review was done to identify the outsourcing risk management practices. This study assumes 30 outsourcing risk management practices, that have been classified into: general risk management principles, outsourcing risk management during pre-contract phase, and outsourcing risk management during contract and post-contract phases.

1. The total average response rate for general risk management principles was 3.45 out of 5.00, which is considered high. Therefore, we can say that there is a high application of general risk management principles in the West Bank's ICT firms.
2. The total average response rate for outsourcing risk management during pre-contract phase is 3.35 out of 5.00. Thus, we can say that there is a moderate application of outsourcing risk management during pre-contract phase in the West Bank's ICT firms.
3. The average mean of the response for outsourcing risk management during contract and post-contract phases is 3.54. We can say that there is a good application of outsourcing risk management during contract and post-contract phases in the West Bank's ICT firms.
4. The West Bank's ICT firms are more appropriate in managing outsourcing risks during contract and post-contract phases, followed by managing general outsourcing risk, and finally managing risk during pre-contract phase, as shown in table (5.6).

5. On-going performance monitoring, providing maintenance and support after the deliverables to the clients' firms, conducting inspection and testing to make sure that the deliverables are fully functional, negotiation with the client's firm on outsourcing contract to ensure that all requirements and aspects are defined and written clearly, and determination the most effective and necessary actions to manage the risks, are the top five of outsourcing risk management practices that have been applied in the West Bank's ICT firms.
 6. According the assessment of the success of the West Bank's ICT firms in building a strategic outsourcing relationship with the client firms, joint effort by both provider's and client firms to follow up the work continuously, understanding the client firm goals and objectives, trying to find cultural fit between providers and clients, supporting an environment of trust, moral, ethical standards with clients firms, and trying to build relationship based on alliances with clients firms are the top five factors that have been applied in the West Bank's ICT firms to build strategic outsourcing relationship.
- **Objective 3:** identify the significant success factors for outsourcing in the West Bank's ICT firms, and estimate how to mitigate the impact of outsourcing related risks.

To consider this objective, the researcher reviewed the previous research that addressed the related topics. Based on the literature review and the studies about the local situation in Palestine, this study assumes 14

success factors of outsourcing, and 14 outsourcing mitigation actions. The results for analysis this part showed that:

1. Hiring outsourcing experts is the main factor for the success of outsourcing. Followed in order by the accurate definition of the project's scope and specifications, conflicts handling, building strong outsourcing relationship between the provider's firm and the client's firm, a detailed, flexible and proper contract structuring, consider and understand governmental regulations and legal issues, frequency of client-provider meetings, cultural proximity between client's firm and provider's firm, the top management's support, negotiating a reasonable and fair contract for both parties, understand the client's firm objectives and specific problems, geographical proximity to the Middle East, Europe and North Africa, specialists in Palestinian ICT firms have a very good language skills at Arabic, Hebrew and English languages, and relatively lower labor costs than some competitors. As shown in table (5.15).
2. Distribution of responsibilities clearly, and socialization and shared organizational goals, values and norms between team are the main outsourcing mitigation actions. Followed in order by socialization and shared organizational goals, values and norms between provider firm and client firm, use suitable communication media between provider's-client's firms, carefully delineated performance measures, establish Risk committee to review and manage risk, regular supplier- business

review and audit, Setting a benchmark or reference point for comparison on a regular basis, establish contingency plan, building and retaining internal capabilities before the contract, creating flexible and more informed outsourcing contracts, hiring of external technical and legal expertise, appointing a contract/relationship manager, and mediation and arbitration for dispute resolution. As shown in table (5.14).

finally, the results of hypotheses testing showed that:

1. Outsourcing risk management practices correlate positively with the success of building strategic outsourcing relationship
2. “Outsourcing risk management at contract and post-contract phases” and “the success of building strategic outsourcing relationship” have the greatest correlation (0.723). followed by a significant relationship between “outsourcing risk management at pre-contract phase” and “the success of building strategic outsourcing relationship” with correlation = 0.710, and between “general risk management principles” and “the success of building strategic outsourcing relationship” with correlation = 0.623.

6.4 Research Contribution

The results of this study provide significant influential contributions to the Palestinian ICT firms to enhance their outsourcing risk management. It provides a framework aims to enhance the firms’ practices of outsourcing

risk management through outsourcing life cycle, that increase the success of their outsourcing activities, maintain the relationship between the firms and their clients, and thus allow Palestine to be one of the best destinations for providing outsourcing business. It also helps ICT firms to identify the main risk factors that affect the smooth flowing of outsourcing process at each phase of outsourcing life cycle, the main success factors of outsourcing, and some of outsourcing mitigation actions.

6.5 Research Recommendations

Based on research's findings, the West Bank's ICT firms have a good application of outsourcing risk management practices, but they still need more improvement in their practices to enhance the outsourcing activities provided by them. Thus, this study proposed recommendations to the West Bank's ICT firms to enhance their outsourcing process by improving their outsourcing risk management practices:

- Firms should employee risk management process continuously through outsourcing life cycle, and at each phase (pre-contract, contract, and post-contract phases).
- The findings show that outsourcing risk management during pre-contract phase has the least degree of application in the West Bank's ICT firms. So, the firms might need to shed more attention on the implementation of risk management at early stage of outsourcing

process (i.e. before signing the outsourcing contract) to ensure the success of outsourcing activities.

- It is better for the firm to establish risk management committee that has the responsibility to address the risks, as an initial phase to practice risk management, especially in firms that have a good number of employees.
- The managers and the committee should assign qualified persons who have the suitable skills and experiences to address the risks and implement risk control actions.
- It is better for the firms to provide formal training in risk management for their employees who are responsible to implement risk management, because risk management process needs specific skills, technique, and experiences.
- The firms should recognize that the involvement of stakeholders with risk management committee is important to assess the outsourcing related risks from managers' point of view, and increase their commitment.
- It is necessary for firms to monitor the outsourcing process continuously. Such monitoring is very important to improve the firm's ability to manage and mitigate risks before they affect the success of outsourcing process, ensure the achievement of outsourcing project goal, and thus maintain the relationship with client firms.

- Finally, this research recommends ICT firms or any outsourcing providers to use the framework that proposed for risk management through outsourcing life cycle as shown in figure (6.1).

6.6 Directions for Future Research

There are many future research that emerged from this research. We recommend to have further research as the following:

- This research was limited on the identification and assessment of outsourcing risks to capture the source of risks and its impact on outsourcing process, without understanding the relationship between these risks. It is recommended to understand the exact interrelationship between outsourcing risk factors by selecting some case studies of Palestinian outsourcing providers to investigate the relationship clearly. Also, it is recommended to develop models for these risks and map each risk to various mitigation actions that suitable to mitigate and reduce its effect.
- It is recommended to identify outsourcing risks and assess the outsourcing risk management practices from the clients' perspective in Palestine, who outsourced some of their activities and IT services and products to the ICT firms. This can be done through the investigation of a sample or some case studies of client firms, such as universities, hospital, government, banks, manufactories, and other Palestinian companies that outsourced their process to external party. Also, it is

recommended to develop a framework for outsourcing risk management through outsourcing life cycle from the perspective of these companies.

- It is recommended to select some case studies of Palestinian ICT firms, and some of their clients to present a clear picture about all the risks that may face them: risks from the client side, risks from the provider side, and risks related to the relation, and develop a comprehensive models for outsourcing risk management from different perspective to assist these firms to enhance their risk management practices and maintain the relationship between them.

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Appendixes

Appendix-A

An-Najah National University

Faculty of Graduates Studies

Engineering Management Program



Questionnaire for Outsourcing Providers in the West Bank's ICT Firms

- ❖ **Outsourcing:** is the process of hiring an external firm to perform some business functions or processes, rather than performed internally (in-house). This can be done through establishing a relationship with independent firms by signing contracts with them.
- ❖ **Information technology outsourcing (ITO):** is a firm's outsourcing of information and communications related services and products to other firms through contracts governing the relationship between them. It consists of two parties:
 1. **The provider's firm:** is a firm that provides information and communications related services and products or perform some business functions for the clients' firms, which is the population sample for this study.
 2. **The client's firm:** is a firm that outsourcing of information and communications related services and products to other firms.

Dear Respondent,

My name is Wejdan Shaheen. Currently, I'm a student in Engineering Management program at Al-Najah National University, I'm working on my master thesis that investigate the outsourcing risk management and success factors in the West Bank's ICT firms.

We believe that your firm, as a senior in ICT fields, will be the best source to collect the research related information, which will improve the management of outsourcing in ICT sector. Filling this questionnaire will take about 15 minutes or less. Your cooperation is highly appreciated. We are ready to send the survey results and recommendations for you.

We hope that you will read all the sections of the questionnaire carefully, and answer them to suit the reality of your firm objectively. If you have any questions please contact the researcher on email address: wej_2010@hotmail.com

Note: Please be assured that all the data collected in this questionnaire will be treated as confidential and will not be used in any other fields except academic research.

Thank you for finding time for filling in this questionnaire.

Best Regards,

Prepared by: Wejdan Shaheen

Supervisor: Dr. Rabeh Morrar

Part One: General Questions

1. Gender:

<input type="checkbox"/> Male	<input type="checkbox"/> Female
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2. Qualification:

<input type="checkbox"/> Diploma	<input type="checkbox"/> Bachelor	<input type="checkbox"/> Higher education
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3. Years of Experience in ICT Sector:

<input type="checkbox"/> Less than 5	<input type="checkbox"/> 5-10	<input type="checkbox"/> 10-15	<input type="checkbox"/> 15-20
<input type="checkbox"/> More than 20			

4. Place of Work:

<input type="checkbox"/> Hebron	<input type="checkbox"/> Ramallah	<input type="checkbox"/> Nablus	<input type="checkbox"/> Toulkarm
<input type="checkbox"/> Bethlaheem	<input type="checkbox"/> Jenin	<input type="checkbox"/> Jerusalem	<input type="checkbox"/> Others

5. Type of Your Firm (you can choose more than one):

<input type="checkbox"/> Supply of computers/communications/electronic equipments firm	<input type="checkbox"/> Telecommunications firm
<input type="checkbox"/> Computational consulting office	<input type="checkbox"/> Provide office automation firm
<input type="checkbox"/> Software firm	<input type="checkbox"/> Others

6. Market Segment for Your Firm:

<input type="checkbox"/> Domestic market	<input type="checkbox"/> Foreign market	<input type="checkbox"/> Both
------------------------------------------	-----------------------------------------	-------------------------------

7. What is the Best Description Suits Your Position (Job title)?

<input type="checkbox"/> Firm Manager	<input type="checkbox"/> Risk Manager	<input type="checkbox"/> Project Manager	<input type="checkbox"/> Engineer
<input type="checkbox"/> Others			

8. Your Firm's Revenues (Yearly):

<input type="checkbox"/> Less than \$100 thousand	<input type="checkbox"/> \$100 Thousand - \$1 Million	<input type="checkbox"/> More than \$1 Million
---------------------------------------------------	-------------------------------------------------------	------------------------------------------------

9. Number of Firm's Employee:

10.What are the ICT Related Services/Products Outsourced by Your Firm to Other Firms? (allowed to choose more than one)

<input type="checkbox"/>	Application Development
<input type="checkbox"/>	Application Hosting Services
<input type="checkbox"/>	Database and Software Management
<input type="checkbox"/>	Hardware Installation and Maintenance
<input type="checkbox"/>	Help Desk -Support to End Users
<input type="checkbox"/>	Security-Related Functions
<input type="checkbox"/>	Network Equipment
<input type="checkbox"/>	Telecommunication Network and Internet Services
<input type="checkbox"/>	Software Development, Testing and Maintenance
<input type="checkbox"/>	Website or an E-commerce System Development
<input type="checkbox"/>	Programming
<input type="checkbox"/>	Computer Hardware Equipment
<input type="checkbox"/>	Web-Designing
<input type="checkbox"/>	Telecommunication Services
<input type="checkbox"/>	Mobile Applications Development
<input type="checkbox"/>	Mobile Applications Products
<input type="checkbox"/>	Staff and/or User Training
<input type="checkbox"/>	ICT Consulting
<input type="checkbox"/>	Business and IT Enterprise Solutions
<input type="checkbox"/>	Others

11.Most of Your Firm's Outsourcing Contract with Other Firms are (allowed to choose more than one):

<input type="checkbox"/>	Short-Term Contract (less than 5 years)
<input type="checkbox"/>	Medium-Term Contract (from 6-10 years)
<input type="checkbox"/>	Long-Term Contract (more than 10 years)

Part Two: Assess Outsourcing Risk Management Practices Through Outsourcing Life Cycle and Success Criteria for Outsourcing in ICT Firms

For every item choose the level that most accurately describes your firm:

12. Assess the Firm's Practice the General Risk Management Principles

Note: (1) Not at all, (2) To a slight degree, (3) To a moderate extent, (4) To a great extent, and (5) To a very great extent.

	➤ How do your firm practice risk management principle during each and every phase of IT outsourcing life cycle?	Rank				
	General Risk Management Principles	1	2	3	4	5
1	Identify all risks that might affect the smooth flowing of the outsourcing process in each phase					
2	Identify and evaluate the effectiveness of current control available to manage the risk					
3	Enhance the current control if it is ineffective					
4	Figuring out new and effective ways to address the risks					
5	Analyzing the probability of occurrence and the impact of the occurrence of the risk					
6	Prioritize risks to select risk that need active management					
7	Determine the most effective and necessary actions to manage the risks (Recommend the action necessary to manage the risk to select the best risk response from several control options)					
8	Develop and document a detailed and comprehensive risk management plan (RMP)					
9	Report to senior management regularly					
10	Assign qualified personnel who are responsible to address the risks					
11	Implementation of control and risk management plan					
12	Continuous review and feedback on risk management performance to measure the effectiveness of the selected control that taken to manage the risks					
13	Ensuring the execution of risk plans and evaluating their effectiveness by top management					
14	Provide lesson learned by dealing with the risks					

13. Assess the Practice of Outsourcing Risk Management During Pre-Contract Phase

Hint: Pre-contract phase includes activities before a major contract is signed.

Note: (1) Not at all, (2) To a slight degree, (3) To a moderate extent, (4) To a great extent, and (5) To a very great extent.

	➤ How do your firm practice the following factors that should be performed during the early phase of IT outsourcing to reduce and manage the risks?	Rank				
	The Elements of Outsourcing Risk Management During Pre-Contract Phase	1	2	3	4	5
1	Gathering information on market and economic situation to detect unexpected risks					
2	Creation of risk management committee					
3	Gathering information on clients' firms and the risk of dealing with them					
4	The involvement of stakeholder with risk committee to address risk and create RMP					
5	Determination the type of relationship with clients' firms (strategic partnership or buyer/ seller relationship)					
6	Identify the success factors for outsourcing					
7	Providing formal training in risk management					

14. Assess the Practice of Outsourcing Risk Management During Contract and Post-Contract Phases

Hint: Contract phase starts while an outsourcing contract is signed.

Post-contract phase contains those activities to be done after contract signing and after contract expiration.

	➤ How do your firm practice the following factors that should be performed during the construction and signing of outsourcing contracts, and during post-contract phase to reduce and manage the risks?	Rank				
	The Elements of Outsourcing Risk Management During Contract and Post-Contract Phases	1	2	3	4	5
1	Negotiation with the client's firm on outsourcing contract to ensure that all requirements and aspects are defined and written clearly					
2	Legal counsel to review the contract and to assist in the preparation of it					
3	Formal agreement which includes scope, cost and durations to complete the projects, description of relationship, penalty and rewards etc.					
4	On-going performance monitoring to maintain relationship with client's firm and to ensure the goal is achieved					
5	Regular meeting to ensure the development of the project is on the right track and complied with the agreed contract.					
6	Conducting inspection and testing to make sure that the deliverables are fully functional					
7	Assess the outsourcing project					
8	Reporting to top management, departments and stakeholders so that the stakeholders will always keep side by side with the development of the project					
9	Providing maintenance and support after the deliverables to the clients' firms					

15. Assess the Success of Your Firm to Build Strategic Outsourcing Relationship with the Clients' Firms

Note: (1) Poor, (2) Fair, (3) Good, (4) Very good, and (5) Excellent.

	➤ To what extent the following factors are implemented in your firm to build strategic outsourcing relationship with clients' firms?	Rank				
		1	2	3	4	5
1	Supporting an environment of trust, moral, ethical standards with clients' firms					
2	Willingness not to try to exploit the new relationship at the expense of long-term cooperation with client's firm					
3	Trying to find cultural fit between providers and clients (time zone, work hours, communication, telecommunication infrastructure, domain knowledge and security of data)					
4	Joint effort by both provider's and client's firms to follow up the work continuously					
5	Top management's support to engage in outsourcing and to reduce resistance to change					
6	Understanding the client's firm goals and objectives to build deep relation with them					
7	Trying to build relationship based on alliances with clients' firms					
8	Implementing continuous risk management throughout outsourcing life cycle					
9	Keep communicating with client's firm continuously even after the end of the contract					

Part Three: Identify the Main Risk Factors of Outsourcing in ICT Firms

Please choose the option that most accurately describes the providers' firms (ICT firms) ability to identify each risk factor of outsourcing according to: their impact on outsourcing process, their likelihood of occurrence, and their difficulty to mitigate:

16.Outsourcing Pre-Contract Phase Related Risks

Note: (1) Very low, (2) Low, (3) Medium, (4) High, and (5) Very high.

What are the likelihood of occurrence, the impact and the difficulty to mitigate the following factors during outsourcing pre-contract phase?		Significance of impact					Likelihood of occurrence					Difficulty to mitigate occurrence or impact				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	Uncertainty about the legal environment of the firm or clients' firms															
2	Unrealistic estimation of schedule, budget and other required resources															
3	Poor and lack of project planning															
4	Unrealistic expectations either from the provider's firm or the client's firm															
5	Overstated claims by provider's firm															
6	Lack of information available about market, the clients' firms and others providers' firms															
7	Different rules and regulations between the firms and the client's firm															
8	Social responsibility (ethics, dealing with Israel)															
9	Poor cultural fit between client and provider (i.e. language, communication, time zone etc.)															
10	Israeli occupation and socio-political instability															
11	Financial instability															

17.Outsourcing Contract Phase Related Risks

Note: (1) Very low, (2) Low, (3) Medium, (4) High, and (5) Very high.

What are the likelihood of occurrence, the impact and the difficulty to mitigate the following factors during outsourcing contract phase?		Significance of impact					Likelihood of occurrence					Difficulty to mitigate occurrence or impact				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	Failure to specify suitable measures and procedures															
2	Inadequate requirements and terms of the client's firm															
3	Conflicting between the requirements of the clients' firms and what is available at the provider's firm															
4	Unclear and ambiguous requirements of the client's firm															
5	Inflexible outsourcing contract															
6	Incomplete and ambiguous outsourcing contract															
7	Lack of experience, expertise and maturity of the client's firm with outsourcing contract management															
8	Lack of experience, expertise and maturity of the provider's firm with outsourcing contract management															

18.Outsourcing Post-Contract Phase Related Risks

Note: (1) Very low, (2) Low, (3) Medium, (4) High, and (5) Very high.

What are the likelihood of occurrence, the impact and the difficulty to mitigate the following factors during outsourcing post-contract phase?		Significance of impact					Likelihood of occurrence					Difficulty to mitigate occurrence or impact				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	Poor management in the provider's firm															
2	Poor management in the client's firm															
3	Business and organizational environment instability															
4	Poor audit and control of outsourcing related services in the provider side															
5	Breach of the contract's requirements by the provider's firm															
6	Changing and creeping objectives or requirements of the client's firm															
7	Hidden cost that are not apparent in the contract (as unexpected transition and management costs, costly contractual amendments etc.)															
8	Lack of technical knowledge and education of the provider's firm															
9	Loss of control by the client's firm or provider's firm															
10	Communication problems between the client-provider firms															

11	Lack of experience and expertise with the project tasks and IT operation															
12	Lack of assess measurement, metrics and tools															
13	Client-supplier conflict															
14	Loss of provider's key technical persons and critical skills															
15	Insufficient funds and bankruptcy of the provider's firm															

Part Four: Identify the Risk Mitigation Actions that Would Contribute to Reduce the Outsourcing Related Risks and the Key Success Factors of Outsourcing in ICT Sector From the Viewpoint of Provider's Firm

Please, choose the most appropriate response using the rank from (1-5).

19.Mitigation Actions

Note: (1) Affects with little degree, (2) Affects something, (3) Affects with average degree, (4) Affects with large degree, and (5) Affects with very large degree.

	➤ To what extent do the following mitigation actions contribute to reduce the impact of outsourcing related risks from your point of view?	Rank				
		1	2	3	4	5
1	Creating flexible and more informed outsourcing contracts					
2	Establish risk committee to review and manage risk					
3	Hiring of external technical and legal expertise					
4	Socialization and shared organizational goals, values and norms between team					
5	Socialization and shared organizational goals, values and norms between provider's firms and client's firm					
6	Appointing a contract/relationship manager					
7	Mediation and arbitration for dispute resolution					
8	Building and retaining internal capabilities before the contract					

9	Carefully delineated performance measures					
10	Regular supplier-business review and audit					
11	Distribution of responsibilities clearly					
12	Setting a benchmark or reference point for comparison on a regular basis					
13	Use suitable communication media between provider's-client's firms					
14	Establish contingency plan					

20. Success Factors of Outsourcing

Note: (1) Affects with little degree, (2) Affects something, (3) Affects with average degree, (4) Affects with large degree, and (5) Affects with very large degree.

	➤ To what extent the following factors can be considered important to the success of outsourcing process in Palestinian ICT firms?	Rank				
		1	2	3	4	5
1	Understand the client's firm objectives and specific problems					
2	Frequency of client-provider meetings					
3	The accurate definition of the project's scope and specifications					
4	Cultural proximity between client's firm and provider's firm					
5	The top management's support					
6	A detailed, flexible and proper contract structuring					
7	Building strong outsourcing relationship between the provider's firm and the client's firm					
8	Consider and understand governmental regulations and legal issues					
9	Conflicts handling and solve it properly					
10	Hiring outsourcing experts					
11	Negotiating a reasonable and fair contract for both parties					
12	Relatively lower labor costs than some competitors					
13	Specialists in Palestinian ICT firms have a very good language skills at Arabic, Hebrew and English languages					
14	Geographical proximity to the Middle East, Europe and North Africa					

Thank you for your cooperation

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Appendix-B



جامعة النجاح الوطنية

كلية الدراسات العليا

قسم الإدارة الهندسية

الموضوع: طلب تعبئة استبيان خاص بإدارة مخاطر تعهيد العقود الخارجية (Outsourcing)

وعوامل نجاحها في شركات تكنولوجيا المعلومات والاتصالات في الضفة الغربية

❖ **التعهيد (Outsourcing):** أن تقوم المؤسسة بالاستعانة بشركة خارجية لأداء بعض الوظائف والعمليات، بدلا من القيام بها داخل المؤسسة نفسها. يتم ذلك من خلال توقيع عقود تنظم علاقة المؤسسة مع شركات المزود.

❖ **التعهيد في تكنولوجيا المعلومات (IT Outsourcing):** أن تقوم الشركة بتزويد منتجاتها وخدماتها المرتبطة بتكنولوجيا المعلومات والاتصالات لشركات أخرى ضمن عقود تنظم هذه العلاقة، وتتكون العملية من طرفين، وهما:

1. **الشركة المزودة:** هي الشركة التي تقوم بتزويد المنتجات والخدمات المرتبطة بتكنولوجيا المعلومات والاتصالات، وهي تمثل عينة الدراسة في هذا البحث.

2. **شركة العميل:** هي الشركة التي تستعين بالمزود لتوفير الخدمات والمنتجات المرتبطة بتكنولوجيا المعلومات والاتصالات، كبديل عن القيام بها داخل المؤسسة نفسها، ويمكن أن تكون شركات محلية أو شركات خارج فلسطين.

عزيزي القارئ:

أنا الطالبة وجدان شاهين، أدرس في برنامج الإدارة الهندسية في جامعة النجاح الوطنية، أقوم بعمل رسالة ماجستير عن إدارة مخاطر التعهيد وعوامل نجاحها في شركات تكنولوجيا المعلومات والاتصالات الفلسطينية.

شركتكم هي إحدى الشركات الرائدة في قطاع تكنولوجيا المعلومات والاتصالات في فلسطين، لذلك تم اختياركم من قبل الباحث كمصدر للحصول على المعلومات الخاصة بالبحث والتي من شأن الإجابة عليها تحسين عملية التعهيد في قطاع تكنولوجيا المعلومات والاتصالات.

تعبئة هذا الاستبيان سوف يستغرق حوالي 15 دقيقة أو أقل لإتمامه. لذلك فإن تعاونكم هو محل تقدير كبير، ونحن على استعداد لإرسال نتائج البحث والتوصيات لحضرتكم بعد انتهاء الدراسة.

نرجو من حضرتكم قراءة جميع فقرات الاستبيان بدقة، ووضع الإجابة التي تتناسب مع واقع الشركة التي تعمل بها بموضوعية. إذا كان لديك أي استفسار الرجاء التواصل مع الباحث على عنوان البريد الإلكتروني الخاص: wej_2010@hotmail.com

ملاحظة: إن كافة المعلومات التي سنحصل عليها سوف تكون سرية، ولن تستخدم إلا لأغراض البحث العلمي.

أشرك على تخصيص جزء من وقتك لتعبئة هذا الاستبيان.

الباحثة: وجدان شاهين

إشراف د. رابح مرار

أولاً: معلومات عامة

الرجاء الإجابة على الأسئلة التالية بوضع إشارة (✓) في مربع الإجابة التي تناسبك:

1. الجنس:

<input type="checkbox"/> ذكر	<input type="checkbox"/> أنثى
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2. المؤهل العلمي:

<input type="checkbox"/> دبلوم	<input type="checkbox"/> بكالوريوس	<input type="checkbox"/> تعليم عالي
--------------------------------	------------------------------------	-------------------------------------

عدد سنوات الخبرة:

<input type="checkbox"/> أقل من 5 سنوات	<input type="checkbox"/> 6-10 سنوات	<input type="checkbox"/> 10-15 سنة	<input type="checkbox"/> 15-20 سنة
<input type="checkbox"/> 20 سنة وأكثر			

3. مكان العمل:

<input type="checkbox"/> الخليل	<input type="checkbox"/> رام الله	<input type="checkbox"/> نابلس	<input type="checkbox"/> طولكرم
<input type="checkbox"/> بيت لحم	<input type="checkbox"/> جنين	<input type="checkbox"/> القدس	<input type="checkbox"/> غير ذلك

4. نوع المؤسسة (بإمكانك وضع أكثر من خيار):

<input type="checkbox"/>	شركة تزويد أجهزة اتصالات وحواسيب ومعدات إلكترونية	<input type="checkbox"/>	شركة اتصالات سلكية، لا سلكية وغيرها	<input type="checkbox"/>	مكتب استشارات حاسوبية	<input type="checkbox"/>	شركة تزويد أتمتة المكاتب
<input type="checkbox"/>	شركة برمجيات	<input type="checkbox"/>	غير ذلك				

السوق الذي تستهدفه شركتك:

<input type="checkbox"/>	السوق المحلي (الحكومة، البلديات، البنوك، التعليم العالي.. الخ)	<input type="checkbox"/>	السوق الخارجي	<input type="checkbox"/>	كلاهما
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5. المسمى الوظيفي المناسب لك:

<input type="checkbox"/>	مدير عام	<input type="checkbox"/>	مدير المخاطر	<input type="checkbox"/>	مدير مشروع	<input type="checkbox"/>	مهندس
<input type="checkbox"/>	غير ذلك						

إيرادات الشركة التي تعمل بها (سنوياً):

<input type="checkbox"/>	أقل من 100 ألف دولار	<input type="checkbox"/>	100 ألف دولار - مليون دولار	<input type="checkbox"/>	أكثر من مليون دولار
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عدد موظفي الشركة:

6. ما هي الخدمات أو المنتجات المتعلقة بتكنولوجيا المعلومات والاتصالات التي تقوم شركتك بتزويدها للشركات الأخرى؟ (بإمكانك وضع أكثر من خيار)

<input type="checkbox"/>	تطوير برامج وأنظمة جديدة أو تحسين الأنظمة الموجودة في شركة العميل (Application Development)
<input type="checkbox"/>	خدمات استضافة المواقع في مركز البيانات الخاص بالمزود (Application Hosting Services)
<input type="checkbox"/>	إدارة قواعد البيانات الخاصة بشركة العميل (Database and Software Management)
<input type="checkbox"/>	تركيب وتنصيب الأجهزة وصيانتها (Hardware Installation and Maintenance)
<input type="checkbox"/>	خدمة الدعم الفني من خلال الهاتف أو الإنترنت (Help Desk - Support to End Users)

<input type="checkbox"/>	خدمات الحماية الإلكترونية (Security-Related Functions)
<input type="checkbox"/>	تزويد شركة العميل بأجهزة الشبكات (Network Equipment)
<input type="checkbox"/>	خدمات الإنترنت وشبكات الاتصال (Telecommunication Network and Internet Services)
<input type="checkbox"/>	خدمات تطوير البرمجيات (Software Development, Testing and Maintenance)
<input type="checkbox"/>	تطوير مواقع و أنظمة الشراء عبر الإنترنت (Website or an E-commerce System Development)
<input type="checkbox"/>	برمجيات (Programming)
<input type="checkbox"/>	تزويد شركة العميل بمستلزمات أجهزة الكمبيوتر (Computer Hardware Equipment)
<input type="checkbox"/>	تصميم مواقع الإنترنت (Web-Designing)
<input type="checkbox"/>	خدمات الاتصالات (Telecommunication Services)
<input type="checkbox"/>	تطوير برامج الأجهزة الذكية (Mobile Applications Development)
<input type="checkbox"/>	بيع برامج الأجهزة الذكية (Mobile Applications Products)
<input type="checkbox"/>	خدمات التدريب لطاقم شركة العميل أو زبائنهم (Staff and/or User Training)
<input type="checkbox"/>	الاستشارات في مجال أنظمة المعلومات و الاتصالات (ICT Consulting)
<input type="checkbox"/>	تقديم الحلول الخاصة بتكنولوجيا المعلومات (Business and IT Enterprise Solutions)
<input type="checkbox"/>	خدمات أخرى (الرجاء تحديدها)

7. إن عقود التعهيد التي تقوم بها شركتك مع الشركات الأخرى لتزويدها بالخدمات التي

ذكرت سابقا هي: (بإمكانك اعطاء أكثر من إجابة)

<input type="checkbox"/>	عقود قصيرة الأجل (أقل من 5 سنوات)	<input type="checkbox"/>	عقود متوسطة الأجل (من 6-10 سنوات)
<input type="checkbox"/>	عقود طويلة الأجل (أكثر من 10 سنوات)		

ثانياً: تقييم إدارة مخاطر التعهيد وعوامل نجاحها في شركات تكنولوجيا المعلومات والاتصالات الفلسطينية

الرجاء وضع إشارة (✓) في مربع الخيار أسفل الدرجة التي تعبر عن مستوى الشركة التي تعمل بها:

8. مدى ممارسة الشركة المبادئ الأساسية لإدارة مخاطر تعهيد تكنولوجيا المعلومات

الدرجة (5-1)					ما مدى قيام الشركة التي تعمل بها بممارسة المبادئ التالية المتعلقة بإدارة المخاطر خلال جميع مراحل تعهيد تكنولوجيا المعلومات؟
بدرجة قليلة جداً	بدرجة قليلة	بدرجة متوسطة	بدرجة كبيرة	بدرجة كبيرة جداً	
1	2	3	4	5	مبادئ إدارة المخاطر
					التحديد الدقيق للمخاطر التي قد تؤثر على نجاح عملية التعهيد في كل مرحلة
					تحديد وتقييم مدى فعالية نظام الرقابة والتحكم الحالي المتاح لإدارة المخاطر
					تحسين الشركة لنظام الرقابة الحالي إذا كان غير فعال
					البحث الدائم عن طرق جديدة وفعالة لمعالجة المخاطر
					تقدير وتحليل احتمالية حدوث المخاطر والأثر المتوقع منها
					تحديد الأولويات للمخاطر واختيار المخاطر التي تتطلب معالجة أكثر
					تحديد الإجراءات الأكثر فعالية واللائمة لإدارة المخاطر
					تطوير خطة مفصلة وشاملة لإدارة المخاطر (Risk Management Plan)
					تقديم تقارير إلى الإدارة العليا بشكل منتظم
					تعيين أشخاص ذوو كفاءة عالية في مجال معالجة المخاطر

					تنفيذ الخطط والإجراءات الخاصة بإدارة المخاطر
					المراجعة المستمرة لاستراتيجيات إدارة المخاطر وأدائها، وتقديم التغذية الراجعة لقياس فعالية إجراءات التحكم
					هناك رقابة من قبل الإدارة العليا على تنفيذ خطط المخاطر وتقييم فعاليتها
					تقديم الدروس المستفادة خلال التعامل مع المخاطر

9. تقييم ممارسة إدارة مخاطر التعهيد أثناء مرحلة ما قبل العقد

- **مرحلة ما قبل العقد (Pre-Contract Phase) :** تشمل الأنشطة التي تقوم بها الشركة قبل توقيع العقود بهدف إدراك المخاطر بشكل مبكر والتخفيف منها لمساعدة الشركة على تجنب المشاكل لاحقاً

الدرجة (1-5)					ما مدى قيام الشركة التي تعمل بها بممارسة الأمور التالية، والتي يجب القيام بها مبكراً قبل توقيع عقد تعهيد تكنولوجيا المعلومات لتقليل المخاطر وإدارتها بشكل أفضل؟
درجة قليلة جداً	درجة قليلة	درجة متوسطة	درجة كبيرة	درجة كبيرة جداً	
1	2	3	4	5	عناصر إدارة المخاطر لمرحلة ما قبل العقد
					تقوم الشركة بجمع معلومات عن السوق والوضع الاقتصادي الحالي من أجل الكشف عن الأخطار غير المتوقعة
					تقوم الشركة في العادة بتشكيل لجنة لإدارة المخاطر
					تقوم الشركة بجمع المعلومات عن شركات العملاء المتوقعين ومخاطر التعامل معهم
					تقوم لجنة إدارة المخاطر بإشراك جميع الدوائر والجهات المعنية (Stakeholder) في عملية تقييم الأخطار وإنشاء خطة إدارة المخاطر
					تحديد نوع العلاقة مع شركات العملاء (علاقة الشراكة الاستراتيجية أو علاقة المشتري و البائع)

					تقوم الشركة بتحديد عوامل النجاح لعملية التعهيد من أجل التخفيف من المخاطر المتوقعة
					تقوم الشركة بتوفير التدريب المناسب لأعضاء لجنة المخاطر قبل البدء بتقييم المخاطر

10. تقييم ممارسة إدارة مخاطر التعهيد أثناء مرحلة العقد ومرحلة ما بعد العقد

- **مرحلة العقد (Contract Phase):** تشمل هذه المجموعة المخاطر المرتبطة بمرحلة إنشاء العقود وتوقيعها
- **مرحلة ما بعد توقيع العقد (Post-Contract Phase):** تشمل مجموعة الأنشطة التي يتم القيام بها بعد توقيع العقد أثناء مرحلة التنفيذ وأيضا الأنشطة بعد انتهاء العقد

الدرجة (5-1)					ما مدى قيام الشركة التي تعمل بها بممارسة الأمور التالية، والتي يجب القيام بها أثناء مرحلة إنشاء عقود التعهيد وتوقيعها، ومرحلة ما بعد العقد لتقليل المخاطر وإدارتها بشكل أفضل؟
بدرجة كبيرة جداً	بدرجة كبيرة	بدرجة متوسطة	بدرجة قليلة	بدرجة جداً	عناصر إدارة المخاطر لمراحل العقد وما بعد العقد
5	4	3	2	1	تتفاوض الشركة مع شركة العميل على العقد، لتشمل جميع المتطلبات والشروط بشكل واضح ومكتوب
					استعانة الشركة بمستشار أو محامي قانوني لمراجعة العقد والمساعدة في إعدادها
					تقوم الشركة بإبرام اتفاق أو نموذج رسمي يتضمن: نطاق العمل، التكلفة، مدة إنجاز المشروع، وصف العلاقة بين المزود والعميل، تحديد العقوبات والمكافآت بناء على الأداء... الخ
					متابعة الشركة ومراقبتها للأداء بشكل مستمر للحفاظ على العلاقة مع شركة العميل وضمان تحقيق الأهداف التي وضعت خلال التفاوض على العقد

					أن تقوم الشركة بعقد اجتماع بشكل منتظم لضمان تطوير المشروع بشكل صحيح حسب الاتفاق
					إجراء الشركة الفحص والاختبار للتأكد من أن الأعمال التي تم إنجازها تعمل بشكل كامل
					تقييم مشروع التعايد (Assess the Outsourcing Project)
					إعداد التقارير بشكل دائم لإبقاء الإدارة العليا وجميع الدوائر والجهات المعنية (Stakeholders) على اطلاع دائم مع تطوير المشروع
					توفر الشركة خدمة الصيانة والدعم الفني لشركة العملاء بعد قيامها بإنجاز العمل المتفق عليه

11. تقييم نجاح الشركة في بناء علاقة استراتيجية للتعايد مع شركات العملاء

الدرجة (5-1)					ما مدى توفر العناصر التالية في الشركة التي تعمل بها من أجل بناء علاقة استراتيجية للتعايد مع شركات العملاء؟
درجة قليلة جداً	درجة قليلة	درجة متوسطة	درجة كبيرة	درجة كبيرة جداً	
1	2	3	4	5	عناصر بناء علاقة استراتيجية
					توفر الشركة مناخ من الثقة والمعايير الأخلاقية مع شركات العملاء
					تفضل الشركة بناء علاقة تعاون طويلة الأجل مع شركات العملاء على محاولة استغلال العلاقة الجديدة
					تحاول الشركة القيام بإيجاد نوع من التقارب الثقافي مع شركات العملاء فيما يخص الوقت، ساعات العمل، وسائل الاتصالات، اللغة ومجال المعرفة
					تقوم الشركة بمتابعة مستمرة لسير العمل مع شركات العملاء
					تدعم الإدارة العليا قرارات الدخول في عملية التعايد مع شركات أخرى؛ لتقليل مقاومتها للتغيير

					تحاول الشركة فهم أهداف ومتطلبات شركة العميل من أجل بناء علاقة متينة معها
					تحاول الشركة بناء علاقة مبنية على التحالفات مع العملاء
					تحافظ الشركة على إدارة عملية المخاطر على طول فترة التعهيد
					تحافظ الشركة على التواصل المستمر مع شركة العميل حتى بعد نهاية العقد

ثالثاً: تحديد عوامل الخطر (Risk factors) المرتبطة بعملية تعهيد تكنولوجيا المعلومات في

شركات تكنولوجيا المعلومات والاتصالات

الرجاء وضع إشارة (✓) في مربع الخيار أسفل الدرجة التي تعبر عن مدى قدرة شركة المزود على تحديد المخاطر المرتبطة بعملية التعهيد من حيث التأثير، احتمالية الحدوث وصعوبة التخفيف من الأثر.

12. المخاطر المرتبطة بمرحلة قبل العقد

ملاحظة: (1) منخفض جداً، (2) منخفض، (3) متوسط، (4) مرتفع، (5) مرتفع جداً

صعوبة التخفيف من أثره					احتمالية حدوثه					مقدار تأثيره					إلى أي مدى هذه العوامل المسببة لوجود خطر التعهيد في مرحلة ما قبل العقد يكون تأثيرها، احتمالية حدوثها وصعوبة التخفيف من أثرها؟
5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	
															عدم اليقين حول البيئة القانونية للشركة أو لشركات العملاء
															تقدير غير واقعي للجدول الزمني والمصادر المطلوبة لإنجاز العمل
															سوء في التخطيط
															توقعات غير واقعية سواء من الشركة المزودة أو العملاء

[illegible]

13. المخاطر المرتبطة بمرحلة توقيع العقد

ملاحظة: (1) منخفض جداً، (2) منخفض، (3) متوسط، (4) مرتفع، (5) مرتفع جداً

صعوبة التخفيف من أثره					احتمالية حدوثه					مقدار تأثيره					إلى أي مدى هذه العوامل المسببة لوجود خطر التعهد اثناء مرحلة العقد يكون تأثيرها، و احتمالية حدوثها وصعوبة التخفيف من أثرها؟
5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	
															الفشل في تحديد التدابير والإجراءات المناسبة أثناء صياغة العقد
															عدم كفاية متطلبات وشروط العملاء

															وجود تعارض بين متطلبات شركات العملاء وما يتوفر عند شركة المزود
															عدم وضوح متطلبات شركة العميل
															عدم وجود مرونة في العقد
															النقص أو عدم الوضوح في بند أو أكثر من بنود العقد
															نقص الخبرة والنضوج في إدارة عقود التعهيد لدى شركة العميل
															نقص الخبرة والنضوج في إدارة عقود التعهيد لدى شركة المزود

14. المخاطر المرتبطة بمرحلة ما بعد توقيع العقد

ملاحظة: (1) منخفض جداً، (2) منخفض، (3) متوسط، (4) مرتفع، (5) مرتفع جداً

صعوبة التخفيف من أثره					احتمالية حدوثه					مقدار تأثيره					إلى أي مدى هذه العوامل المسببة لوجود خطر التعهيد في مرحلة ما بعد توقيع العقد يكون تأثيرها، و احتمالية حدوثها وصعوبة التخفيف من أثرها؟
5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	
															سوء وضعف في الإدارة لدى شركة المزود
															سوء وضعف في الإدارة لدى شركة العميل
															عدم استقرار البيئة التنظيمية والتجارية المحيطة بالعمل
															عدم القيام بالخطوات المناسبة لمراقبة التنفيذ وضمان جودة الخدمات المتعلقة بالتعهيد

																		إخلال شركة المزود بمتطلبات العقد التي تم الاتفاق عليها
																		تغيير شركة العميل لمتطلبات العقد التي تم الاتفاق عليها
																		التكاليف المخفية التي لا تكون ظاهرة في العقد (تكاليف النقل والإدارة غير المتوقعة و التكاليف الناتجة عن تعديل العقود)
																		عدم الكفاية في المعرفة التقنية والنقص في التعليم لدى شركة المزود
																		فقدان السيطرة والتحكم من قبل شركة العميل أو شركة المزود
																		مشاكل في عملية الاتصال والتواصل بين شركة المزود وشركة العميل
																		نقص الخبرات والتجارب في التعامل مع المهام والوظائف المتعلقة بتكنولوجيا المعلومات
																		نقص أو عدم توفر مقاييس أو معايير أو أدوات التقييم
																		وجود خلافات بين شركة المزود وشركة العميل
																		فقدان شركة المزود الكوادر التقنية والمهارات الأساسية
																		تعرض شركة المزود لمخاطر الإفلاس

رابعاً: تحديد وسائل وإجراءات التخفيف من أثر المخاطر المرتبطة بعملية التعهيد، بالإضافة إلى تحديد العوامل الرئيسة لنجاح عملية التعهيد في قطاع تكنولوجيا المعلومات والاتصالات من وجهة نظر المزود

الرجاء وضع إشارة (✓) في مربع الخيار الذي يناسبك

15. إجراءات التخفيف

درجة الموافقة					إلى أي مدى إجراءات التخفيف التالية تساهم في التخفيف من أثر المخاطر المرتبطة بالتعهيد من وجهة نظرك؟
أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
5	4	3	2	1	إجراءات التخفيف
					إنشاء عقود تعهيد مرنة، وقابلة للتغيير إذا وجدت ضرورة
					إنشاء لجنة لإدارة و مراجعة المخاطر
					توظيف خبراء تقنيين وقانونيين من خارج الشركة
					تعزيز روح التعاون والقيم المشتركة بين الفريق
					تعزيز روح التعاون والقيم المشتركة بين شركة المزود وشركة العميل
					تعيين مدير للعقود والعلاقات
					الوساطة والتحكيم لتسوية المنازعات
					بناء الكفاءات لدى طاقم العمل الخاص بعملية التعهيد داخل الشركة
					وضع مقاييس الأداء بشكل دقيق
					استعراض ومراجعة الشركة المزودة للأعمال بشكل منتظم
					توزيع المسؤوليات بشكل واضح
					وضع نقطة مرجعية أو معيار للمقارنة على أساس منتظم (Benchmarking)
					استخدام وسائل الاتصال المناسبة بين شركة المزود وشركة العميل
					إنشاء خطة طوارئ خاصة بإدارة عملية التعهيد

16. عوامل نجاح تعهيد تكنولوجيا المعلومات

درجة الموافقة					إلى أي مدى العوامل التالية تعتبر مهمة لنجاح التعهيد من وجهة نظرك في شركات تكنولوجيا المعلومات والاتصالات في فلسطين؟
أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
5	4	3	2	1	عوامل النجاح
					فهم أهداف العملاء والمشاكل الخاصة
					الاجتماعات واللقاءات المتكررة بين المزود والعميل
					التعريف الدقيق لنطاق ومواصفات المشروع
					التقارب الثقافي بين المزود والعميل (اللغة، الاتصالات، التوقيت...الخ)
					دعم الإدارة العليا
					تنظيم العقود بشكل سليم ومفصل ومرن
					بناء علاقة قوية لتعهيد تكنولوجيا المعلومات بين المزود والعميل
					فهم دقيق للوائح الحكومية والمسائل القانونية
					التعامل مع النزاعات وحلها بشكل صحيح
					توظيف خبراء في تعهيد تكنولوجيا المعلومات
					التفاوض على عقد معقول وعادل لكلا الطرفين
					تكاليف الأيدي العاملة في شركات تكنولوجيا المعلومات والاتصالات الفلسطينية أقل تكلفة نسبياً من بعض المنافسين
					المختصون في شركات تكنولوجيا المعلومات والاتصالات الفلسطينية لديهم مهارات لغوية جيدة جداً في اللغة العبرية، العربية والانجليزية
					القرب الجغرافي من الشرق الأوسط، أوروبا وشمال إفريقيا

شكراً على حسن تعاونكم

جامعة النجاح الوطنية
كلية الدراسات العليا

إدارة مخاطر التعهيد وعوامل نجاحها في شركات تكنولوجيا المعلومات والاتصالات الفلسطينية

إعداد

وجدان زياد عبد الشكور شاهين

إشراف

د. رابع مرار

قدمت هذه الأطروحة استكمالاً لمتطلبات الحصول على درجة الماجستير في الإدارة الهندسية بكلية الدراسات العليا في جامعة النجاح الوطنية في نابلس، فلسطين.

2016م

ب

إدارة مخاطر التعهيد وعوامل نجاحها في شركات تكنولوجيا المعلومات والاتصالات الفلسطينية

إعداد

وجدان زياد عبد الشكور شاهين

إشراف

د. رابع مرار

الملخص

في الوقت الراهن أصبحت عملية التعهيد - وهي قيام الشركة بالاستعانة بشركة أخرى لأداء بعض الوظائف والعمليات، خاصة المرتبطة بتكنولوجيا المعلومات والاتصالات بدلاً من القيام بها داخل الشركة نفسها ضمن عقود تنظم العلاقة بين الطرفين، وهما: شركة المزود وشركة العميل - أكثر انتشاراً في الشركات والأعمال محلياً وعالمياً، خاصة في قطاع تكنولوجيا المعلومات والاتصالات. على الرغم من الفوائد المرجوة من عملية التعهيد، إلا أن هناك العديد من المخاطر المحيطة بها، حيث عدم إدارتها بالشكل الصحيح يؤثر على نجاح العملية. إن الدافع وراء هذه الدراسة هو تطوير نموذج لإدارة المخاطر المرتبطة بعملية التعهيد في قطاع تكنولوجيا المعلومات والاتصالات في الضفة الغربية، كطرف مزود لخدمات التعهيد. يهدف النموذج إلى مساعدة الشركات على تحسين قدرتها على إدارة وتخفيف المخاطر المتعلقة بعملية التعهيد، المساهمة في نجاح عملية التعهيد والمحافظة على العلاقة بين شركة المزود وشركة العميل، وبالتالي تحسين قدرة الشركات الفلسطينية على المنافسة ليكونوا من أهم الشركات المزودة للأنشطة والأعمال المرتبطة بعملية التعهيد. أظهرت نتائج الدراسة بأن أهم عوامل الخطر التي تؤثر على نجاح عملية التعهيد في الشركات الفلسطينية هي عدم الاستقرار المادي وعدم الاستقرار السياسي والاجتماعي المتمثل بالاحتلال الإسرائيلي، والعامل الرئيسي لنجاح عملية التعهيد هو التعاقد مع ذوي الخبرات في مجال التعهيد، أما توزيع المسؤوليات بشكل واضح حسب المؤهلات المناسبة تعتبر من أهم الوسائل لتخفيف أثر المخاطر المتعلقة بالتعهيد. أيضاً أظهرت الدراسة بأن عملية إدارة المخاطر في قطاع تكنولوجيا المعلومات والاتصالات في الضفة الغربية أثناء مراحل عملية التعهيد جيدة نوعاً ما، ولكنها تحتاج إلى المزيد من التحسين والتطوير. بالإضافة إلى ذلك، فقد توصل الباحث من خلال هذه الدراسة إلى

وجود علاقة قوية بين نجاح المؤسسة في بناء علاقة تعهيد استراتيجية مع الشركات الأخرى وبعض ممارسات إدارة مخاطر عملية التعهيد. وفي النهاية، قام الباحث بتطوير النموذج المقترح ليتم اعتماده في الشركات الفلسطينية المزودة لخدمات تكنولوجيا المعلومات والاتصالات، لمساعدة هذه الشركات على إدارة المخاطر المتعلقة بعملية التعهيد بشكل فعال.