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# A suggested System to Develop the Process of Allocating Head Office Overhead According to the "Direct Method" in Construction Industrial Companies in Gaza Strip

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بسم الله الرحمن الرحيم

﴿قُلْ إِنَّ صَلَاتِي وَنُسُكِي وَمَحْيَايَ وَمَمَاتِي لِلَّهِ رَبِّ
الْعَالَمِينَ ۝ لَا شَرِيكَ لَهُ وَبِذَٰلِكَ أُمِرْتُ وَأَنَا
أَوَّلُ الْمُسْلِمِينَ﴾ الانعام(162-163)

TO MY PARENTS WITH ALL MY LOVE

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## ABSTRACT

Construction projects become complicated so that many specialty contractors are involved. In such changed environments, a general contractor's overhead costs are increasing comparable to direct costs. The main objective of this research is to develop the process of allocation the construction companies' overhead in Gaza Strip, by investigating the best cost drivers that can be used as a base for the overhead allocation process then proposing the application of "Direct Method".

The objectives of this research have been achieved through conducting closed-ended questionnaires with interviews and a case study in Gaza Strip. The results of analyzing the 35 questionnaires that were directed to contractor respondents concluded that using Activity Based System as an accounting system and the Direct Method as a tool in the overhead allocation process create a clear vision and rich data base about the costs components which help in reducing the overhead costs, give indications for the relationship between the project type and the overhead consumption and overcome the troubles that raised in overhead allocation process.

The study recommended that contractors should make the necessary steps toward applying the Activity Based Costing System, arrange courses to improve the employees understanding about the overhead costs concept, contentiously study and analyze the head office overhead components and amount, to minimize it as possible, and apply the direct method as it is the simplest tool of the overhead allocation.

# ملخص البحث

**طريقة مقترحة لتطوير عملية تخصيص التكاليف غير المباشرة (تكلفة المكتب الرئيس) باستخدام "الطريقة المباشرة" لدى شركات المقاولات في قطاع غزة**


إن التطور المستمر في صناعة الإنشاءات أدى إلى تعقيدها بحيث تحتاج الى مشاركة مقاولين مختصين، الأمر الذي نتج عنه زيادة نسبة التكاليف غير المباشرة الى التكاليف المباشرة.

الهدف الرئيس من هذا البحث هو تطوير عملية تخصيص التكاليف غير المباشرة لشركات المقاولات في قطاع غزة، وذلك عن طريق إيجاد أفضل مسبب تكلفة يمكن استخدامه كأساس لعملية تخصيص التكاليف غير المباشرة، ومن ثم اقتراح استخدام "الطريقة المباشرة" لعملية تخصيص التكاليف غير المباشرة.

لقد تم استخدام أسلوب الاستبيان مع المقابلة الشخصية لجمع المعلومات المطلوبة من خمس وثلاثون مشاركًا من شركات المقاولات، كما تم تقديم حالة دراسية عملية.

خلص البحث أن استخدام نظام التكلفة على أساس النشاط كنظام محاسبي والطريقة المباشرة كأداة في عملية تخصيص التكاليف غير المباشرة يعمل على خلق رؤية واضحة لهذه التكاليف بالاضافة لايجاد قاعدة بيانات غنية عن مكونات هذه التكاليف، الأمر الذي يساعد على الحد منها، وإعطاء مؤشرات للعلاقة بين نوع المشروع ومدى استهلاكه من التكاليف غير المباشرة، والتغلب على المشاكل التي تنجم عن استخدام الطرق التقليدية في عملية التخصيص.

توصي الدراسة بأنه ينبغي على المقاولين اتخاذ الخطوات اللازمة نحو تطبيق نظام التكاليف على أساس النشاط، وعمل دورات لتحسين فهم الموظفين حول مفهوم التكاليف غير المباشرة، ودراسة وتحليل مكونات هذه التكاليف للعمل على تقليلها قدر الامكان، وتطبيق "الطريقة المباشرة" كطريقة ميسرة وسهلة التطبيق للتخصيص.

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## LIST OF ABBREVIATIONS

| | |
|---|---|
| ABC | Activity Based Costing |
| AIC | American Intercontinental Contructors |
| ANERA | American Near East Refugee Aid |
| HOOH | Head Office Over Head |
| G&A | General and Administrative Costs |
| GDP | Gross Domestic Product |
| GNP | Gross National Product |
| IT | Information Technology |
| MNE | Ministry of National Economy |
| NCHRP | National Cooperative Highway Research Program |
| OH | Over Head |
| PCBS | Palestinian Central Bureau Statistics |
| PCU | Palestinian Contractors Union |
| PNA | Palestinian National Authority |
| SAK | Saqqa and Khoudary Company |
| UNDP | United Nations Development Program |
| UNRWA | United Nations Relief and Works Agency |
| USAID | U.S Agency for International Development |

# CHAPTER ONE

# Introduction

**This chapter consists of the following sections**

**First.** **Background**

**Second.** **Construction Sector in Gaza Strip**

**Third.** **Statement of the Problem**

**Fourth.** **Research Purpose**

**Fifth.** **Research Objectives**

**Sixth.** **Research Variables**

**Seventh.** **Research Hypothesis**

**Eighth.** **Research Methodology**

**Ninth.** **Previous Studies**

## 1.1 Background

Construction industry plays a major role in developing and achieving the goals of society. Construction is one of the largest industries and contributes to about 10% of the Gross National Product (GNP) in industrialized countries (Navon, 2005). Since 1994, the observable expansion of this sector has led to the revival of the construction profession, promoted and encouraged new investments in Palestine. According to Palestinian Central Bureau of Statistics (PCBS) in 2010, the construction sector contributes 9% of the Gross Domestic Product (GDP) in Gaza Strip, and contributes significantly to employment opportunities, absorbing about 11.9% t of Palestine's Governorate labor force (PCBS, 2011).

In the construction environment where intense competition and shrinking market shares, the only way to stay competitive is to work under severely competitive conditions by deliver projects at minimum cost and higher quality, leaving only a minimum profit margin.

Competitive advantages of construction bidding price can be obtained in two ways, by managing direct and indirect costs. Overhead costs represent the largest part of indirect costs.

The estimation of overhead costs is one of the important tasks in the calculation of construction project costs, since they comprise a significant part in the construction estimate. However, overhead costs are not clear as the direct costs, contractors often fail to accurately calculate the actual overhead costs adequately, which lead to financial losses or even bankruptcy of the construction company (Siskina et al. 2009).

The allocation of overhead costs is important when the firm has more than one project or more than one department. Allocation of overhead costs is most important when the firm is considering adding, dropping, or changing the level of any business activity (Kenkel, 1992).

Overhead cost allocation allows the manager to calculate the profitability of a project. The principle of overhead cost allocation is that overhead costs should be charged to the areas of the firm which indirectly cause these costs to be incurred (Kenkel, 1992).

The control of overhead costs is particularly difficult. However, determining direct labor and material expenses is easier; hence, managers tend to concentrate on these costs. The successful control of overhead costs requires daily attention. Some managers do not consider overhead costs when developing pricing strategies. This could result in items or activities not fully recovering their overhead costs. In the long run, unless other projects are offsetting this deficiency, this type of pricing strategy will not return sufficient profits to provide a return for the capital, management, and risk involved (Kenkel, 1992).

By understanding how to classify and allocate overhead costs a manager can determine the best strategy for pricing new identical projects; therefore, this research studies the issues of construction companies' overhead costs.

The contracting sectors constitute classified contractors under the Palestinian Contractors Union, or non-classified contractors who mainly deal with private house building (Enshassi et al. 2008). Based on the latest data obtained from the Palestinian Contractors Union (PCU) website, 201 contractors were classified in Gaza Strip and have valid registration certificates (PCU, 2011)

The contractors in the Gaza Strip are classified by the Palestinian Contractors Union into five different grades from the 1st grade to 5th grade according to the company's capital, equipment, projects size and experiences. Working in the fields of Roads, Buildings, Electromechanics, Infrastructure "Water and Wastewater'' and General Public. The target group for this research is the contracting companies, which are classified under the Grade 1st and 2nd in all fields.

In this research, the study will focus on the practices of Companies Overhead Cost Allocation in Gaza Strip. The study is expected to provide a simple, easy and accurate method for overhead cost allocation. Besides, the research is expected to improve the decision making attitudes for the contractors in the field of Overhead Allocation.

## 1.2 Construction Sector in Gaza Strip

Since the establishment of the Palestinian National Authority (PNA) in 1994 up until the blockade of Gaza, the construction and building sector has been the fastest growing among all economic sectors. In 2000, the sector comprised over 33% of total GDP and employed over 22% of the work force (MNE 2011). The construction materials imported through Gaza crossings before the 2007 blockade comprised over 52% of the total imports to Gaza. The Palestinian Central Bureau of Statistics (PCBS) estimated the value of implemented projects as of 1999 at over USD 1.5 billion. However, the sector performance and growth in Gaza slowed down as a result of political factors including the 2000 Intifada, the 2007 blockade of the Gaza Strip, as well as the Israeli military assault on Gaza (MNE 2011).

### Sector Characteristics

The construction sector in Gaza is characterized by many key advantages that create opportunities for the future. Among these are (MNE 2011):

a. A well organized representative organization, the Palestinian Contractors' Union, which is an active player with all stakeholders.
b. An updated classification system for the working companies in accordance with standards and local conditions.
c. Experienced labor with technical know-how. The number of workers in the sector is estimated at 50,000.
d. Management experts with experience in regional countries, international contractors, and local firms.
e. Equipment is available for the sector including ready mix factories, pumps, and tile factories. Although Israel destroyed the productive

capacity of many of these factories during the Israeli military assault on Gaza to limit/delay any reconstruction attempts, some remain.

f. Management and financial capacity to implement and manage relatively large size projects.
g. Experienced engineering services sector and firms.
h. The availability of immediate funding for several large size projects including 110 schools for UNRWA, Sheikh Khalifa Housing Project (5,000 units), water and sanitation, sewage treatment, clinics, infrastructure, etc.
i. Financing support and international donor support projects.

## 1.3 Statement of the Problem

The political, social, cultural and economic condition in Gaza Strip has left their marks on the construction industry, where lack of funds and delay of in progress projects cause increase in the percentage of overhead costs.
Each contractor seeks to recover those overhead costs by the ongoing projects in a way that each project manager will be responsible on the overhead portion that related to his project.

As there were few studies related to the head office costs' allocation practice have been done in Gaza Strip, the problem of this research is to find answer to the following inquires: How contractors allocate their overhead costs? And how can contractors develop the overhead allocation process in case of using the "Direct Method"?

## 1.4 Research Purpose

The aim of this study is to explore the overhead costs allocation basis actually used by contractors in Gaza Strip, and to demonstrate the use of "Direct Method" as a base for allocating the head office overhead between the ongoing projects.

## 1.5 Research Objectives

The aim of this research can be broken down into the following objectives:

a. Study the actual methods that construction companies use to allocate the head office overhead in Gaza Strip.
b. Suggest the "Direct Method" for allocating the head office overhead, as it can be considered as easy and simple method.
c. Study a case of allocation of overhead cost of "Saqqa and Khoudary Construction Company" for a specified period to get in-depth details about the 'Direct Method' application.
d. Provide practical suggestions and recommendations pointing toward upgrading the head office overhead allocation process in construction and improve the performance of construction companies and owners in this field in Gaza Strip.

## 1.6 Research variables

The variables of this research are:

Dependent Variable: The head office overhead recovery percentage.

Independent Variable: There are many independent variables as:

a. Understanding and analyzing of the head office overhead components.
b. Finding the suitable cost driver for each component.
c. Determining the absorption rate for each cost driver by each of the operating departments (ongoing projects)
d. Accuracy of calculation.

## 1.7 Research hypothesis

The research hypotheses are:

*Hypothesis No. (1):* It is expected to find that "Time consumed to complete works in each project" as the best Cost Driver to be used to allocate the cost of the following departments:

- Management Department.
- Secretary Department

- Planning and IT Department.

*Hypothesis No. (2):* It is expected to find that "Project Amount" as the best Cost Driver to be used to allocate the cost of following departments:

- Accounting Department
- Procurement Department.
- Pricing Department.
- Quality Control Department.
- Public Relation Department.
- Others

*Hypothesis No. (3):* It is expected to find that "Number of employees were in each project" as the best Cost Driver to be used to allocate the cost of "Human Resource Department to each project.

*Hypothesis No. (4):* It is expected to find that "Numbers of receipts done for each project" as the best Cost Driver to be used to allocate the cost of "Stores" to each project.

## 1.8 Research Methodology

Two research methodologies will be used to achieve the targeted objectives; the first one is the questionnaire, which designed to investigate the actual allocation methods used by the contractor, and to identify the cost drivers which must be used to allocate the different components of head office overhead costs. The other methodology is a case study, where a deep study were applied on "Saqqa and Khoudary Contracting Company" by collected the data about the HOOH costs for a specified period, and applying the Direct Method of the Activity Based Costing approach to allocate these costs among the on hand projects.

**Data Collection**

The relevant data were obtained from the following resources:

**a. Secondary resources:** The researcher utilized the relevant literature and publications related to the subject of the research.

**b. Primary resources**: The needed data were collected from the population of the study through a questionnaire that covered the subject variables of the research.

**Population**

The population of the study consisted of the contractors who have the first and second classes according to the classification of the Contractors Union in all fields in Gaza Strip. The contractors who have other classes are excluded from the survey.

**The sampling**

According to recent figures, contractors registered as members at the Palestinian Contractors Union have amounted to (201) throughout Gaza Strip in April 2011 (PCU, 2011).

All of companies in Gaza Strip who have a Contractors Union valid registration and have 1st and 2nd degrees in the field of Buildings, Infrastructures and Electromechanical Works, which are 39 companies, were targeted in this study.

## 1.9 Previous Studies

The following are some of the available sources that were obtained and related to the subject thesis:

1. **Assaf, S., Bubshait, A., Atiyah, S. and Al-Shahri, M. (1999) entitled Project overhead costs in Saudi Arabia.**

This paper aims to investigate the construction companies overhead in Saudi Arabia.

The findings indicate that even large contractors do not have a unified or even proper understanding of the term OH costs; The average OH costs are 14.3% of the annual construction volume; Total direct costs including project OH is the most frequently used base to allocate the head office overhead; About 80% of the contractors do appreciate the importance of using the right allocation approach; and 47 % of the contractors surveyed agree or strongly agree on the ABC approach as a base to OH allocation.

The study recommends that Contractors need to be better informed about OH costs through short courses, seminars, professional and scientific societies; Activity based costing can be used to achieve a more accurate recovery of companies' OH costs; and contractors are recommended to establish cost control plans to help reduce co. OH costs.

2. **Anand M., Sahay P. and Saha S. (2004) entitled Principles of Cost Management Practices In India.**

This paper aims to capture the development in the cost management practices such as accounting for overheads, applications of budgetary control and standard costing in the corporate India. The study tests the hypothesis that the firms using activity-based costing system are better insight for benchmarking and budgeting; clear structure of priorities of budget goal; clarity of reasons for effective implementation of planning; and budgeting process in their organization.

The findings indicate that the firms are successful in capturing accurate cost and profit information from their ABC cost systems for value chain and supply chain analysis.

The results suggest that the firms have better insight for benchmarking and budgeting with ABC cost system yet the consistency in their priority of budget goals is lacking unlike the firms who are using traditional costing systems.

3. **Zatma, H. (2006) entitled A suggested System to develop the Process of Bidding Pricing according to Activity Based Costing Systems in Construction Industry in the Gaza Strip**

This paper aims to demonstrate the use of Activity Based Costing ( ABC ) approach as an alternative cost accounting system to the Traditional Cost Accounting System to determine the real and accurate cost of the projects.

The finding of the study show that the application of ABC leads to better knowledge in tender pricing, more ability to estimate the cost and updating costs data. It also saves the suitable information which are necessary to enter the bidders and to compete to win them. This system helps in supervising and controlling the activities which the company does and to make rational and correct decisions

The study recommended that the contracting companies are requested to convert gradually their method of pricing to ABC to find a managerial information system to exemplify the application of this system.

4. **Skaik H. (2006) entitled Activity-Based Costing System and its role in Decision Making in Gaza Strip Factories**

The aim of this study is to examine the relationship between the adoptions of Activity Based Costing (ABC) by factories located in Gaza Strip and the Decision Making.

The findings show that the most important decisions in Gaza Strip factories are taken for Product Quality, Product Cost, Cost of Add/delete Product Lines and Product Costing consequently costing system is a vital component for the decision makers in helping for rational decision making. Another result indicates that Gaza factories are not implementing ABC which affect negatively the decision making process.

The study suggested that the strengthening the Decision Making mechanism required a strong cost information system; this cost information system is not used in the Gaza Strip factories.

5. **Popesko B. and Novak P. (2008) entitled "Principles of Overhead Cost Allocation".**

This paper aims to make a brief overview of the limitations of traditional concepts and the possibilities offered by modern costing methodologies for overhead cost allocation.

The findings indicate that the traditional concepts of overhead cost allocation very often simplify the relationship between costs and outputs. However, modern costing systems, such as activity-based costing, offer effective solutions to problems connected with overheads. Complete implementation of the ABC system is very often made harder by the method's requirements and complicated execution procedures. The ABC system requires a wide range of financial data, but also data of a non-financial type, which is usually unavailable from standard sources

6. **Enchassi A., Abdul Aziz A. and El Kariri A. (2008) entitled "Investigating the overhead costs in construction projects in Palestine".**

This paper aims to investigate the overhead costs of construction contractors at the Gaza Strip, Palestine, specifically the level of contractors' awareness of the concept of overhead cost, their perception of main components of overhead cost,

percentage of overhead to total project cost, method used to manage and control overhead cost, and reasons for increasing overhead cost.

The findings indicate that the majority of contractors are aware of overhead costs in construction projects. The staff wages are the highest overhead costs component. The currency exchange rates, inflation, increase in financial costs among others lead to increase in overhead costs. The findings illustrate that the overhead costs are on average 11.1 percent of the total project cost. Controlling and managing overhead costs are considered the main tools to improve the companies' financial situation.

The study recommended that courses are offered to Palestinian contractors periodically to increase their knowledge and awareness about the overhead costs concept. Contractors should utilize the ABC system to minimize and control their expenditures as much as possible. Each contractor should apply periodical measurements during the project life to understand clearly the actual expenditures, and to make separation between the site overheads and the office overhead.

7. **Percevic H. and Lutilsky D. (2008) entitled "Cost Allocation Accounting Methods Used in the Croatian Production Sector'**

This paper aims to determine which accounting methods for cost allocation are used in Croatian production companies.

The findings indicate that only 5.7% of companies in Croatia apply the ABC system, while the other 94.3% of companies use traditional costing systems for product profitability evaluation, and the 77% apply a direct allocation method for allocating costs from support departments to operating departments, while 15% use the step-down method and 2% use the reciprocal method.

According to this finding, the Croatian production sector can be considered technologically underdeveloped. In these conditions, traditional accounting methods can provide objective and relatively accurate cost allocation and product profitability evaluation.

8. **Popesko B. (2010) entitled "Utilization of Activity-Based Costing System in Manufacturing Industries – Methodology, Benefits and Limitations"**

This paper aims to definitively explain the necessary steps to apply ABC, as well as to clarify procedures for activity output measurement and cost assignment. The paper also describes the benefits and limitation of ABC implementation in manufacturing industries.

The findings indicate Activity Based Cost Management Information provided by this system boasts wider areas of application compared to that of traditional costing systems. Besides the more valuable quantification of costs allocated to cost objects and the detection of relations between cost consumption and operation, the existence of different types of cost objects also allows costs to be analyzed at differing levels of managerial decisions.

The results of case study that were performed show an example of the system being utilized in the processing industry, a characteristic of which is a large portion of material costs. Implementation showed that despite limited impact in the field of overhead cost allocation, the benefits in the areas of process and activity analysis meant it proved a success.

# CHAPTER TWO

# Overhead Management

**This chapter consists of the following sections**

**First.** **Introduction**

**Second.** **Head Office Overhead**

**Third.** **Head Office Overhead Allocation**

**Fourth.** **Activity Based Costing**

**Fifth.** **Accounting Methods for Allocating Indirect Costs from Support Departments to Operating Departments**

## 2.1 Introduction:

This chapter includes definitions, concepts and principles of the Overhead Management; it aims to discuss the overhead of the construction sector, as it is the target sector in this research. The nature of construction sector is based on existence of support departments (Head office departments) and many operating cost centers (Ongoing Projects).

Also, the chapter contains necessary definitions, importance of the research, objectives of the study and its boundaries.

Costs can be defined as an amount that has to be paid or given up in order to get something. In business, cost is usually a monetary valuation of effort, material, resources, time and utilities consumed, risks incurred, and opportunity forgone in production and delivery of a good or service.

Costs are classified for the purposes of assigning costs as either direct or indirect costs.

Direct Cost: is the cost that can be easily and conveniently traced to a specific cost object. The concept of direct cost extends beyond just direct material and direct labor (Garrison et al., 2008).

Indirect Cost: is the cost cannot be easily and conveniently traced to a specific cost object.

## 2.2 Head Office Overhead:

Over Head (OH) costs are those charges which cannot be attributed exclusively to a single product or service (Tipper, 1966), or the summary of expenses that benefit more than one cost objective (Fultz, 1980).

Carr (1989) defined overhead or indirect costs as the costs that would have been occurred even if an activity had not been performed. Direct costs are costs that are not incurred if the activity is not performed.

Another definition is that OH costs are those costs which are not a component of the actual construction work but are incurred by the contractor to support the work (Cilensek, 1991). There are, however, two types of OH costs in construction: Head Office Over Head (HOOH) costs and project Over Head costs.

### 2.2.1 Head Office Overhead Definition and Amount:

HOOH includes all costs incurred by the construction firm in maintaining the firm in business and supporting the production process but are not directly related to a specific project (Adrian, 1982).

HOOH is generally described as company costs incurred by the contractor for the benefit of all projects in progress. This is the actual cost, which is an essential part of the cost of doing business; these are costs that cannot be directly allocated to a project (Schwartzkopf et al., 1992). This definition excludes those costs incurred by the contractor solely in support of a single project or group of projects.

HOOH is considered as serious challenge to the contractors as how to recover them in a balanced manner in different to project overhead cost, the HOOH affects all contractor's performance in all projects.

Pulver (1969) (cited in Assaf et al., 1999) Company OH costs vary considerably from time to time but range from 8 to 15 percent of the total construction volume.

It is also differs from one country to other countries.

No doubt the best approach in dealing with company OH costs is to directly charge each project the actual expenses that will be incurred, provided an accurate estimation is reachable. Unfortunately this is not the case with company OH costs and thus, contractors are forced to allocate their general expenses proportionally among undertaken projects (Pulver 1969).

Enshassi et al. (2008) stated that the average overhead costs in Gaza strip was 11.1 percent of the total project cost and the ratio of the overhead costs to direct costs was 11.50 percent, which is slightly higher than what is stated in the literature of range 6-10 percent.

Enshassi referred the increment of overhead costs due to several reasons such as cost inflations, currency exchange rate, increasing financial costs, firm growth, delayed payments and others. The study recommended that courses are offered to Palestinian contractors periodically to increase their knowledge and awareness about the overhead costs concept and contractors should utilize the ABC system to minimize and control their expenditures as much as possible.

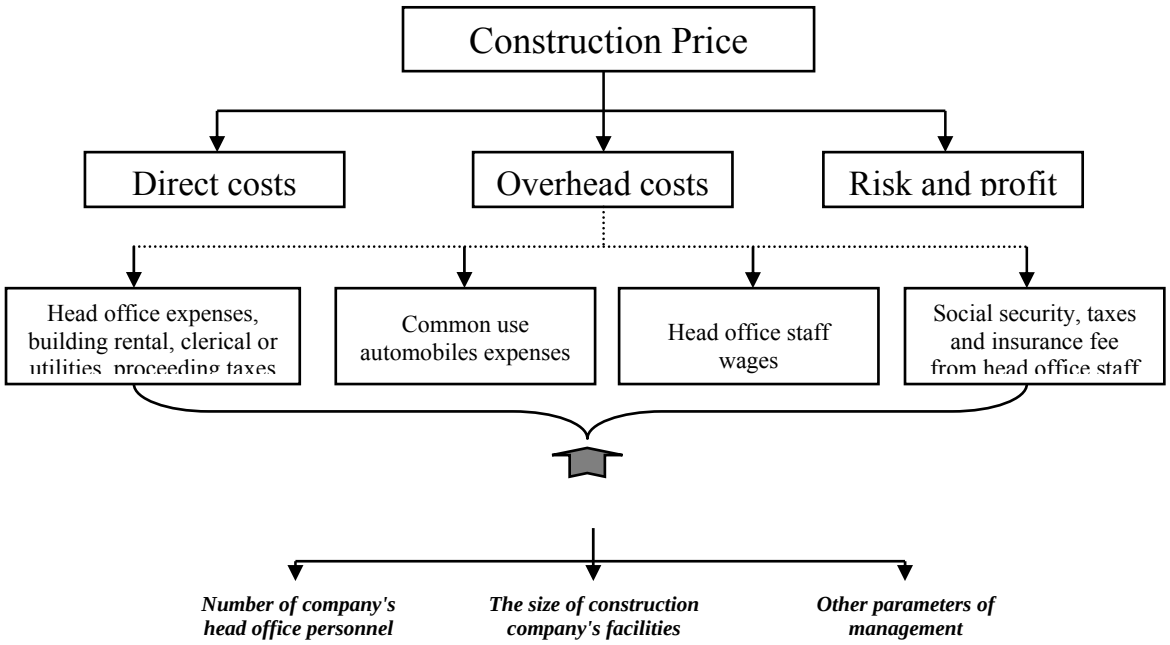


Figure (2.1): The structure of a construction company's overhead costs (Siskina et al. 2009)

Assaf et al. (2001) showed that the average overhead costs in Saudi Arabia is higher than the illustrated in the literature, where the average company cost to the average project direct costs was about 13 percent, he referred that to the delayed payment, lack of new project, cost of inflation and government regulation. The study recommended that contractors should establish cost control plans to help reduce companies overhead cost, and they must apply proper cost accounting system help in allocating companies overhead in a balance manner.

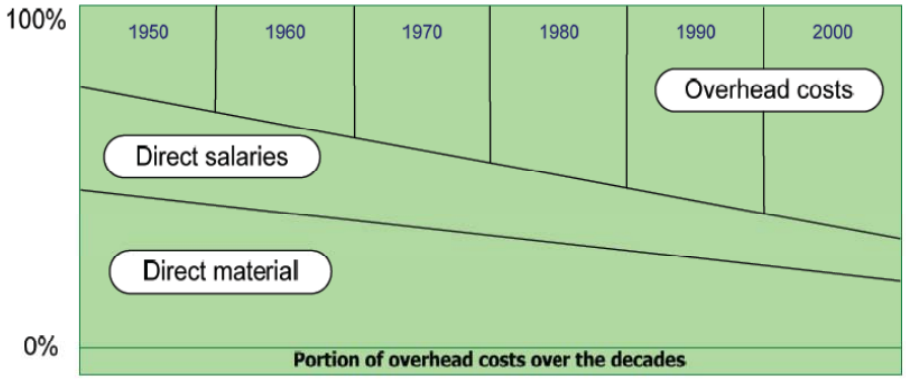

Figure (2.2): Portion of overhead costs over the decades (Cookins 2001)

It is clear noted that these costs are constant in percentage and differs from company to others.

### 2.2.2 Head Office Overhead Components:

Head office overheads are the costs of running the company's general business as distinct from the site costs of the particular contract, these costs will be incurred by a contractor regardless of its volume of work.

There are two distinct sources of companies' overhead costs. An organization's support activities include service and administrative departments. While service departments are organizational units like; central purchasing, maintenance, engineering, security, warehousing, etc., administrative departments are units like, human resources, accounting, legal, headquarters, etc. The costs of these support departments should be covered by products and services for appropriate cost computations, managerial motivation and managerial decision making.

As the number of product lines and the complexity of organizations increased, the need for additional support activities also increased and appropriate allocation of support department costs became more vital for cost management (Barfield et al., 2001).

Head office overhead normally consists of the fixed costs of operating a home office. Examples of such costs include but are not limited to the following:

a. Automobile and equipment costs
b. Marketing costs and advertising.
c. Executive and administrative salaries Legal and accounting expenses
d. Head office rent and expenses Advertising
e. Head office storage yards.
f. Company insurance Recruiting costs
g. Utilities, telephone, fax and computers
h. Software licensing and computer support staff
i. Human relations costs for the home office
j. Support and clerical staff not assigned to the field.
k. Estimators and schedulers not assigned to field staff.
l. Accounting and data processing.
m. Interest on company borrowings
n. Travel for home office staff
o. Bad debt
p. Legal services
q. Depreciation of company assets
r. Entertainment
s. Professional fees Contributions/Registration

The size and organization of the contractor will dictate which of the elements listed apply and to what extent; however, regardless of the contractor's overall size, costs will typically be incurred in virtually all of these categories and perhaps some others.

Enshassi et al. (2008) indicated that 90 percent of the Palestinian contractors roughly understood the meaning of overhead costs and gave examples of overheads such as staff wages, taxes, insurances, financial bonds, transportation, temporary constructions at the project, communication costs, offices renting, and other components while 10 percent of them referred directly to the reasons for increasing the overhead. The Palestinian contractors according to this study rank the overhead costs as follow staff wages, insurance and tax, profit (some contractor consider profit as overhead), equipment maintenance, cost of not planned rework, temporary construction, estimated contingency and unforeseen conditions and others.

### 2.2.3 Head Office Overhead Calculation:

Head office overhead is often expressed as a percentage of other costs, and therefore is sometimes defined as a contractor's general and administrative (G&A) expense. Variations in accounting practices, size, type of work, and other factors make the identification of an average G&A rate problematic (NCHRP, 2003).

Enshassi et al. (2008) showed that 60 percent of the surveyed Palestinian contractors estimated the indirect costs in detail from the tender documents of the projects, and that 21 percent of the contractors estimated the overhead/indirect cost as a percentage of both (the materials and labor costs), 10 percent took it as a fixed amount based on previous similar projects. The remaining respondents did not consider the overhead costs during their estimation.

There are at least nine formulas that have been used, with varying degrees of success, in litigation in the United States and Canada. Those formulas were used by courts to compensate the companies for owners' delays, which are: Eichleay Formula, Modified Eichleay Formula–Variation 1, Modified Eichleay Formula–Variation 2, Hudson Formula, Ernstrom Formula, Manshul Formula, Carteret Formula, Allegheny Formula and Emden Formula (Zack, 2002).

## 2.3 Head Office Overhead Allocation:

Overhead cost allocation has become, in the past few decades, one of the most serious problems related to cost management for companies. Accurately allocating overhead costs is one of the key criteria for effective product costing, meaning that correct managerial decisions can thus be made, an example being pricing decisions governing products. To allocate the head office overhead costs to the ongoing projects, the financial managers should select either to the traditional techniques or modern costing systems such as the Activity Based Costing (ABC).

Although that the traditional costing techniques (these are based on simplified procedures using principles of averages) were used for the purposes of overhead cost allocation during the 20th century, most of the current companies going towards to use the ABC as a base of cost allocation system.

Popesko and Novak (2008) in their paper "Principles of Overhead Cost Allocation" referred the using the ABC to two major phenomena, the first is ever increasing competition in the marketplace, the necessity to reduce costs and the effect of having more detailed information on company costs.

The second one, there has been a change in the cost structure of companies. In terms of the majority of overhead costs, traditional allocation concepts, based as they are on overhead absorption rates, can often provide incorrect information on product costs. Modern costing systems and methods have the advantage of providing more sophisticated techniques for overhead cost allocation. Unfortunately, these processes often prove extremely demanding as regards input data and the general abilities of users, limiting their effective utilization.

Assaf et al. (2001) showed that there are at least seven traditional possible bases that can be used to estimate the amount of Saudi companies OH that had to be allocated to projects at hand, which are Project duration, Project value, Material

cost, Material & labor cost, Material, labor & equipment cost, Direct Cost including project OH, and Fixed amount is added.

Cost allocation is fundamentally a problem of linking some cost or groups of costs with one or more cost objectives, such as products, departments, and divisions. Ideally, costs should be assigned to the cost objective that caused it. Linking costs with cost objectives is accomplished by selecting cost drivers. When used for allocating costs, a cost driver is often called a cost-allocation base (Hornbren et al., 2002).

These costs are pooled and then allocated together. A cost pool is a group of individual costs that is allocated to cost objectives using a single cost driver. For example, building rent, utilities cost, and janitorial services may be in the same cost pool because all are allocated on the basis of square meters of space occupied. Or a university could pool all the operating costs of its registrar's office and allocate them to its colleges on the basis of the number of students in each faculty. In summary, all costs in a given cost pool should be caused by the same factor. That factor is the cost driver. Many different terms are used by companies to describe cost allocation in practice (Hornbren et al., 2002).

### 2.3.1 Purposes of Allocation

Costs are allocated for following main purposes:

a. To obtain desired motivation: Cost allocations are sometimes made to influence management behavior and thus promote goal congruence and managerial effort.

b. To compute income and asset valuations: Costs are allocated to products and projects to measure inventory costs and cost of goods sold. These allocations frequently service financial accounting purposes. However, the resulting costs are also often used by managers in planning, performance evaluation, and to motivate managers (Hornbren et al., 2002).

c. To justify costs: Sometimes prices are based directly on costs, or it may be necessary to justify an accepted bid (Hornbren et al., 2002).

d. To obtain reimbursement and claims (Zack, 2002): Owner-caused delay is common on construction projects. Delay may have many sources, including directed or constructive changes, delays in furnishing owner-provided equipment or materials, differing site conditions, slow responses to shopdrawing, submittals or requests for information, etc. Despite the number of reasons for owner-caused delay, the result is almost always the same. Contractors typically request an equitable adjustment to the contract to compensate them for both time and cost. However, in owner-caused delay situations, contractors frequently seek recovery of extended or unabsorbed home office overhead (HOOH). Most contractors want to use standard way to calculate their damage. Most owners, on the other hand, want to see "real damage" based on some sort of audit (Zack, 2002).

e. To predict the economic effects of planning and control decision.

### 2.3.2 Phases of the Cost Allocation Process

The cost allocation process is carried out through the following phases:

a. The assignment of direct costs to cost objects.

b. The allocation of indirect costs from a support department to an operating division (manufacturing)

c. The allocation of indirect costs from an operating division to products (or services) that are defined as a cost objects

d. The determination of the cost of a product (by adding the allocated indirect costs to previously assigned Direct costs of a particular product)

### 2.3.3 Types of Allocations

There are three basic types of cost allocations (Hornbren et al., 2002):

a. Allocation of joint costs to the appropriate responsibility centers: Costs that are used jointly by more than one unit are allocated based on cost-driver activity in the units. Examples are allocating rent to departments based on floor space occupied, allocating amortization on jointly used machinery based on machine-hours, and allocating general administrative expense based on total direct cost.

b. Reallocation of costs from one responsibility centre to another: When one unit provides products or services to another, the costs are transferred along with the products or services. Some units, called service departments, exist only to support other departments, and their costs are totally reallocated. Examples include personnel departments, laundry departments in hospitals, and legal departments in industrial firms.

c. Allocation of costs of a particular organizational unit to its outputs of products or services: The pediatrics department of a medical clinic allocates its costs to patient visits, the assembly department of a manufacturing firm to units assembled, and the tax department of a CA firm to clients served. The costs allocated to products or services include those allocated to the organizational unit in allocation types 1 and 2.

Two types of methodologies could be used to assign overhead costs to cost objects, “Traditional Costing processes” and “Activity Based Costing (ABC) systems”.

In the traditional cost system, the portion of total overhead allocated to a product depends on the proportion of total direct labour hours consumed in making the product. In the ABC system, significant overhead activities (machining, assembly, quality inspection, etc.) and related resources are separately identified and traced to products using cost drivers machine hours, number of parts, number

of inspections, etc. In the ABC system, the amount of overhead costs allocated to a product depends on the proportion of total machine hours, total parts, total inspections, etc. consumed in making the product. One large overhead cost pool has been broken into several pools, each associated with a key activity. We now consider a more in-depth illustration of the design of an ABC system (Hornbren et al., 2002).

### 2.3.4 Problems in Traditional Overhead Costing

The traditional method of overhead costing would result in the following problems (Kim and Ballard 2002):

**Cost Distortion Hinders Profitability Analysis:** Construction projects have different cost codes for each resource such as project engineer or manager. They treat overhead costs separately and do not assign overhead costs to work divisions such as earthwork or to participants such as subcontractors. However, they assign overhead costs to work divisions in proportion to direct labor hours or direct labor costs when owners request the assignment of overhead costs. Such volume-based allocation results in cost distortion.

The problem of traditional practice regarding overhead assignment is that companies do not know real costs for each work division and those for each participants such as subcontractors because either they do not assign overhead costs or they use a uniform cost driver (i.e., direct labor costs) for assignment of overhead costs. Therefore, it is difficult to find where money is being made and lost because progress payments for each work division or building from clients contain overhead costs. In other words managements have difficulty in doing a profitability analysis.

**Little Management Attention to Activities or Processes of Employees:** Little management attention is paid to activities or processes since every cost is assigned and reported resource by resource. In other words, little management attention is paid to supporting activities. As a result, managements do not have

information on how much resources and what services are provided to participants such as subcontractors. It does not help nurture relationships with the subcontractors.

## 2.4 Activity Based Costing (ABC):

In the past, the vast majority of departments used direct labor hours as the only cost driver for applying costs to products. But direct labor hours are not a very good measure of the cause of costs in modern, highly automated departments. Labor-related costs in an automated system may be only 5 percent to 10 percent of the total manufacturing costs and often are not related to the causes of most manufacturing overhead costs. Therefore, many companies are beginning to use machine-hours as their cost-allocation base (Hornbren et al., 2002).

However, some managers in modern manufacturing firms and automated service companies believe it is inappropriate to allocate all costs based on measures of volume. Using direct labor hours or cost - or even machine hours - as the only cost driver seldom meets the cause/effect criterion desired in cost allocation. If many costs are caused by non volume- based cost drivers, ABC should be considered (Hornbren et al., 2002).

ABC's origins lie with Cooper and Kaplan who, in conjunction with Harvard Business School, published cases of ABC adoption in the mid-1980s based on experiments in American companies such as Schrader Bellows, John Deere, and Weyerhaeuser. The cases claimed ABC brought various benefits, particularly more accurate product costs. Justifications for accounting change were reinforced in 'Relevance Lost', which criticized management accounting for not adapting to new business circumstances and fully exploiting new information processing technologies. Johnson and Kaplan described conventional systems as obsolete, inadequate, and a cause of inefficient and unprofitable organizations (Major and Hooper, 2005).

ABC is a costing method that is designed to provide managers with cost information for strategic and other decisions that potentially affect capacity and therefore "fixed" as well as variable costs. It is ordinarily used as a supplement to, rather than as a replacement for, the company's usual costing system (Garrison et al., 2008).

The reason is that ABC is a more relevant approach for costing products than traditional costing systems simply because it forces deeper traspility of costs to products. The main factors here are activities and their associated drivers. The logic behind the ABC approach is that if an activity is not used by a product, then the product should not absorb any of that activity's cost (Raffish 1991).

ABC differs from traditional cost accounting in three ways (Garrison et al., 2008):

a. Nonmanufacturing as well as manufacturing costs may be assigned to products, but only on a cause-and-effect basis. For example, ABC systems can assign sales commissions, shipping costs, and warranty repair costs to specific products.

b. Some manufacturing costs may be excluded from product costs. This is because ABC only assigns a cost to a product if decisions concerning that product will cause changes in the cost. ABC excludes two types of costs from product costs:
    - Organization-sustaining costs.
    - The costs of unused or idle capacity.

c. Numerous overhead cost pools are used, each of which is allocated to products and other cost objects using its own unique measure of activity. ABC cost pools are created to correspond to the activities performed in an organization that cause the consumption of overhead resources. Therefore, the total number of ABC cost pools will definitely exceed one and it is likely to exceed the number of departments within a company, since more than one activity is often performed within each department.

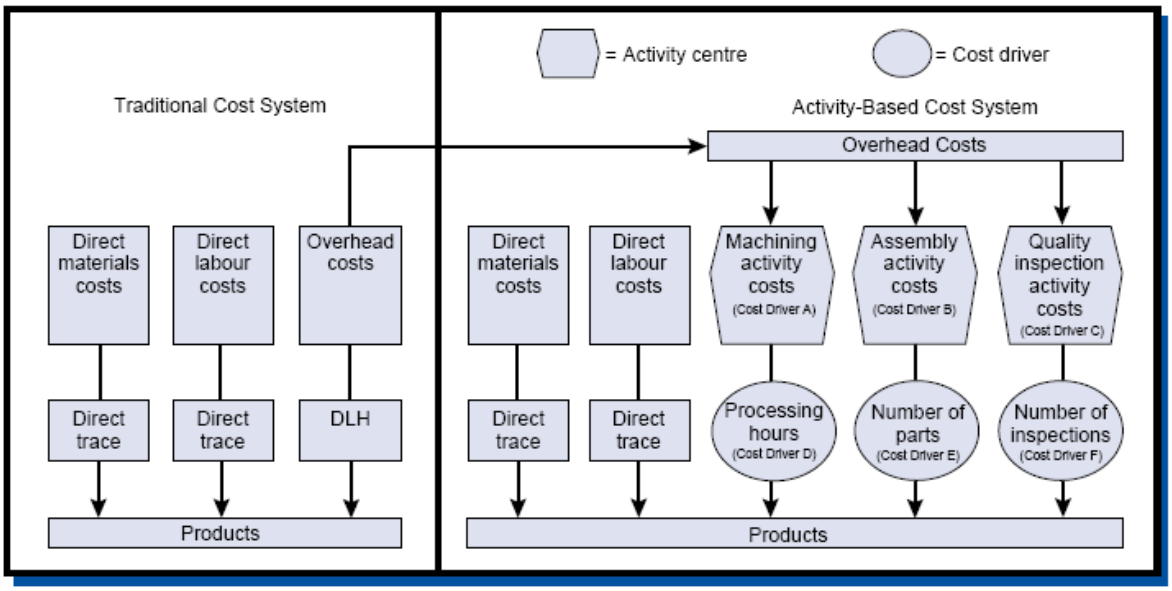


Figure (2.3): Traditional and Activity-Based Cost Systems (Hornbren et al., 2002).

Popesko and Novak (2008) through their study- Principles of Overhead Cost Allocation in Czech Republic-illustrated that overhead costing problems are now very significant due to their increasing portion and using a modern costing system as ABC offer effective solution to problems connected to overhead.

### 2.4.1 ABC Definitions:

The definition of ABC is unclear; companies can define its terminology and methods differently, then calculate activity-based costs differently, and use them for various purposes. This is unsurprising for advocates of ABC often change its rationale and methods and technical doubts about ABC remain. Moreover, behavioral problems have led researchers to stress the importance of managing change (Major and Hooper, 2005).

**Activity-based costing (ABC):** systems first accumulate overhead costs for each of the activities of an organization, and then assign the costs of activities to the products, services, or other cost objects that caused that activity. To establish a cause-effect relationship between an activity and a cost object, cost drivers are identified for each activity (Hornbren et al., 2002).

There are three purposes of ABC. The first is to prevent cost distortion. Cost distortion occurs because traditional costing combines all indirect costs into a

single cost pool. This pool is allocated on the basis of some resource common to all of the company's products, typically direct labor. Cost distortion is prevented in ABC by adopting multiple cost pools (activities) and cost drivers. The second purpose is to minimize waste or non-value-adding activities by providing a process view. This objective can be achieved by activity analysis and (or) the function of monitoring activities (Kim and Ballard 2002).

**Activity:** is any event that causes the consumption of overhead resources (Garrison et al., 2008).

**Activity cost pool:** as a bucket in which cost are accumulated that relate to a resource (Garrison et al., 2008).

**Cost-driver:** is defined as any factor or event that causes a change in the cost of an activity (Raffish and Turney 1991).

It is measured by the number of transactions involved in the activity. For example, in this case, engineering costs are caused by change orders (a document detailing a production change that requires the attention of the engineering department). Therefore, engineering costs are assigned to products in proportion to the number of engineering change orders issued for each product. If the production of microwave ovens caused 18 percent of the engineering change orders, then the ovens should bear 18 percent of the costs of engineering.

Common cost drivers include production-oriented drivers such as cycle times, setups, number of purchase orders, number of machine hours and number of inspections. Other cost drivers address the cost of providing service resources by measuring specification changes, ordering characteristics, and other measures of clients' needs for attention (Granof et al., 2000).

While direct labor is often a cost driver, it should be used only when, in fact, the causal relationship between labor and the costs in the activity pool is stronger than that between the pool and any other potential cost driver. The total costs in

each pool are distributed to the products on the basis of each product's cost driver volume. Thus, if a particular product requires 60 percent of the quality control inspections (a cost driver), then it is assigned 60 percent of the quality control costs.

There are two most common types of activity measures are transaction drivers and duration drivers.

**Transaction Drivers:** are simple counts of the number of times an activity occur such as a number of bills sent out to customers (Garrison et al., 2008).

**Duration Drivers:** measure the amount of time required to perform an activity such as the time spent preparing individual bills for customers. In general, duration drivers are more accurate measures of resources consumption than transaction drivers, but they take more effort to record, for this reason, transaction drivers are often used in practice (Garrison et al., 2008).

### 2.4.2 Designing ABC System:

In his book of Managerial Accounting, Garrison (2008) stated that any successful implementation of activity-based costing must has the following essential characteristics:

a. The initiative to implement activity-based costing must be strongly supported by the top management.
b. The design and implementation of an ABC system should be the responsibility of a cross-functional team rather than of the accounting department.
c. The ABC data should be linked to how people are evaluated and rewarded. This ensures that the system will not be ignored.

### 2.4.3 Steps for implementing ABC (Garrison et al., 2008):

The following are the step for applying the ABC system:

i. Define Activities, activity cost pools and activity measures: this can be difficult, time consuming, and involves a great deal of judgment, the

common procedure to do that is by interview people who work in overhead departments and asked them to describe their major activities.

ii. Assign overhead costs to activity cost pools: also called the first-stage allocation, which is the process of assigning functionally organized overhead costs derived from a company's general ledger to the activity cost pools.

iii. Calculate activity rates: the activity rates that will be used for assigning overhead costs to products and customers are computed, this rates can be calculated by dividing the total cost for each activity by its total activity.

iv. Assign overhead costs to cost objects: also called second-stage allocation, using the activity rates to apply overhead costs to products and customers.

v. Prepare management reports.

### 2.4.4 Limitations of activity-based costing:

There are five limitations of activity-based costing (Garrison et al., 2008):

i. Implementing an ABC system requires substantial resources. The benefits of increased cost accuracy may not outweigh the implementation costs.

ii. ABC systems produce numbers, such as product margins, that are at odds with the numbers produced by traditional cost systems. Managers are not accustomed to managing their operations using these numbers; hence, ABC inevitably faces resistance. This underscores the importance of having top management support for and cross-functional involvement with the ABC implementation.

iii. In practice, most managers insist on fully allocating all costs to products. The ABC system does not conform to this preference.

iv. ABC systems do not automatically identify the relevant costs for particular decisions; therefore, ABC data can be easily misinterpreted and

must be used with care when making decisions. Costs assigned to products, customers, and other cost objects are only potentially relevant.

v. Most organizations use ABC as a supplement to rather a replacement for their existing cost system. Maintaining two cost systems is costlier than maintaining just one system and it may cause confusion about which set of numbers is to be relied on.

### 2.4.5 Service Department Vs Operating Departments:

Companies usually distinguish their operating departments from their support departments.

An operating department is a production department in manufacturing companies in which the products are manufactured. Other definition for the operating departments is the revenue-producing were supported by the service departments; in construction companies the operating departments refer to the ongoing projects (Percevic and Lutilsky, 2008).

A support department, also called a service department, provides the services that assist other internal departments in the company. Direct production costs are directly allocated to operating departments and, within them, to particular products. Examples for service departments are Accounting Department, Human Resource Department, Procurement Department, Quality Control Department, Secretary, Marketing Department and etc.
Indirect production costs can be caused by both types of departments – operating and support departments. Indirect costs of support departments need to be allocated to operating departments and, after that, to products as cost objects (Percevic and Lutilsky 2008).

Accounting theory and practice recognize three methods of allocating the indirect costs of support departments to operating departments:

a) Direct allocation method
b) Step-down allocation method

c) Reciprocal allocation method

Service department costs are allocated to operating departments to (Garrison et al., 2008):

- Encourage operating departments to wisely use service department resources.
- Provide operating departments with more complete cost data for making decisions.
- Help measure the profitability of operating departments.
- Create incentive for service departments to operate efficiently.
- Value inventory for external financial reporting purposes.
- Include all overhead in the cost base when cost-plus pricing is used.

A service department's costs may be allocated using more than one base. For example, the costs of a human resource department might be divided into two parts, with one part allocated based on number of employees in each operating department and the other part allocated on the basis of hours spent in training programs run by the human resource department.

**Examples of Allocation Bases:**
Table (2.1) gives example for the cost allocation bases.

**Table (2.1): Examples of cost drivers**

| Service Department | Allocation Bases (Cost Driver) |
|---|---|
| Laundry | Pounds of laundry |
| Airport Ground Services | Number of flights |
| Cafeteria | Number of meals |
| Medical Facilities | Cases handled; number of employees; hours worked |
| Materials Handling | Hours of service; volume handled |
| Information Technology | Number of personal computers; applications installed |
| Custodial Services | Square footage occupied |
| Cost Accounting | Labor hours; customers served |
| Power | KWH used; capacity of machines |
| Human Resources | Number of employees; training hours |
| Receiving, Shipping, and Stores | Units handled; number of requisitions; space occupied |
| Factory Administration | Total labor hours |
| Maintenance | Machine hours |

## 2.5 Accounting Methods for Allocating Indirect Costs from Support Departments to Operating Departments

Costs accumulated in service departments can be allocated to operating departments by using either of three main methods, namely; direct method, step-down method and reciprocal method (Yukcu, 2007).

### 2.5.1 Direct Method

The direct allocation method is the most widely used method of allocating support department costs. This method allocates the costs of support department directly to the operating departments. The basic advantage of this method is its simplicity. This method doesn't require the prediction of the usage of support department services by other support departments. A main disadvantage of the direct method is its failure to recognize reciprocal services provided among support departments. Because of this disadvantage, the direct method is not considered an accurate and objective method of cost allocation (Percevic and Lutilsky, 2008).

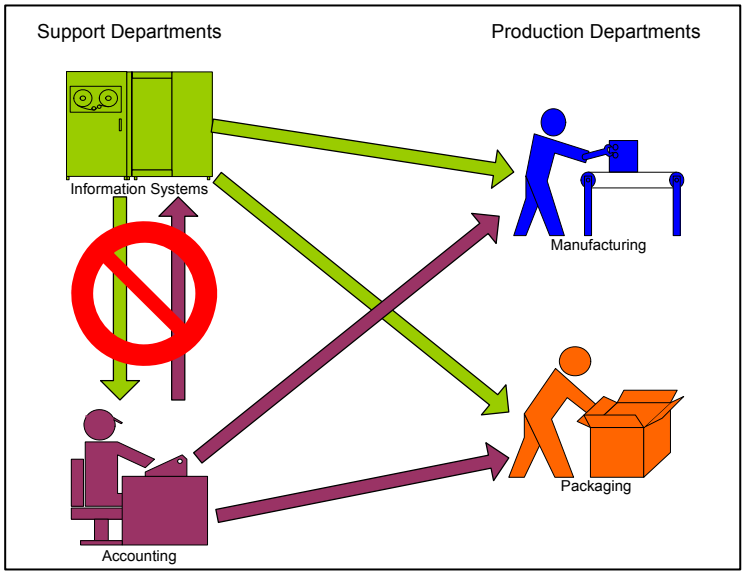


Figure (2.4): Direct Method (Garrison et al., 2006).

### 2.5.2 Step-Down Allocation Method

The step-down allocation method is also called the sequential allocation method. This method allows for partial recognition of the services provided by

support departments to other support departments. The application of the step-down allocation method requires the support departments to be sequenced in order for the step-down allocation to proceed.

A popular step-down sequence begins with the support department that renders the highest percentage of its total services to other support departments. The sequence continues with the department that renders the next highest percentage, and so on, ending with the support department that renders the lowest percentage. Under the step-down method, once a support department's costs have been allocated, no subsequent support department costs are allocated back to it.

While the step-down allocation method is considered more accurate and objective than the direct method, it does not recognize all of the reciprocal services provided among support departments (Percevic and Lutilsky, 2008).

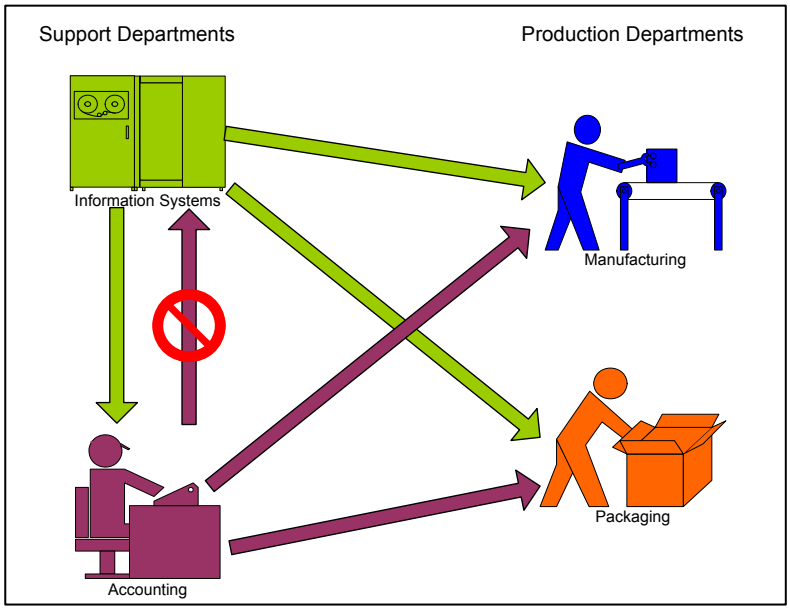


Figure (2.5): Step-Down Method (Garrison et al., 2006).

### 2.5.3 Reciprocal Allocation Method

The reciprocal allocation method allocates costs by explicitly including the mutual services provided among all support departments. This method fully incorporates interdepartmental relationships into support department cost allocations. By using this method, the costs of a support department are allocated

to other support and operating departments according to the services provided to those departments (Percevic and Lutilsky, 2008).

The reciprocal allocation method involves the following three steps (Percevic and Lutilsky, 2008):

1. Expressing support department costs and support departments' reciprocal relationships in the form of linear equations.
2. Solving the set of linear equations to obtain the complete reciprocated costs of each support department.
3. Allocating the complete reciprocated costs of each support department to all other departments (both support departments and operating departments) on the basis of the usage percentages (based on total units of service provided to all departments).

The reciprocal allocation method is considered the most accurate and objective method. However, the basic disadvantage of this method is its complexity. The reciprocal method is very hard to implement and to apply.

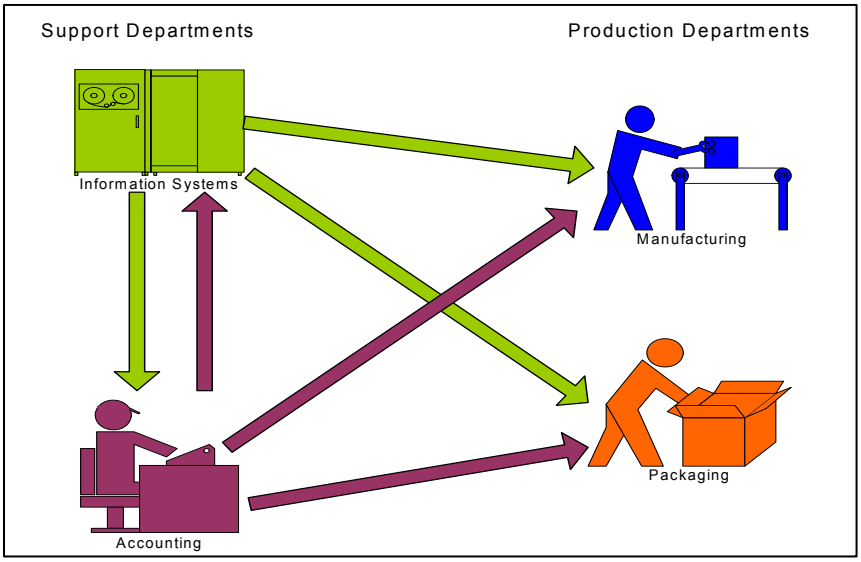


Figure (2.6): Reciprocal Method (Garrison et al., 2006).

It is easier to comprehend and apply the direct method and different applications of service departments, yet reciprocal method yields superior allocation results due to its consideration of two-way interaction between service departments. Thus reciprocal method is conceptually the most accurate method in allocations

(Horngren, 2006; Yukcu, 2007) but accounting softwares that are designed to employ reciprocal method and step-down method are rare. Direct method is the common default method for most of the softwares which makes it only choice for most of the companies.

Yukcu and Ozkaya (2010) stated that research also shows that direct method is the one that is most widely used due its conceptual and practical simplicity. 43% of Australian firms and 58% of Japanese firms declare that they adopt direct method while 3% of Australian and 27% of Japanese firms adopt step-down method for allocating service department costs. Moreover in Australia 5% and in Japan 10% of the surveyed firms adopt reciprocal method while the rest of the firms declare that they do not allocate service department costs to operating departments (Blayney and Yokohama,1991 cited in Horngren, 2006). A more recent survey by Szychta (2002) documents that step-down method is the most widely used method by 14 out of 39 enterprises followed by reciprocal method by 12 out of 39 enterprises and 7 out of 39 enterprises use direct allocation method.

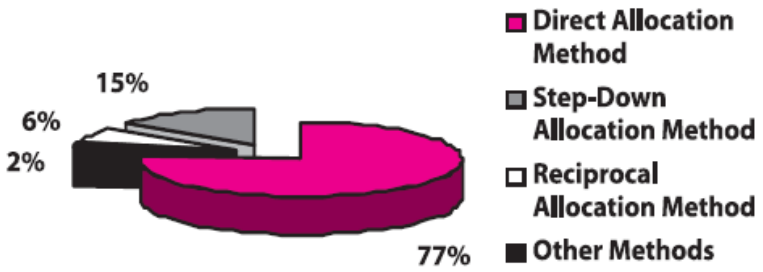


Figure (2.7): Cost Allocation Accounting Methods Used in the Croatian Production Sector (Percevic and Lutilsky, 2008).

# CHAPTER THREE

# Research Methodology

**This chapter consists of the following sections**

**First.** **Introduction**

**Second.** **Research methodology diagram**

**Third.** **Research Strategy**

**Fourth.** **Research design**

**Fifth.** **Data Collection**

**Sixth.** **Population**

**Seventh.** **Limitation of the research**

**Eighth.** **Research location**

**Ninth.** **Questionnaire design**

**Tenth.** **Data Measurement**

## 3.1 Introduction:

The previous chapter described in some details the concepts, literature review and deep study of the practices of overhead management in construction projects, to get a clear idea how the construction companies deals with such issues worldwide.

In this chapter, a description of data collection procedure adopted for this research is described. This chapter shows the methodological approach that researcher used for studying the head office overhead management in Gaza strip, through studying the current situation in contracting companies, and then suggesting the Direct Method as a base for the HOOH allocation.

This research was conducted in two major stages:

I. The descriptive analytical method will be used. The needed data will be collected from the targeted construction companies in Gaza Strip by using a questionnaire.
   The questionnaire will be designed to invistigate the actual allocation methods used by the contractor, and to identify the cost drivers which must be used to allocate the different components of head office overhead costs.

II. Case study: In this tool, a deep study will be applied on "Saqqa and Khoudary Contracting Company" by collected the data about the HOOH costs for a specified period, and applying the Direct Method of the Activity Based Cosing approach to allocate these costs among the on hand projects.

### 3.2 Research methodology diagram

To summarize the methodology description the following diagram shows the diagram of the methodology used in this research:

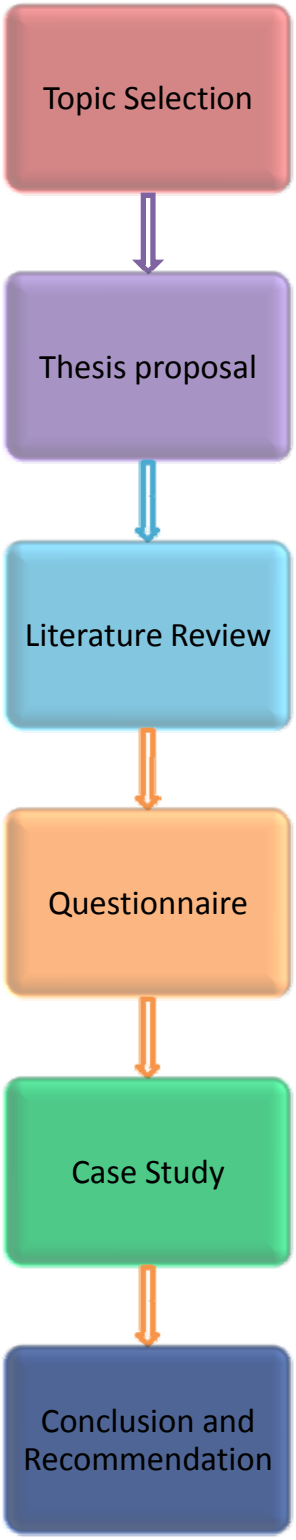


Figure (3.1) Research methodology diagram

## 3.3 Research Strategy:

Selecting a research method is a critical decision, the researcher needs to study the approaches to know which of them will satisfy the objectives of the study, and will fit with the information available and with the information needed.

There are two types of research strategies; quantitative research and qualitative research. Quantitative approaches seek to gather factual data and to study relationships between facts and how such facts and relationships accord with theories and the findings of any research executed previously (Fellows & Liu, 1997), where qualitative approaches seek to gain insights and to understand people's perception of "the world" whether as individuals or groups (Fellows & Liu, 1997).

In this research, a quantitative approach is selected to determine the variables and factors (cost drivers) that can be used as a base for allocating each element of the HOOH components in construction companies in Gaza Strip.

## 3.4 Research design

The term "research design" refers to the plan of scientific investigation, designing of a research study involves the development of a plan or strategy that will guide the collection and analyses of data. Much research in the social sciences and management spheres involves asking and obtaining answers to questions through conducting surveys of people by questionnaires, interviews and case studies (Fellows & Liu, 1997).

In this research a closed-ended questionnaire is used to collect data from respondents. In structured interview, questions are presented in the same order and with the same wording to all interviewees. The interviewers have full control on the questionnaire throughout the entire process of the interview.

In structured interview, the interviewer administers a questionnaire, perhaps by asking the questions and recording the responses, with little scope for probing those responses by asking supplementary questions to obtain more details and to pursue new and interesting aspects (Fellows & Liu, 1997).

## 3.5 Data Collection

The relevant data will be obtained from he following resorurces:

**a. Secondary resources:** The researcher will utilize the relevant literature and publications related to the subject of the research.

**b. Primary resources**: The needed data will be collected from the population of the study through a questionnaire that will cover the subject variables of the research.

## 3.6 Population

The population of the study will consist of the contractors who have the first and second classes according to the classification of the Contractors Union in all fields in Gaza Strip. The contractors who have other classes are excluded from the survey.

### 3.6.1 The sampling

According to recent figures, contractors registered as members at the Palestinian Contractors Union have amounted to (201) throughout Gaza Strip in April 2011 (PCU, 2011)

All of companies in Gaza Strip who have a Contractors Union valid registration and have 1st and 2nd degrees in all fields, which are 39 companies were targeted in this study and 35 companies replied and filled the questionnaires.

The Palestinian Contractors Union Classification System classifies the contracting company as the 1st "A" degree if at least it has the following characteristics (Road Field) (PCU, 2011):

i. Equity: $ 400,000.

ii. Equipments: $ 400,000.
iii. Maximum limit for one project: $ 4,000,000.
iv. Minimum limit for all projects: $ 8,000,000.
v. Head office area: 140m$^2$.

While the 2nd degree companies are those companies which at least have the following characteristics (Road Field) (PCU, 2011):

i. Equity: $ 250,000.
ii. Equipments: $ 250,000.
iii. Maximum limit for one project: $ 2,000,000.
iv. Minimum limit for all projects: $ 4,000,000.
v. Head office area: 120m2.

### 3.7 Limitation of the research

This research is imitated to the following:

1. This research is limited to the contractors who have a valid registration through the Palestinian Contractors Union. All other organizations that have its own classification for contracting companies such as UNRWA, UNDP, etc. will be excluded.

2. Contractors of 1st and 2nd classes are representing the population of this study. Other companies with classification lower than the 2nd degree were smaller sizes than the highest two degree and were excluded from this research because their cost systems are less development.

3. This study is limited to the construction industry practitioners in Gaza Strip.

### 3.8 Research location

The research was carried out in Gaza Strip, which consists of five governorates; the North, Gaza, the Middle, Khan-Younis and Rafah. These five areas are considered the southern territories of Palestinian National Authority (PNA).

## 3.9 Questionnaire design

As described above a questionnaire survey was conducted for two main reasons, the first one is to explore the actual methods that already used by the construction companies to allocate their head office overhead, and the other reason is to determine the best cost driver that can be used as a base to allocate each of head office overhead components by using the Direct Method – Activity Based Costing.

A six pages questionnaire accompanied with a covering letter was delivered to the 39 targeted construction companies' representatives.

The cover letter indicated the objectives of the research and explained to the respondent that the results of the questionnaire will be confidential and will be used for the academic research only and will be used to improve the ability of contractors to allocate and recover their head office overhead costs.

A close-ended questionnaire was used for its advantages as it is easy to ask and quick to answer, they require no writing by either respondent.

The questionnaire was composed of three sections to accomplish the aim of this research, as follows:

i. The respondent information.
ii. Overhead Meaning and Management (This part studies the actual overhead concept in the Palestinian Construction Companies).
iii. Direct Method as Head Office Overhead Cost Allocation System (This part studies the using of Activity Based Costing – Direct Method, as a system for head office overhead cost allocation.)

Two forms of the questionnaire were prepared, one in English language (Annex 1) for the interest of the research and the second one in Arabic language (Annex 2) to have more accurate results the questionnaire, as most of the target population is not familiar with the English language.

Interviews were conducted with the contractors' representatives to ensure obtaining complete and meaningful response to the questionnaire to explain the objective of the study and to make sure that selected cost drivers are the best ones to be used as the base for the overhead allocation and recovery.

## 3.10 Data Measurement

In order to be able to select the appropriate method of analysis, the level of measurement must be understood. For each type of measurement, there are an appropriate methods that can be applied and not others. In this research, ordinal scales were used. Ordinal scale is a ranking or a rating data that normally uses integers in ascending or descending order. The numbers assigned to the important (1,2,3,4,5) do not indicate that the interval between scales are equal, nor do they indicate absolute quantities. They are merely numerical labels. Based on Likert scale we have the following:

| **Item** | ***Very High Impact*** | ***High Impact*** | ***Medium Impact*** | ***Low Impact*** | ***Very Low Impact*** |
|---|---|---|---|---|---|
| **Scale** | 5 | 4 | 3 | 2 | 1 |

### 3.10.1 Test of Normality for each field:

Table (3.1) shows the results for Kolmogorov-Smirnov test of normality. From Table (3.1), the p-value for each field is smaller than 0.05 level of significance, then the distributions for these variables are not normally distributed. Consequently, Non-Parametric tests will be used to perform the statistical data analysis. -Organization Fit

**Table (3.1): Kolmogorov-Smirnov test**

| **Field** | **Kolmogorov-Smirnov** | |
|---|---|---|
| | **Statistic** | **P-value** |
| The best *Cost Driver* to be used to allocate the cost of "Management Department" to each project | 0.209 | 0.022* |
| The best Cost Driver to be used to allocate the cost of "Accounting Department" to each project | 0.204 | 0.029* |
| The best Cost Driver to be used to allocate the cost of "Secretary Department" to each project | 0.213 | 0.018* |

| Field | Kolmogorov-Smirnov | |
|---|---|---|
| | Statistic | P-value |
| The best Cost Driver to be used to allocate the cost of "Human Resource Department to each project | 0.254 | 0.001* |
| The best Cost Driver to be used to allocate the cost of "Procurement Department" to each project | 0.253 | 0.002* |
| The best Cost Driver to be used to allocate the cost of " Planning, Business Development and IT Departments" to each project | 0.249 | 0.004* |
| The best Cost Driver to be used to allocate the cost of " Pricing Department" to each project | 0.218 | 0.014* |
| The best Cost Driver to be used to allocate the cost of "Quality Control Department Costs" to each project | 0.209 | 0.022* |
| The best Cost Driver to be used to allocate the cost of "Marketing and Public Relation Department" to each project | 0.219 | 0.013* |
| The best Cost Driver to be used to allocate the cost of "Stores" to each project | 0.204 | 0.029* |
| The best Cost Driver to be used to allocate the cost of "Others" to each project | 0.282 | 0.000* |
| **All paragraphs of the questionnaire** | 0.254 | 0.001* |

* The distribution is not normally distributed at 0.05 level

### 3.10.2 Statistical analysis Tools

The researcher would use data analysis both qualitative and quantitative data analysis methods. The Data analysis will be made utilizing (SPSS 20). The researcher would utilize the following statistical tools:

1) Kolmogorov-Smirnov test of normality.
2) Spearman correlation coefficient for Validity.
3) Cronbach's Alpha for Reliability Statistics.
4) Frequency and Descriptive analysis.
5) Nonparametric Tests (Sign test)

**- Sign test** is used to determine if the mean of a paragraph is significantly different from a hypothesized value 3 (Middle value of Likert scale). If the P-value (Sig.) is smaller than or equal to the level of significance, $\alpha = 0.05$, then the mean of a paragraph is significantly different from a hypothesized value 3.

The sign of the Test value indicates whether the mean is significantly greater or smaller than hypothesized value 3. On the other hand, if the P-value (Sig.) is greater than the level of significance, $\alpha = 0.05$, then the mean a paragraph is insignificantly different from a hypothesized value 3.

### 3.10.3 Validity of Questionnaire

Validity refers to the degree to which an instrument measures what it is supposed to be measuring. Validity has a number of different aspects and assessment approaches. Statistical validity is used to evaluate instrument validity, which include internal validity and structure validity.

***Internal Validity***

Internal validity of the questionnaire is the first statistical test that used to test the validity of the questionnaire. It is measured by a scouting sample, which consisted of 20 questionnaires through measuring the correlation coefficients between each paragraph in one field and the whole filed.

Table (3.2) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of “Management Department” to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.2): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of “Management Department” to each project" and the total of this field**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Time consumed to complete works in each project (Time Sheet). | .452 | 0.003* |
| 2. | Numbers of correspondences were done for each project | .713 | 0.000* |
| 3. | Numbers of meetings were done for each project | .805 | 0.000* |
| 4. | Numbers of employees in each project | .367 | 0.015* |

* Correlation is significant at the 0.05 level

Table (3.3) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of "Accounting Department" to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at α = 0.05, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.3): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of "Accounting Department" to each project" and the total of this field**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Numbers of accounting entries were done for each project. | .452 | 0.003* |
| 2. | Numbers of suppliers were in each project | .713 | 0.000* |
| 3. | Numbers of subcontractors were in each project | .805 | 0.000* |
| 4. | Time consumed to complete works in each project (Time Sheet) | .367 | 0.015* |

* Correlation is significant at the 0.05 level

Table (3.4) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of "Secretary Department" to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at α = 0.05, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.4): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of "Secretary Department" to each project" and the total of this field.**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Time consumed to complete works in each project (Time Sheet). | .383 | 0.012* |
| 2. | Numbers of correspondences were done for each project | .678 | 0.000* |
| 3. | Numbers of meetings were done for each project | .759 | 0.000* |
| 4. | Numbers of telephone calls done for each project | .654 | 0.000* |

* Correlation is significant at the 0.05 level

Table (3.5) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of "Human Resource Department to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at α = 0.05, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.5): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of "Human Resource Department to each project" and the total of this field**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Time consumed to complete works in each project (Time Sheet). | .381 | 0.012* |
| 2. | Numbers of employees were in each project | .870 | 0.000* |
| 3. | Numbers of meetings were done for each project | .721 | 0.000* |
| 4. | Numbers of training courses done for each project | .692 | 0.000* |

* Correlation is significant at the 0.05 level

Table (3.6) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of "Procurement Department" to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at α = 0.05, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.6): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of "Procurement Department" to each project" and the total of this field**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Numbers of purchase orders were in each project | .569 | 0.000* |
| 2. | Time consumed to complete works in each project (Time Sheet). | .792 | 0.000* |
| 3. | Numbers of correspondences were done for each project | .624 | 0.000* |
| 4. | Numbers of suppliers were in each project | .709 | 0.000* |

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 5. | Cost of materials in each project | .569 | 0.000* |
| 6. | Project Amounts | .792 | 0.000* |

* Correlation is significant at the 0.05 level

Table (3.7) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of "Planning, Business Development and IT Departments" to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.7): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of "Planning, Business Development and IT Departments" to each project" and the total of this field**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Time consumed to complete works in each project (Time Sheet). | .714 | 0.000* |
| 2. | Numbers of correspondences were done for each project | .372 | 0.047* |
| 3. | Numbers of training courses done for each project | .668 | 0.000* |
| 4. | Numbers of computers for each project | .708 | 0.000* |
| 5. | Numbers of visits for each project | .500 | 0.001* |
| 6. | Numbers of technical proposals for each project | .645 | 0.000* |

* Correlation is significant at the 0.05 level

Table (3.8) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of "Pricing Department" to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.8): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of "Pricing Department" to each project" and the total of this field**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Project Amount | .473 | 0.002* |
| 2. | Project Duration | .826 | 0.000* |
| 3. | Project Type | .713 | 0.000* |

* Correlation is significant at the 0.05 level

Table (3.9) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of "Quality Control Department Costs" to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.9): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of "Quality Control Department Costs" to each project" and the total of this field**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Contract Amount | .567 | 0.000* |
| 2. | Contract Duration | .639 | 0.000* |
| 3. | Numbers of training courses done for each project | .442 | 0.004* |
| 4. | Numbers of suppliers were in each project | .708 | 0.000* |
| 5. | Cost of materials in each project | .603 | 0.000* |
| 6. | Numbers of subcontracting contracts in each project | .718 | 0.000* |

* Correlation is significant at the 0.05 level

Table (3.10) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of "Marketing and Public Relation Department" to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha=0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.10): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of "Marketing and Public Relation Department" to each project" and the total of this field**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Time consumed to complete works in each project (Time Sheet). | .603 | 0.000* |
| 2. | Numbers of correspondences were done for each project | .726 | 0.000* |
| 3. | Numbers of training courses done for each project | .633 | 0.000* |
| 4. | Numbers of site visits were done for each project | .776 | 0.000* |
| 5. | Project amount | .490 | 0.001* |

* Correlation is significant at the 0.05 level

Table (3.11) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of "Stores" to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.11): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of "Stores" to each project" and the total of this field**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Numbers of receipts done for each project | .382 | 0.013* |
| 2. | Store volume occupied for each project | .760 | 0.000* |
| 3. | Cost of materials in each project | .807 | 0.000* |
| 4. | Project amount | .657 | 0.000* |

* Correlation is significant at the 0.05 level

Table (3.12) clarifies the correlation coefficient for each paragraph of the "The best Cost Driver to be used to allocate the cost of "Others" to each project" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

**Table (3.12): Correlation coefficient of each paragraph of "The best Cost Driver to be used to allocate the cost of "Others" to each project" and the total of this field**

| No. | Paragraph | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | Project amount | .441 | 0.043* |
| 2. | Project location | .798 | 0.000* |
| 3. | Project type | .627 | 0.000* |

* Correlation is significant at the 0.05 level

***Structure Validity of the Questionnaire***

Structure validity is the second statistical test that used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one filed and all the fields of the questionnaire that have the same level of liker scale.

Table (3.13) clarifies the correlation coefficient for each filed and the whole questionnaire. The p-values (Sig.) are less than 0.05, so the correlation coefficients of all the fields are significant at $\alpha = 0.05$, so it can be said that the fields are valid to be measured what it was set for to achieve the main aim of the study.

**Table (3.13): Correlation coefficient of each field and the whole of questionnaire**

| No. | Field | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 1. | The best Cost Driver to be used to allocate the cost of "Management Department" to each project | .502 | 0.001* |
| 2. | The best Cost Driver to be used to allocate the cost of "Accounting Department" to each project | .547 | 0.000* |
| 3. | The best Cost Driver to be used to allocate the cost of "Secretary Department" to each project | .724 | 0.000* |
| 4. | The best Cost Driver to be used to allocate the cost of "Human Resource Department to each project | .724 | 0.000* |
| 5. | The best Cost Driver to be used to allocate the cost of "Procurement Department" to each project | .608 | 0.000* |
| 6. | The best Cost Driver to be used to allocate the cost of "Planning, Business Development and IT Departments" to each project | .697 | 0.000* |
| 7. | The best Cost Driver to be used to allocate the cost of "Pricing Department" to each project | .526 | 0.001* |

| No. | Field | Spearman Correlation Coefficient | P-Value (Sig.) |
|---|---|---|---|
| 8. | The best Cost Driver to be used to allocate the cost of "Quality Control Department Costs" to each project | .637 | 0.000* |
| 9. | The best Cost Driver to be used to allocate the cost of "Marketing and Public Relation Department" to each project | .602 | 0.000* |
| 10. | The best Cost Driver to be used to allocate the cost of "Stores" to each project | .358 | 0.017* |
| 11. | The best Cost Driver to be used to allocate the cost of "Others" to each project | .364 | 0.016* |

* Correlation is significant at the 0.05 level

### 3.10.4 Reliability of the Research

The reliability of an instrument is the degree of consistency which measures the attribute; it is supposed to be measuring. The less variation an instrument produces in repeated measurements of an attribute, the higher its reliability. Reliability can be equated with the stability, consistency, or dependability of a measuring tool. The test is repeated to the same sample of people on two occasions and then compares the scores obtained by computing a reliability coefficient.

**Cronbach's Coefficient Alpha**

This method is used to measure the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire. The normal range of Cronbach's coefficient alpha value between 0.0 and + 1.0, and the higher values reflects a higher degree of internal consistency. The Cronbach's coefficient alpha was calculated for each field of the questionnaire.

Table (3.14) shows the values of Cronbach's Alpha for each filed of the questionnaire and the entire questionnaire. For the fields, values of Cronbach's Alpha were in the range from 0.251 and 0.733. This range is considered high; the result ensures the reliability of each field of the questionnaire. Cronbach's Alpha

equals 0.926 for the entire questionnaire which indicates an excellent reliability of the entire questionnaire.

**Table (3.14): Cronbach's Alpha for each filed of the questionnaire**

| No. | Field | Cronbach's Alpha |
|---|---|---|
| 1. | The best Cost Driver to be used to allocate the cost of "Management Department" to each project | 0.325 |
| 2. | The best Cost Driver to be used to allocate the cost of "Accounting Department" to each project | 0.578 |
| 3. | The best Cost Driver to be used to allocate the cost of "Secretary Department" to each project | 0.613 |
| 4. | The best Cost Driver to be used to allocate the cost of "Human Resource Department to each project | 0.601 |
| 5. | The best Cost Driver to be used to allocate the cost of "Procurement Department" to each project | 0.733 |
| 6. | The best Cost Driver to be used to allocate the cost of " Planning, Business Development and IT Departments" to each project | 0.704 |
| 7. | The best Cost Driver to be used to allocate the cost of " Pricing Department" to each project | 0.535 |
| 8. | The best Cost Driver to be used to allocate the cost of "Quality Control Department Costs" to each project | 0.719 |
| 9. | The best Cost Driver to be used to allocate the cost of "Marketing and Public Relation Department" to each project | 0.731 |
| 10. | The best Cost Driver to be used to allocate the cost of "Stores" to each project | 0.615 |
| 11. | The best Cost Driver to be used to allocate the cost of "Others" to each project | 0.251 |
| | **All paragraphs of the questionnaire** | **0.926** |

The Thereby, it can be said that the researcher proved that the questionnaire was valid, reliable, and ready for distribution for the population sample.

# CHAPTER FOUR

# Data Analysis and Discussion

**This chapter consists of the following sections**

**First.** **Introduction**

**Second.** **Respondent Characteristics**

**Third.** **Company Profile**

**Fourth.** **Direct Method as Head Office Overhead Cost Allocation System**

## 4.1 Introduction

The aim of this chapter is to study and determine the best cost drivers that contractors can use as a base to their head office overhead costs allocation based on the analysis of the questionnaire results, also the researcher will depend on them in the case study calculation during the next chapter.

## 4.2 Respondent Characteristics

### 4.2.1 Position

Table No. (4.1) shows that 28.6% of the sample are "Executive Manager" holders, 37.1% are "Technical Manager" holders, 14.3% are "Financial Manager" holders and 20% of the sample are "Others" holders, others are accountants and projects manager.

**Table (4.1): Position**

| Position | Frequency | Percent |
|---|---|---|
| Executive Manager | 10 | 28.6 |
| Technical Manager | 13 | 37.1 |
| Financial Manager | 5 | 14.3 |
| Others | 7 | 20.0 |
| **Total** | **35** | **100.0** |

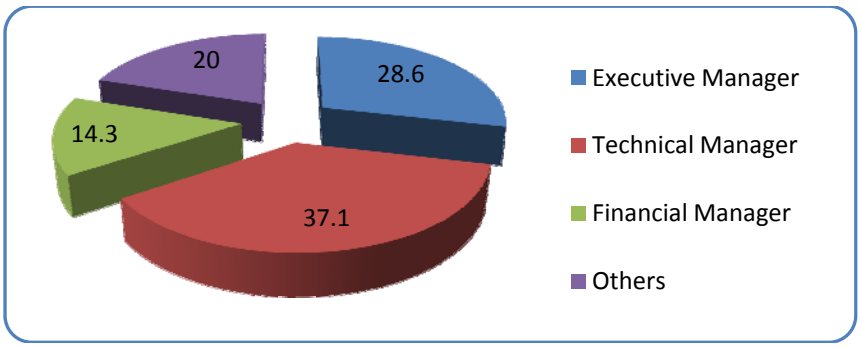


Figure (4.1) Respondent Classifications by Position

### 4.2.2 Gender

Table No. (4.2): shows that 94.3% of the sample are Males and 5.7% of the sample are Females.

**Table (4.2): Gender**

| Gender | Frequency | Percent |
|---|---|---|
| Male | 33 | 94.3 |
| Female | 2 | 5.7 |
| **Total** | **35** | **100.0** |

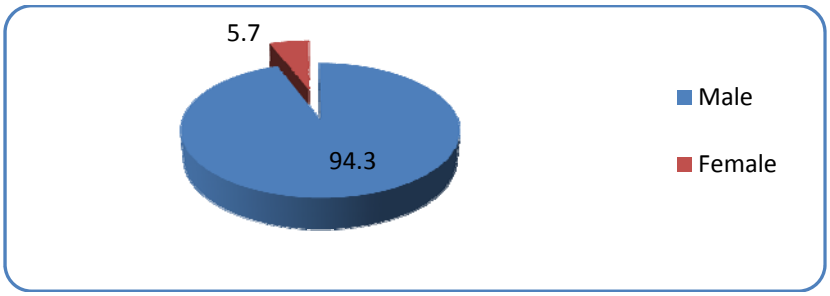


Figure (4.2) Respondent Classifications by Gender

### 4.2.3 Qualification

Table No. (4.3): shows that 8.6% of the sample are "Diploma or less" holders, 65.7% of the sample are "Bachelors" holders and 25.7% of the sample are "High Education" holders. These results confirm that the first and second degree construction companies rely on qualified persons in their top management.

**Table (4.3): Qualification**

| Qualification | Frequency | Percent |
|---|---|---|
| Diploma or less | 3 | 8.6 |
| Bachelors | 23 | 65.7 |
| High Education | 9 | 25.7 |
| **Total** | **35** | **100.0** |

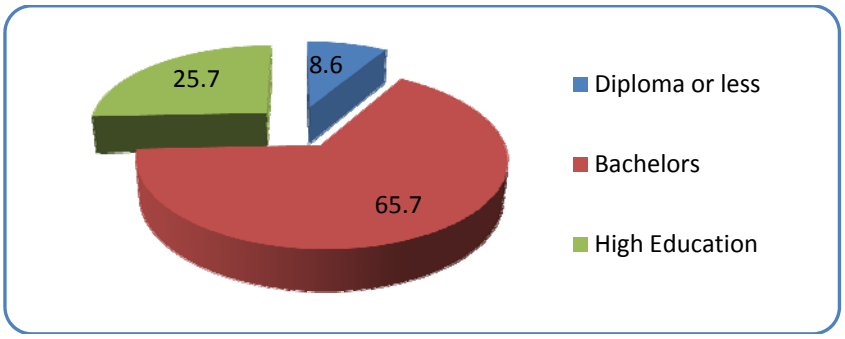


Figure (4.3) Respondent Classifications by Qualification

### 4.2.4 Years of Experiences

Table No.(4.4): shows that 2.9% of the sample are "Less than 3 years" holders, 2.9% of the sample are "From 3 to less than 5 years" holders, and 14.3% of the

sample are "From 5 to less than 10 years" holders 80.0% of the sample are "10 years and more" holders. These results show that the majority of the targeted companies' managers have many years of experience.

**Table (4.4): Years of Experiences**

| Years of Experiences | Frequency | Percent |
|---|---|---|
| Less than 3 years | 1 | 2.9 |
| From 3 to less than 5 years | 1 | 2.9 |
| From 5 to less than 10 years | 5 | 14.3 |
| 10 years and more | 28 | 80.0 |
| **Total** | **35** | **100.0** |

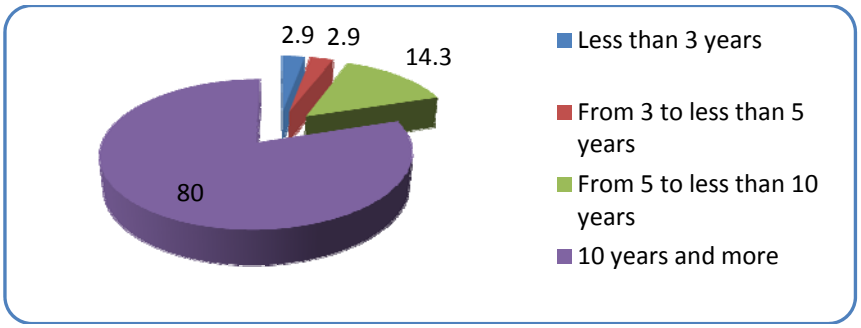


Figure (4.4) Respondent Classifications by Years of Experiences

### 4.2.5 Education

Table No.(4.5): shows that 17.1% of the sample are "Accountant" holders, 5.7% of the sample are "Business Administration" holders, 71.4% of the sample are "Engineering" holders and 5.7% of the sample are "Others" holders. These results confirm that although that the main concern of this research are financial management issues but the majority of the respondent are engineers and not accountants thus due to the facts that top management of most of construction companies are the owners of those companies with engineering background.

**Table (4.5): Education**

| Education | Frequency | Percent |
|---|---|---|
| Accountant | 6 | 17.1 |
| Business Administration | 2 | 5.7 |
| Engineering | 25 | 71.4 |
| Others | 2 | 5.7 |
| **Total** | **35** | **100.0** |

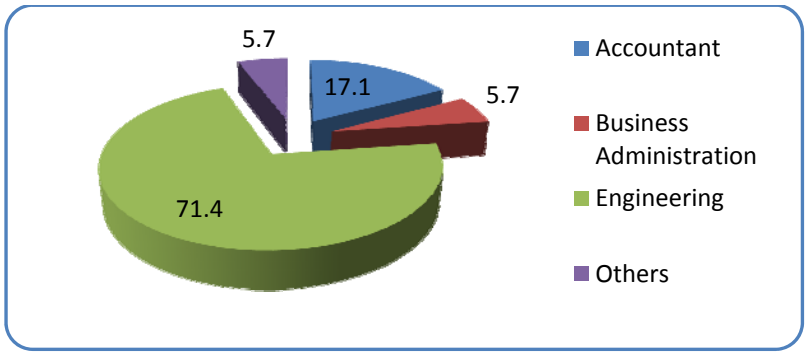


Figure (4.5) Respondent Classifications by Education

## 4.3 Company Profile

### 4.3.1 Company Classification

Table No. (4.6): shows that 51.4% of the sample are "1st Degree" holders and 48.6% of the sample are "2nd Degree" holders.

**Table (4.6): Company Classification**

| Company Classification | Frequency | Percent |
|---|---|---|
| 1st Degree | 18 | 51.4 |
| 2nd Degree | 17 | 48.6 |
| **Total** | **35** | **100.0** |

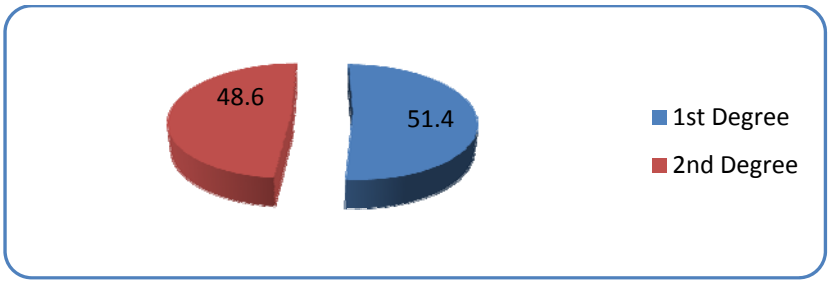


Figure (4.6) Company Classifications by Classification

### 4.3.2 Number of Employees

Table No. (4.7): shows that 31.4% of the sample are "Less than 5 employee" holders, 22.9% of the sample are "From 5 to less than 10 employee" holders, 20.0% of the sample are "From 10 to less than 20 employee" holders and 25.7% of the sample are "20 employee and more" holders.

**Table (4.7): Number of Employees**

| Number of Employees | Frequency | Percent |
|---|---|---|
| Less than 5 employee | 11 | 31.4 |
| From 5 to less than 10 employee | 8 | 22.9 |
| From 10 to less than 20 employee | 7 | 20.0 |
| 20 employee and more | 9 | 25.7 |
| **Total** | **35** | **100.0** |

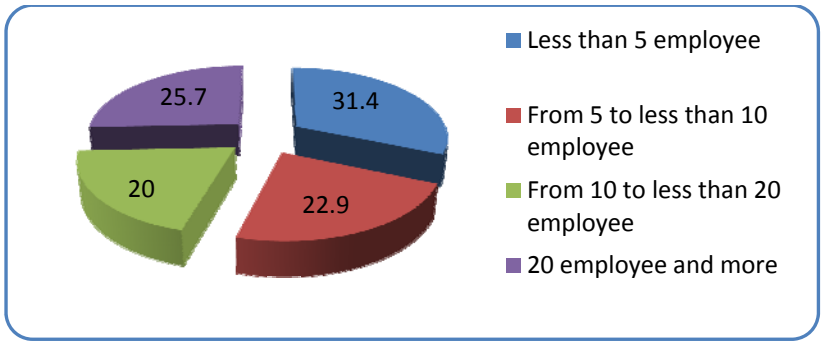


Figure (4.7) Company Classifications by Number of Employees

### 4.3.3 Number of executed projects in the last 5 years

Table No. (4.8): shows that 45.7% of the sample are "Less than 10 projects" holders, 40.0% of the sample are "From 11 to less than 20 projects" holders, 8.6% of the sample are " From 21 to less than 30 projects" holders and 5.7% of the sample are "40 projects and more" holders.

**Table (4.8): Number of executed projects in the last 5 years**

| Number of executed projects in the last 5 years | Frequency | Percent |
|---|---|---|
| Less than 10 projects | 16 | 45.7 |
| From 11 to less than 20 projects | 14 | 40.0 |
| From 21 to less than 30 projects | 3 | 8.6 |
| From 31 to less than 40 projects | - | - |
| 40 projects and more | 2 | 5.7 |
| **Total** | **35** | **100.0** |

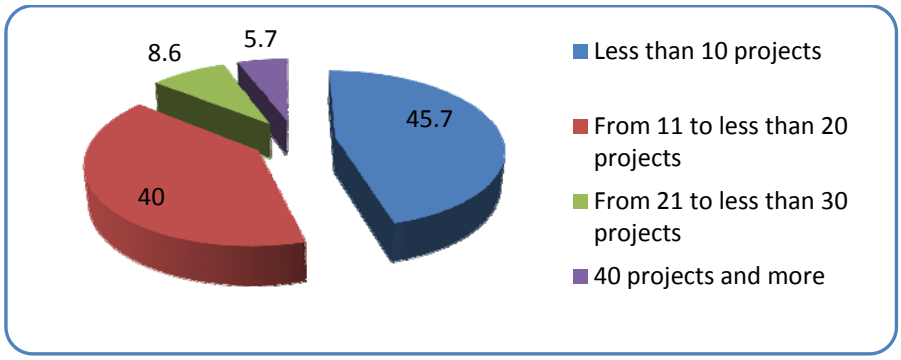


Figure (4.8) Company Classifications by Number of executed projects in the last 5 years

### 4.3.4 Experience of the organization in construction (Years)

Table No. (4.9): shows that 2.9% of the sample are "From 1 to less than-3 years" holders, 2.9% of the sample are "From 3 to less than 5 years" holders, 20.0% of the

sample are "From 5 to less than 10 years" holders and 74.3% of the sample are "10 years and more" holders.

**Table (4.9): Experience of the organization in construction (Years)**

| Experience of the organization in construction | Frequency | Percent |
|---|---|---|
| 1 year or fewer | - | - |
| From 1 to less than-3 years | 1 | 2.9 |
| From 3 to less than 5 years | 1 | 2.9 |
| From 5 to less than 10 years | 7 | 20.0 |
| 10 years and more | 26 | 74.3 |
| **Total** | **35** | **100.0** |

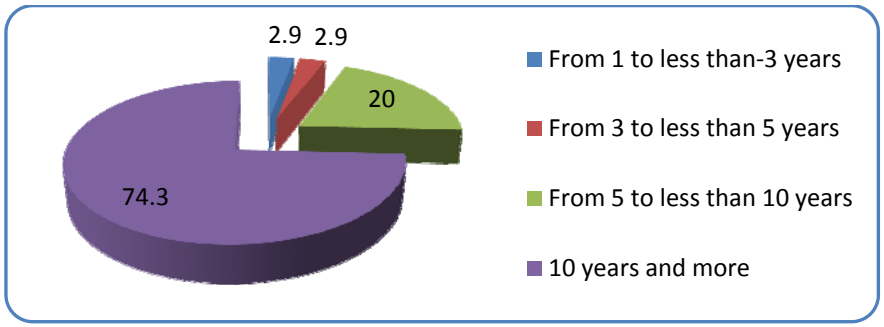


Figure (4.9) Company Classifications by Experience of the organization in construction

### 4.3.5 Work volume in the last 5 years (USD)

Table No.(4.10): shows that 5.7% of the sample are "Less than 1 million" holders, 51.4% of the sample are "From 1 to less than 5 millions" holders, 14.3% of the sample are "From 5 to less than 10 millions" holders and 28.6% of the sample are "10 million and more" holders. Results are logical, if we consider that the company should at least have 4.000.000 USD work volume to be classifies under 2nd degree.

**Table (4.10): Work volume in the last 5 years (USD)**

| Work volume in the last 5 years (USD) | Frequency | Percent |
|---|---|---|
| Less than 1 million | 2 | 5.7 |
| From 1 to less than 5 millions | 18 | 51.4 |
| From 5 to less than 10 millions | 5 | 14.3 |
| 10 million and more | 10 | 28.6 |
| **Total** | **35** | **100.0** |

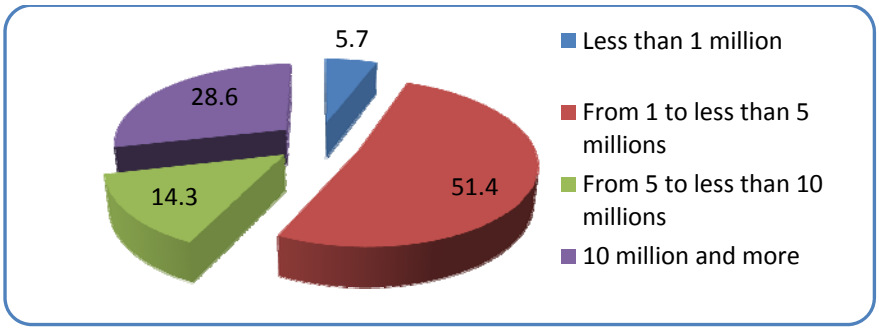


Figure (4.10) Company Classifications by Work volume in the last 5 years

### 4.3.6 The impact of head office overhead costs in construction costs

Table No.(4.11): shows that 5.7% of the sample are "Very high Impact" holders, 5.7% of the sample are "High Impact" holders, 31.4% of the sample are "Medium Impact" holders, 48.6% of the sample are "Low impact" holders and 8.6% of the sample are "Very Low impact" holders.

**Table (4.11): The impact of head office overhead costs in construction costs**

| The impact of head office overhead costs in construction costs | Frequency | Percent |
|---|---|---|
| Very high Impact | 2 | 5.7 |
| High Impact | 2 | 5.7 |
| Medium Impact | 11 | 31.4 |
| Low impact | 17 | 48.6 |
| Very low Impact | 3 | 8.6 |
| **Total** | **35** | **100.0** |

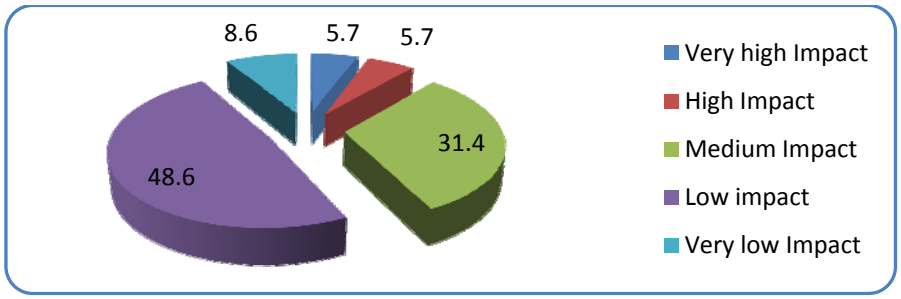


Figure (4.11) The impact of head office overhead costs in construction costs

### 4.3.7 The percentage of the of head office overhead cost to the total project costs

Table No. (4.12) shows that 40.0% of the sample are "Less than 5%" holders, 51.4% of the sample are "From 5% to less than 10%" holders, 2.9% of the sample are "From 10% to less than 15%" holders and 5.7% of the sample are "More than

20%" holders. Results show that the percent of HOOH to the total project is between 5 to 10% which are the same in the literature as it is 6-10%

**Table (4.12): The percentage of the of head office overhead cost to the total project costs**

| The percentage of the of head office overhead cost to the total project costs | Frequency | Percent |
|---|---|---|
| Less than 5% | 14 | 40.0 |
| From 5% to less than 10% | 18 | 51.4 |
| From 10% to less than 15% | 1 | 2.9 |
| From 15% to less than 20% | - | - |
| More than 20% | 2 | 5.7 |
| **Total** | **35** | **100.0** |

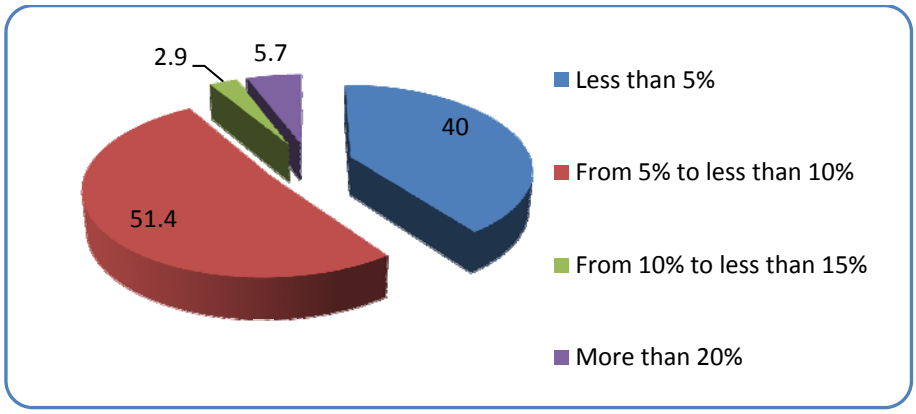


Figure (4.12) The percentage of the of head office overhead cost to the total project costs

### 4.3.8 The best way to calculate the head office overhead costs during pricing new project

Table No. (4.13): shows that 57.1% of the sample are “As percentage of total project cost" holders, 34.3% of the sample are "As percentage of dry cost" holders and 8.6% of the sample are "Fixed amount is added" holders.

**Table (4.13): The best way to calculate the head office overhead costs during pricing new project**

| The best way to calculate the head office overhead costs during pricing new project | Frequency | Percent |
|---|---|---|
| As percentage of total project cost | 20 | 57.1 |
| As percentage of dry cost | 12 | 34.3 |
| Fixed amount is added | 3 | 8.6 |
| Other way | - | - |
| **Total** | **35** | **100.0** |

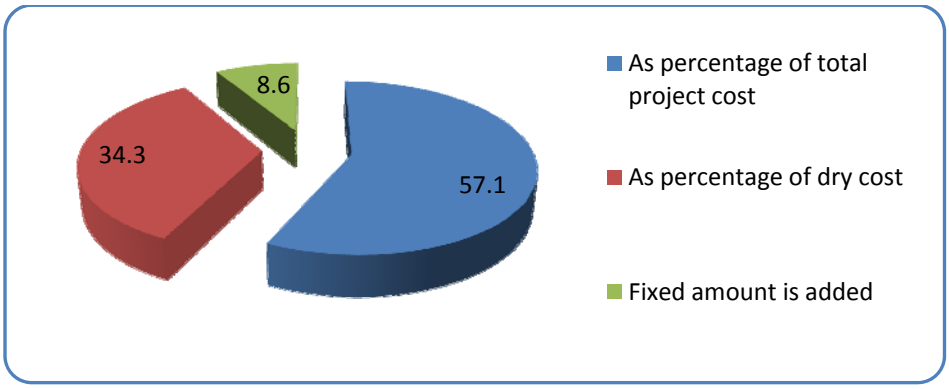


Figure (4.13) The best way to calculate the head office overhead costs during pricing new project

### 4.3.9 The used way to allocate the head office overhead costs to the current project

Table No. (4.14): shows that 62.9% of the sample are "As percentage according to each project amount" holders, 14.3% of the sample are "As percentage according to each project duration" holders, 5.7% of the sample are "As percentage according to each project material, labor, and equipment costs" holders, 8.6% of the sample are "As percentage according to each project type" holders and 8.6% of the sample are "As percentage according to each project profitability" holders.

Most of contractors depend on the project amount in the HOOH allocation as traditional way to allocate HOOH costs.

**Table (4.14): The used way to allocate the head office overhead costs to the current project**

| The used way to allocate the head office overhead costs to the current project | Frequency | Percent |
|---|---|---|
| As percentage according to each project amount. | 22 | 62.9 |
| As percentage according to each project duration. | 5 | 14.3 |
| As percentage according to each project material costs. | - | - |
| As percentage according to each project material and labor costs. | - | - |
| As percentage according to each project material, labor, and equipment costs. | 2 | 5.7 |
| As percentage according to each project type. | 3 | 8.6 |
| As percentage according to each project profitability. | 3 | 8.6 |
| Equally between current projects. | - | - |
| Other way, | - | - |
| **Total** | **35** | **100.0** |

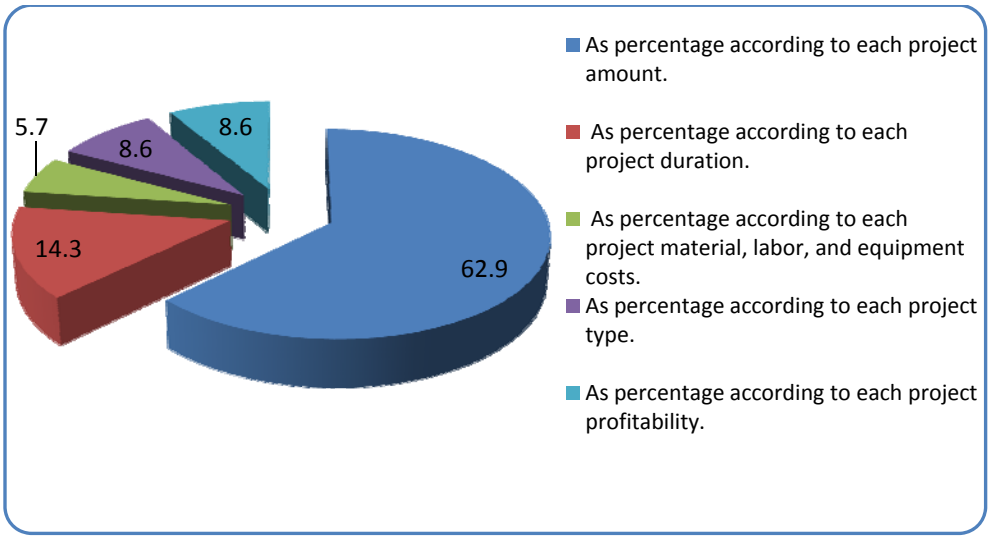


Figure (4.14) The used way to allocate the head office overhead costs to the current project

## 4.4 Direct Method as Head Office Overhead Cost Allocation System (Research Hypotheses)

### 4.4.1 Hypothesis # 1: It is expected to find that "Time consumed to complete works in each project" as the best Cost Driver to be used to allocate the cost of "Management Department" to each project.

Table (4.15): shows the following results:

**Table (4.15): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Management Department" to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Time consumed to complete works in each project (Time Sheet). | 4.23 | 84.57 | 4.75 | 0.000* | 1 |
| 2. | Numbers of correspondences were done for each project | 2.80 | 56.00 | -1.38 | 0.084 | 4 |
| 3. | Numbers of meetings were done for each project | 2.89 | 57.71 | -0.81 | 0.209 | 3 |
| 4. | Numbers of employees in each project | 3.06 | 61.14 | 0.29 | 0.385 | 2 |

* The mean is significantly different from 3

The mean of paragraph #1 "Time consumed to complete works in each project (Time Sheet)" equals 4.23 (84.57%), Test-value = 4.75, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph.

Regarding the other paragraphs, they have P-values are greater than the level of significance $\alpha = 0.05$. Then the means of these paragraphs are insignificantly different from the hypothesized value 3. We conclude that the respondents (Do not know, neutral) to them.

*The questionnaire results accept the research hypothesis #1 and also agree with the literature review as shown by Garrison et al., (2008) where the time*

*consumed to complete works in each project is the best cost driver that can be used as a base to a locate the management department, and it will be used for the case study in the next chapter.*

### 4.4.2 Hypothesis # 2: It is expected to find that "Project Amount, as the best Cost Driver to be used to allocate the cost of "Accounting Department" to each project.

Table (4.16): shows the following results:

**Table (4.16): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Accounting Department" to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Numbers of accounting entries were done for each project. | 3.57 | 71.43 | 3.10 | 0.001* | 3 |
| 2. | Numbers of suppliers were in each project | 3.97 | 79.43 | 4.44 | 0.000* | 1 |
| 3. | Numbers of subcontractors were in each project | 3.46 | 69.14 | 2.36 | 0.009* | 4 |
| 4. | Time consumed to complete works in each project (Time Sheet) | 3.77 | 75.43 | 3.61 | 0.000* | 2 |

* The mean is significantly different from 3

The mean of paragraph #2 "Numbers of suppliers were in each project" equals 3.97 (79.43%), Test-value = 4.44 and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph.

Although the other paragraphs have the P-value less than level of significance of $\alpha = 0.05$, and the sign of the tests are positive, which means that these paragraphs are significantly greater than the hypothesized value 3 and that the respondents

agreed to these paragraphs, but paragraph #2 has the largest mean and it will be selected as the best choice.

*The questionnaire results did not accept the research hypothesis #2 and also disagree with the literature review where Hilton et al,, (2003) proposed that the budget (project amount) can be used for this cost allocation, and numbers of suppliers were in each project will be used as a base to locate the accounting department for the case study in the next chapter.*

### 4.4.3 Hypothesis # 1: It is expected to find that "Time consumed to complete works in each project" as the best Cost Driver to be used to allocate the cost of "Secretary Department" to each project.

Table (4.17) shows the following results:

**Table (4.17): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Secretary Department" to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Time consumed to complete works in each project (Time Sheet). | 3.83 | 76.57 | 3.28 | 0.001* | 1 |
| 2. | Numbers of correspondences were done for each project | 3.29 | 65.71 | 1.56 | 0.059 | 2 |
| 3. | Numbers of meetings were done for each project | 2.49 | 49.71 | -2.67 | 0.004* | 4 |
| 4. | Numbers of telephone calls done for each project | 3.09 | 61.71 | 0.55 | 0.292 | 3 |

* The mean is significantly different from 3

The mean of paragraph #1 "Time consumed to complete works in each project (Time Sheet)" equals 3.83 (76.57%), Test-value = 3.28, and P-value = 0.001 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph.

The mean of paragraph #3 "Numbers of meetings were done for each project" equals 2.49 (49.71%), Test-value = -2.67, and P-value = 0.004 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is negative, so the mean of this paragraph is significantly smaller than the hypothesized value 3. We conclude that the respondents disagreed to this paragraph.

Regarding the paragraphs #2 and #4, the P-values are greater than the level of significance $\alpha = 0.05$. Then the means of these paragraphs are insignificantly different from the hypothesized value 3. We conclude that the respondents (Do not know, neutral) to them.

*The questionnaire results accept the research hypothesis #1 and also agree with the literature review as shown by Garrison et al,, (2008) where the time consumed to complete works in each project is the best base to locate the secretary department, and will be used for the case study in the next chapter.*

### 4.4.4 Hypothesis # 3: It is expected to find that "Number of employees were in each project" as the best Cost Driver to be used to allocate the cost of "Human Resource Department to each project.

Table (4.18) shows the following results:

**Table (4.18): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Human Resource Department to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Time consumed to complete works in each project (Time Sheet). | 4.20 | 84.00 | 4.54 | 0.000* | 1 |
| 2. | Numbers of employees were in each project | 2.71 | 54.29 | -2.13 | 0.017* | 3 |
| 3. | Numbers of meetings were done for each project | 2.71 | 54.29 | -2.13 | 0.017* | 3 |
| 4. | Numbers of training courses done for each project | 3.63 | 72.57 | 2.75 | 0.003* | 2 |

* The mean is significantly different from 3

The mean of paragraph #1 “Time consumed to complete works in each project (Time Sheet)” equals 4.20 (84.00%), Test-value = 4.54, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph.

The same is with paragraph # 4 where the mean equals 3.63 (72.57%), Test-value = 2.75, and P-value = 0.003 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph, but we have choose paragraph #1 as the best option because of its high mean (84.00%)

The mean of paragraph #2 and # 3 equal 2.71 (54.29%), Test-value = -2.13, and P-value = 0.017 which are smaller than the level of significance $\alpha = 0.05$. The sign of these tests are negative, so the mean of the paragraphs are significantly smaller than the hypothesized value 3. We conclude that the respondents disagreed to them.

*The questionnaire results did not accept the research hypothesis #3 and also disagree with the literature review as Hilton et al,, (2003)suggest to use the employee numbers and Garrison et al,, (2008) suggest to use the training courses for human recourses cost allocation, and the time consumed to complete works in each project will be used as a base to locate the human resource department for the case study in the next chapter.*

### 4.4.5 Hypothesis # 2: It is expected to find that "Project Amount" as the best Cost Driver to be used to allocate the cost of "Procurement Department" to each project.

Table (4.19) shows the following results:

**Table (4.19): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Procurement Department" to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Numbers of purchase orders were in each project | 4.03 | 80.57 | 4.34 | 0.000* | 1 |
| 2. | Time consumed to complete works in each project (Time Sheet). | 3.66 | 73.14 | 3.52 | 0.000* | 4 |
| 3. | Numbers of correspondences were done for each project | 2.63 | 52.57 | -2.31 | 0.011* | 6 |
| 4. | Numbers of suppliers were in each project | 3.74 | 74.86 | 3.95 | 0.000* | 3 |
| 5. | Cost of materials in each project | 3.86 | 77.14 | 3.43 | 0.000* | 2 |
| 6. | Project Amounts | 3.31 | 66.29 | 2.02 | 0.022 | 5 |

* The mean is significantly different from 3

The mean of paragraph #1 "Numbers of purchase orders were in each project" equals 4.03 (80.57%), Test-value = 4.34, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3 . We conclude that the respondents agreed to this paragraph.

The mean of paragraph #3 "Numbers of correspondences were done for each project" equals 2.63 (52.57%), Test-value = -2.31, and P-value = 0.011 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is negative, so the mean of this paragraph is significantly smaller than the hypothesized value 3. We conclude that the respondents disagreed to this paragraph.

Although the other paragraphs #2, #4, #5 and #6 have the P-values less than level of significance of $\alpha = 0.05$, and the sign of the tests are positive, which means that these paragraphs are significantly greater than the hypothesized value 3 and that the respondents agreed to these paragraphs, but paragraph #1 have the largest mean and it will be the best choice.

*The questionnaire results did not accept the research hypothesis #2 and disagree with the literature review where Louis et al, (2005) propose that the cost of material is the best allocation cost, and the Numbers of purchase orders in each project will be used as a base to locate the procurement department for the case study in the next chapter.*

### 4.4.6 Hypothesis # 1: It is expected to find that "Time consumed to complete works in each project" as the best Cost Driver to be used to allocate the cost of "Planning, Business Development and IT Departments" to each project.

Table (4.20) shows the following results:

**Table (4.20): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Planning, Business Development and IT Departments" to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Time consumed to complete works in each project (Time Sheet). | 3.74 | 74.86 | 3.14 | 0.001* | 1 |
| 2. | Numbers of correspondences were done for each project | 2.71 | 54.29 | -2.05 | 0.020* | 6 |
| 3. | Numbers of training courses done for each project | 3.11 | 62.29 | 0.71 | 0.238 | 3 |
| 4. | Numbers of computers for each project | 3.31 | 66.29 | 1.74 | 0.041* | 2 |
| 5. | Numbers of visits for each project | 3.09 | 61.71 | 0.53 | 0.298 | 4 |
| 6. | Numbers of technical proposals for each project | 3.03 | 60.59 | 0.18 | 0.428 | 5 |

* The mean is significantly different from 3

The mean of paragraph #1 “Time consumed to complete works in each project (Time Sheet)” equals 3.74 (74.86%), Test-value = 3.14, and P-value = 0.001 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph.

The mean of paragraph #2 “Numbers of correspondences were done for each project” equals 2.71 (54.29%), Test-value = -2.05, and P-value = 0.020 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is negative, so the mean of this paragraph is significantly smaller than the hypothesized value 3. We conclude that the respondents disagreed to this paragraph.

Paragraph #4 has the P-value less than level of significance of $\alpha = 0.05$, and the sign of the test is positive, which means that this paragraph is significantly greater than the hypothesized value 3 and that the respondents agreed to it, but paragraph #1 have the largest mean and it is the best choice.

Regarding the paragraphs #3, #4 and #5, the P-values are greater than the level of significance $\alpha = 0.05$. Then the means of these paragraphs are insignificantly different from the hypothesized value3. We conclude that the respondents (Do not know, neutral) to them.

*The questionnaire results accept the research hypothesis #1 but disagree with the literature review as Hilton et al. (2003) which suggest to use the training courses as allocation base, and the time consumed to complete works in each project will be used as a base to locate the Planning, Business Development and IT Departments for the case study in the next chapter.*

### 4.4.7 Hypothesis # 2: It is expected to find that "Project Amount" as the best Cost Driver to be used to allocate the cost of " Pricing Department" to each project

Table (4.21) shows the following results:

**Table (4.21): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Pricing Department" to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Project Amount | 4.57 | 91.43 | 5.16 | 0.000* | 1 |
| 2. | Project Duration | 3.71 | 74.29 | 3.45 | 0.000* | 2 |
| 3. | Project Type | 3.14 | 62.86 | 0.81 | 0.209 | 3 |

* The mean is significantly different from 3

The mean of paragraph #1 "Project Amount" equals 4.57 (91.43%), Test-value = 5.16, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph.

Paragraph #2 has the P-value less than level of significance of $\alpha = 0.05$, and the sign of the test is positive, which means that this paragraph is significantly greater than the hypothesized value 3 and that the respondents agreed to it, but paragraph #1 have the largest mean and it will be the best choice.

The mean of paragraph #3 "Project Type" equals 3.14 (62.86%), Test-value = 0.81, and P-value = 0.209 which is greater than the level of significance $\alpha = 0.05$. Then the mean of this paragraph is insignificantly different from the hypothesized value 3. We conclude that the respondents (Do not know, neutral) to this paragraph.

*The questionnaire results accept the research hypothesis #2, and the project amount will be used as a base to locate the pricing department for the case study in the next chapter.*

### 4.4.8 Hypothesis # 2: It is expected to find that "Project Amount" as the best Cost Driver to be used to allocate the cost of "Quality Control Department Costs" to each project.

Table (4.22) shows the following results:

**Table (4.22): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Quality Control Department Costs" to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Project Amount | 3.77 | 75.43 | 3.69 | 0.000* | 1 |
| 2. | Project Duration | 3.49 | 69.71 | 2.74 | 0.003* | 4 |
| 3. | Numbers of training courses done for each project | 3.03 | 60.57 | 0.20 | 0.420 | 6 |
| 4. | Numbers of suppliers were in each project | 3.23 | 64.57 | 1.57 | 0.058 | 5 |
| 5. | Cost of materials in each project | 3.66 | 73.14 | 3.06 | 0.001* | 2 |
| 6. | Numbers of subcontracting contracts in each project | 3.51 | 70.29 | 2.87 | 0.002* | 3 |

* The mean is significantly different from 3

The mean of paragraph #1 "Project Amount" equals 3.77 (75.43%), Test-value = 3.69, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph.

Although the other paragraphs #2, #5 and #6 have the P-values less than level of significance of $\alpha = 0.05$, and the sign of the tests are positive, which means that these paragraphs are significantly greater than the hypothesized value 3 and that

the respondents agreed to these paragraphs, but paragraph #1 have the largest mean and it will be the best choice.

Regarding paragraphs #3 and #4, the P-values are greater than the level of significance $\alpha = 0.05$. Then the means of these paragraphs are insignificantly different from the hypothesized value 3. We conclude that the respondents (Do not know, neutral) to this paragraph.

*The questionnaire results accept the research hypothesis #2, and the project amount will be used as a base to locate the Quality Control department for the case study in the next chapter.*

### 4.4.9 Hypothesis # 1: It is expected to find that "Time consumed to complete works in each project" as the best Cost Driver to be used to allocate the cost of "Marketing and Public Relation Department" to each project.

Table (4.23) shows the following results:

**Table (4.23): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Marketing and Public Relation Department" to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Time consumed to complete works in each project (Time Sheet). | 3.74 | 74.86 | 3.40 | 0.000* | 1 |
| 2. | Numbers of correspondences were done for each project | 2.77 | 55.43 | -1.50 | 0.067 | 4 |
| 3. | Numbers of training courses done for each project | 2.63 | 52.57 | -2.50 | 0.006* | 5 |
| 4. | Numbers of site visits were done for each project | 3.00 | 60.00 | 0.03 | 0.490 | 3 |
| 5. | Project amount | 3.71 | 74.29 | 3.31 | 0.000* | 2 |

* The mean is significantly different from 3

The mean of paragraph #1 “Time consumed to complete works in each project (Time Sheet)” equals 3.74 (74.86%), Test-value = 3.40, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph.

The mean of paragraph #3 “Numbers of training courses done for each project” equals 2.63 (52.57%), Test-value = -2.50, and P-value = 0.006 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is negative, so the mean of this paragraph is significantly smaller than the hypothesized value 3. We conclude that the respondents disagreed to this paragraph.

Regarding paragraphs #2 and #4, the P-values are greater than the level of significance $\alpha = 0.05$. Then the means of these paragraphs are insignificantly different from the hypothesized value 3. We conclude that the respondents (Do not know, neutral) to this paragraph.

Although paragraph #5 has the P-value less than level of significance of $\alpha = 0.05$, and the sign of the tests are positive, which means that this paragraph is significantly greater than the hypothesized value 3 and that the respondents agreed to this paragraph, but paragraph #1 have the largest mean and it will be the best choice.

*The questionnaire results accept the research hypothesis #1 and also agree with the literature review as Garrison et al,, (2008) suggest to use the time consumed as allocation base, and the time consumed to complete works in each project will be used as a base to locate the Marketing and public relationship departments for the case study in the next chapter.*

### 4.4.10 Hypothesis # 4: It is expected to find that "Numbers of receipts done for each project" as the best Cost Driver to be used to allocate the cost of "Stores" to each project.

Table (4.24) shows the following results:

**Table (4.24): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Stores" to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Numbers of receipts done for each project | 4.03 | 80.59 | 4.29 | 0.000* | 1 |
| 2. | Store volume occupied for each project | 3.94 | 78.82 | 4.35 | 0.000* | 3 |
| 3. | Cost of materials in each project | 3.97 | 79.41 | 4.09 | 0.000* | 2 |
| 4. | Project amount | 3.37 | 67.43 | 2.13 | 0.017* | 4 |

* The mean is significantly different from 3

The mean of paragraph #1 "Numbers of receipts done for each project" equals 4.03 (80.59%), Test-value = 4.29, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph.

The other paragraphs have P-values smaller than the level of significance $\alpha = 0.05$ and the sign of the tests are positive, so the means of these paragraphs are significantly greater than the hypothesized value 3. Then we conclude that the respondents agreed to these paragraphs, But because of the paragraph #1 has the largest mean, it will be selected as the best choice.

*The questionnaire results accept the research hypothesis #4, but disagree with the literature review as Garrison et al,, (2008) suggests to use space occupied as allocation base, and the Numbers of receipts done for each project will be used as a base to locate the Stores for the case study in the next chapter.*

### 4.4.11 Hypothesis # 2: It is expected to find that "Project amount" as the best Cost Driver to be used to allocate the cost of "Others" to each project.

Table (4.25) shows the following results:

**Table (4.25): Means and Test values for "The best Cost Driver to be used to allocate the cost of "Others" to each project"**

| | Item | Mean | Proportional mean (%) | Test value (Z) | P-value (Sig.) | Rank |
|---|---|---|---|---|---|---|
| 1. | Project amount | 4.56 | 91.18 | 5.11 | 0.000* | 1 |
| 2. | Project location | 3.56 | 71.18 | 2.85 | 0.002* | 3 |
| 3. | Project type | 3.60 | 72.00 | 3.20 | 0.001* | 2 |

* The mean is significantly different from 3

The mean of paragraph #1 "Project amount" equals 4.56 (91.18%), Test-value = 5.11, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 3. We conclude that the respondents agreed to this paragraph.

Paragraphs #2 and #3 have the P-values less than level of significance of $\alpha = 0.05$ and the sign of the tests are positive, which means that these paragraphs are significantly greater than the hypothesized value 3 and that the respondents agreed to them, but paragraph #1 have the largest mean and it will be selected as the best choice.

*The questionnaire results accept the research hypothesis #2, and the project amount will be used as a base to locate the others costs for the case study in the next chapter.*

Table (4.26) shows the best cost drivers that can be used as an allocation base for the different contractors department according to the researcher hypotheses, the literature reviews and the questionnaire results (which will be used in the case study in the next chapter.

**Table (4.26): Cost drivers according to research hypotheses, literature reviews and the questionnaire results**

| No. | Department | Cost Driver | | |
|---|---|---|---|---|
| | | Research Hypothesis | Literature Reviews | Questionnaire Results |
| 1 | Management | Time Consumed | Time Consumed | Time Consumed |
| 2 | Accounting | Project Amount | Project Amounts (Budgets) | # of suppliers |
| 3 | Secretary | Time Consumed | Time Consumed | Time Consumed |
| 4 | Human Resource | # of employees | # of employees | Time Consumed |
| 5 | Procurement | Project Amount | Cost of Materials | # of Purchase Orders |
| 6 | Planning and IT | Time Consumed | Training Courses | Time Consumed |
| 7 | Pricing | Project Amount | Project Amount | Project Amount |
| 8 | Quality Control | Project Amount | - | Project Amount |
| 9 | Public Relation | Time Consumed | Time Consumed | Time Consumed |
| 10 | Warehouses | # of receipt | Space Occupied | # of receipt |
| 11 | Others | Project Amount | - | Project Amount |

# CHAPTER FIVE

# Case Study

| | |
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| **First.** | **Introduction** |
| **Second.** | **SAK Company Profile** |
| **Third.** | **SAK Head Office Overhead through 2011** |
| **Fourth.** | **SAK Projects During 2011** |
| **Fifth.** | **Allocation of SAK Head Office Overhead During 2011** |

## 5.1 Introduction

The previous parts of the thesis are considered as the theoretical part; in this chapter a case study was done to show how to apply the Direct Method as a system for HOOH allocation.

The case of allocating the HOOH costs paid by Saqqa and Khoudary Company (SAK) for the period starting from January 2011 and ending with November 2011 will be conducted in order to get in-depth insights about the actual calculation applied, and then a comparison will be done to show the difference between the costs that each of SAK project must be loaded in case of using the Direct Method or the currently applied traditional method.

## 5.2 SAK Company Profile

Saqqa and Khoudary Co. Ltd. (SAK), a recognized contractor, and a construction manager is founded by Suhail H. Saqqa and Jawdat N. Khoudary, the company serves the needs of a large client base through its building, heavy/industrial, roads, water and wastewater construction projects.

With the company offices in Gaza and Ramallah; SAK has the capability to perform construction projects nationwide.

SAK has the ability to self perform nearly all construction disciplines. SAK broad base of experience allows them to assume total project responsibility or to take on discrete construction packages within a large project. In either case, SAK are adept program and construction managers, able to rely on their own workforce and equipment and manage the forces of any number of subcontractors. For the clients, this has meant timely project completion at a lower cost. Whether serving as general contractor, as construction manager, or in a multitude of other contract formats, the company provides experienced personnel, the latest equipment and the management systems necessary for even the most complex projects.

The successful completion of every project SAK attempt and the relationships they have built with the clients have enabled SAK to maintain a high ranking among the Palestinian Contractors.

SAK is a Palestinian company established according to the Palestinian companies' law in 27/11/1991 as private limited companies (Ltd) with a capital of USD 10,000,000.

Palestinian Contractor Union (PCU) certifies that SAK is a member in The Palestinian Contractor's Union under membership No. 184 IG, and classifies SAK as grade "1st A" in the field of Roads and Buildings and as Grade "1st" in the fields of Electromechanics, Water and Wastewater.

**SAK Mission:** Saqqa and Khoudary Co. will provide general contracting excellence for the long-term benefit of the Clients, Co-workers, and Stakeholders.

**SAK Mission Statement:** Through internal and external partnering SAK will provide a maximum value to customers a challenging, rewarding, safe environment to SAK employees, and high quality performed projects. SAK goal is to create value for all of SAK stakeholders while becoming SAK client's preferred partner in solutions.

**Vision:** Through a focused dedication as the local contractor nationwide, SAK will utilize the very best in technology, manpower and equipment while continually maintaining a competitive edge and personal attention toward clients, and to continually evolve the company unique capabilities to be an international leading engineering company.

## 5.3 SAK Head Office Overhead through 2011

As mentioned early, SAK has two branches in Palestine, the first one in Gaza which considered as the main head office and a branch in Ramallah.

These offices were considered as the support department, while SAK projects were considered as the operating departments.

SAK Head office overhead for year 2011 can be divided to the following components:

### 5.3.1 Management Department

The management department is the department that has the responsibility for overall planning, coordination, and control of the ongoing projects.

SAK management department costs consist of the salaries and expenditures of the board of directors, the executive manager (Gaza main office manager), and Ramallah branch manager.

During 2011, SAK Management Department cost was 123,988 $.

According to the questionnaire's results the *time consumed to complete works in each project* can be used as the cost driver to allocate the management department costs between the ongoing projects (Research Hypothesis # 1).

### 5.3.2 Accounting Department

The accounting department is the department that has the responsibility for the Payroll, Cash collections, Cash payments and Property accounting

SAK accounting department costs consist of the salaries and expenditures of financial manger, financial editor, accounting manager, three accountants in Gaza and one in Ramallah.

During 2011, SAK Accounting Department cost was 107,773 $.

According to the questionnaire's results the *numbers of suppliers were in each project* can be used as the cost driver to allocate the management department costs between the ongoing projects (Research Hypothesis # 2).

### 5.3.3 Secretary Department

The secretary department is the department that has the following duties:

- Assist the manager with the routine works.
- Prepare the meeting.
- Communicate with the relative person of the whole company departments.
- Write all the important information from a meeting, when a meeting is held by the manager

In SAK, these costs consist of the salaries of two secretaries one in Gaza and the other in Ramallah

During 2011, SAK Secretary Cost was 43,109 $.

According to the questionnaire's results the *time consumed to complete works in each project* can be used as the cost driver to allocate the management department costs between the ongoing projects (Research Hypothesis # 3).

### 5.3.4 Human Resource Department

The human resource department is the department that has the following duties:

- Employment and Recruiting.
- Training and Development
- Compensation
- Benefits
- Employee Services
- Employee and Community Relations
- Personnel Records

In SAK, these costs consist of the salaries of two employees, one in Gaza and the other in Ramallah, in addition to other costs results from training courses.
During 2011, SAK human resource department cost was 26,009$.
According to the questionnaire's results the *time consumed to complete works in each project* can be used as the cost driver to allocate the management department costs between the ongoing projects (Research Hypothesis # 4).

### 5.3.5 Procurement Department

The procurement department is the department that has the responsibility to buy everything that SAK needs to operate. They must research and investigate the products or services before purchasing them to ensure they are getting the best deal and also keeping up with the competition.

The procurement department in Gaza contains of the procurement manager, procurement engineer, procurement assistant, clerk and two drivers.

During 2011, SAK procurement department cost was 127,055 $.

According to the questionnaire's results the *numbers of purchase orders were in each project* can be used as the cost driver to allocate the procurement department costs between the ongoing projects (Research Hypothesis # 5).

### 5.3.6 Planning, Business Development and IT Departments

It is a new department in SAK; the main goal of this department is achieve the business development during the reengineering process. Many activities were planned by this department as making an electronic archive, computerizing the purchase order issuing systems and establishing the SAK internal network.

At this stage, this department consists of one IT engineer in Gaza, in addition to procure with some professional companies.

Also, all costs that raised from buying PCs and laptops and their maintenance costs can be considered under the IT department costs.

During 2011, SAK planning and IT department cost was 53,328 $.

According to the questionnaire's results the *time consumed to complete works in each project* can be used as the cost driver to allocate the planning and IT department costs between the ongoing projects (Research Hypothesis # 6).

### 5.3.7 Pricing and Cost Estimation Department

It is considered as one of the important departments in construction companies, the main duties of this department is to looking for the new bids, buying the suitable ones, preparing the financial and technical proposal, make good and competitive prices for the bid to win new projects.

SAK pricing department consists of three engineers in Gaza and one in West Bank.

During 2011, SAK pricing department cost was 43,109 $.

According to the questionnaire's results the *project amount* can be used as the cost driver to allocate the pricing department costs between the ongoing projects (Research Hypothesis # 7).

### 5.3.8 Marketing and Public Relation Department

Some of the facets of the duties of the marketing and public relation department include using media communication tools for spreading effective messages through writing press releases and preparing brochures. Public relations officer keeps people informed about goals, policies and objectives of the firm.

A public relations officer is also involved in managing a firm's website and giving information about the firm's progress.

SAK pubic relation department consists of one officer in Gaza and one in West Bank.

During 2011, SAK public relation department cost was 21,595 $.

According to the questionnaire's results the *time consumed to complete works in each project* can be used as the cost driver to allocate the public relation department costs between the ongoing projects (Research Hypothesis # 9).

### 5.3.9 Warehouses

This cost consists of many items as the cost of space per square meter, the cost of racks, tables and other equipment used in staging areas, the cost of various security devices, the cost of material handling equipment, depreciation and document destruction services, the cost of repairs or shrinkage, the labor cost.

SAK pubic relation department consists of one officer in Gaza and one in West Bank.

During 2011, SAK public relation department cost was 51,536 $.

According to the questionnaire's results the *numbers of receipts done for each project* can be used as the cost driver to allocate the public relation department costs between the ongoing projects (Research Hypothesis # 10).

### 5.3.10 Other running costs

All costs that cannot be classified within the above mentioned cost pools could be classified here, this cost consists but not limited to:

- Cars and other equipments.
- Bank fees and taxes.
- Communication
- Services Costs
- Fuel Consumptions

During 2011, SAK common cost was 572,921 $.

According to the questionnaire's results the *project amount* can be used as the cost driver to allocate the common costs between the ongoing projects (Research Hypothesis # 11).

**Table (5.1): SAK head office overhead during year 2011**

| No. | Support Department | Cost during 2011 ($) |
|---|---|---|
| 1 | Management Department | 123,988.54 |
| 2 | Accounting Department | 107,773.06 |
| 3 | Secretary Department | 43,109.23 |
| 4 | Human Resource Department | 26,009.97 |
| 5 | Procurement Department | 127,055.64 |
| 6 | Planning and IT Departments | 53,328.49 |
| 7 | Pricing and Cost Estimation Department | 43,109.23 |
| 8 | Public Relation Department | 21,595.82 |
| 9 | Warehouses | 51,536.35 |
| 10 | Other running costs | 572,921.18 |
| **Total** | | **1,170,427.51** |

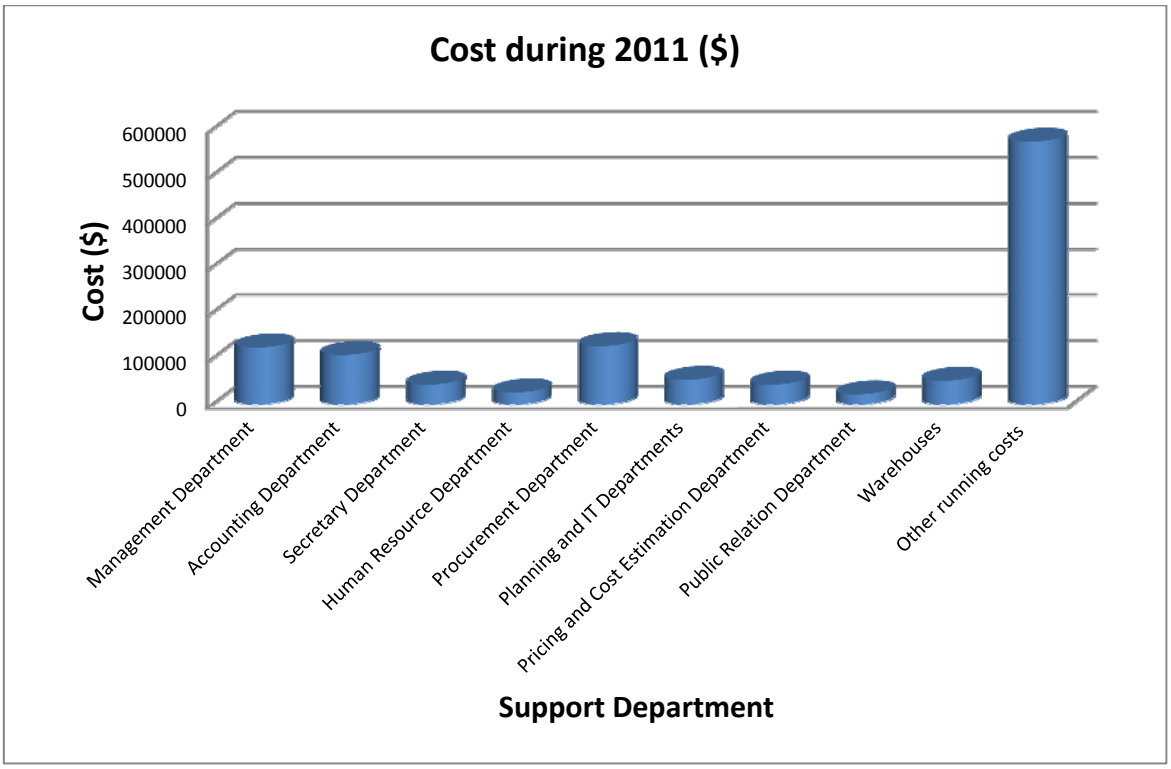


Figure (5.1) SAK head office overhead during year 2011

## 5.4 SAK Projects During 2011

In construction field, the projects are considered as the operating departments, these projects were the main causes of supporting department costs, SAK has many projects in Gaza and West Bank during 2011, the following table shows SAK project during 2011.

**Table (5.2): SAK projects amounts and percentage of completion during year 2011**

| No | Project Name | Client | Type | Amount (USD) | Start | Finish | % of comp. in 2011 |
|---|---|---|---|---|---|---|---|
| 1 | Construction of Waste Water Networks – Khan Younis City | ANERA | Waste Water | 287,570 | Feb. 2011 | Aug. 2011 | 100% |
| 2 | Upgrading of Al Mashroo' Sewage Pumping Station | ANERA | Waste Water | 87,739 | Feb. 2011 | June 2011 | 100% |
| 3 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 27 (Subcontracting) | AIC - USAID | Electro-Mechanic | 7,997,210 | Nov. 2009 | Sep. 2011 | 30% |
| 4 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 28 (Subcontracting) | AIC - USAID | Electro-Mechanic | 7,767,025 | Nov. 2009 | Sep. 2011 | 30% |
| 5 | Renovation of Al Amal Hospital – Khanyounis City | ANERA | Building | 587,570 | Feb. 2011 | Dec. 2011 | 100% |
| 6 | Gaza Turkish-Palestine Friendship Hospital Project-Concrete Works | AKER | Building | 5,000,000 | Aug. 2011 | Dec. 2011 | 40% |
| 7 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 45 (Subcontracting) | Morganti - USAID | Water | 10,951,415 | April 2011 | Dec. 2011 | 60% |

### 5.4.1 Construction of Waste Water Networks– Khan Younis Camp – Gaza Strip.

This project is totally executed during 2011, it is considered as one of SAK project in the field of Wastewater. The works in this project include supply and install of wastewater pipes and manholes.

The procurement department has the full responsibility to procure all required materials and to make the agreements with the subcontractors; the cost of materials was approximately 60% of the contract amount.

SAK project staff consists of the project manager, site engineer, surveyor, clerk and three labors.

For the purpose of HOOH allocation calculation this project will be referred by the letter "A".

### 5.4.2 Upgrading of Al Mashroo' Sewage Pumping Station – Beit Lahia – Gaza Strip

This project is one of the smallest scale projects in SAK, it is one of SAK wastewater projects, and the works in this project are just procurement works with some of installation works. The cost of materials was approximately 87% of the contract amount.

For the purpose of HOOH allocation calculation this project will be referred by the letter "B".

### 5.4.3 INFRASTRUCTURE NEEDS PROGRAM, Task Order # 28 and Task Order # 27 – Hebron – West Bank.

Although SAK was subcontractor in these projects, SAK was responsible to execute all project activities, these projects rare classified as Water project, these projects started in the fourth quarter of 2009.

The works in these projects in 2011 were finishing and handing over works so most of head office overhead was exerted by SAK staff was done in the periods before 2011.

For the purpose of HOOH allocation calculation this project will be referred by the letter "C" for Task Order # 27 and the letter "D" for Task Order # 28.

### 5.4.4 Renovation of Al Amal Hospital – Khan Younis City – Gaza Strip

This project started and finished during 2011, it is considered as one of SAK project in the field of Building. The works in this project include rehabilitation of Al Amal hospital building in addition to construction of some new extensions.

In this type of projects, the materials cost do not form the largest part of cost, but it have many different items which can be reflected in the overhead language by a huge number of local purchase orders and accounting entries.

In addition to the fact that the project staff should get some special training in the field of hospitals' finishing works.

For the purpose of HOOH allocation calculation this project will be referred by the letter "E".

### 5.4.5 Gaza Turkish-Palestine Friendship Hospital Project-Concrete Works – Al Mugraqa – Gaza Strip

This project is classified in the Building filed, the work include of construction of the hospital Skelton, with 20,000 cubic meter of reinforced concrete, it is one of the largest scale projects in Gaza, the daily SAK staff was approximately 200 workers.

For the purpose of HOOH allocation calculation this project will be referred by the letter "F".

### 5.4.6 INFRASTRUCTURE NEEDS PROGRAM, Task Order # 45 – Hebron – West Bank.

In this project, SAK was subcontractor for the American construction company of "The Morganti Group".

Approximately 60% of the project works were executed during 2011, this project absorbed the largest part of SAK head office overhead in Gaza and West Bank.

For the purpose of HOOH allocation calculation this project will be referred by the letter "G".

***In 2011, the percentage of SAK head office overhead to the total projects is approximately 8.21%.***

## 5.5 Allocation of SAK Head Office Overhead During 2011

In this section a comparison will be done between the allocating of SAK head office overhead by using the traditional method and the allocation by using the Direct Method – Activity Based Costing.

### 5.5.1 Allocation By Using the Traditional Method

SAK mainly depends on the project amount as a base for allocation the head office overhead by using the traditional method. The following tables show the steps of allocation calculation:

i. Determining the amount of work done in each project during year 2011 by multiplying the project amount by the percentage of completion during 2011.

**Table (5.3): Work done amount by SAK in each project during year 2011**

| No | Project Name | Symbol | Project Amount ($) | % of Comp. | Work Done ($) |
|---|---|---|---|---|---|
| 1 | Construction of Waste Water Networks – Khan Younis City | A | 287,570 | 100% | 287,570 |
| 2 | Upgrading of Al Mashroo' Sewage Pumping Station | B | 87,739 | 100% | 87,739 |
| 3 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 27 | C | 7,997,210 | 30% | 2,399,163 |
| 4 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 28 | D | 7,767,025 | 30% | 2,330,108 |
| 5 | Renovation of Al Amal Hospital – Khanyounis City | E | 587,570 | 100% | 587,570 |
| 6 | Gaza Turkish-Palestine Friendship Hospital Project-Concrete Works | F | 5,000,000 | 40% | 2,000,000 |
| 7 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 45 | G | 10,951,415 | 60% | 6,570,849 |
| **Total** | | | | | **14,262,999** |

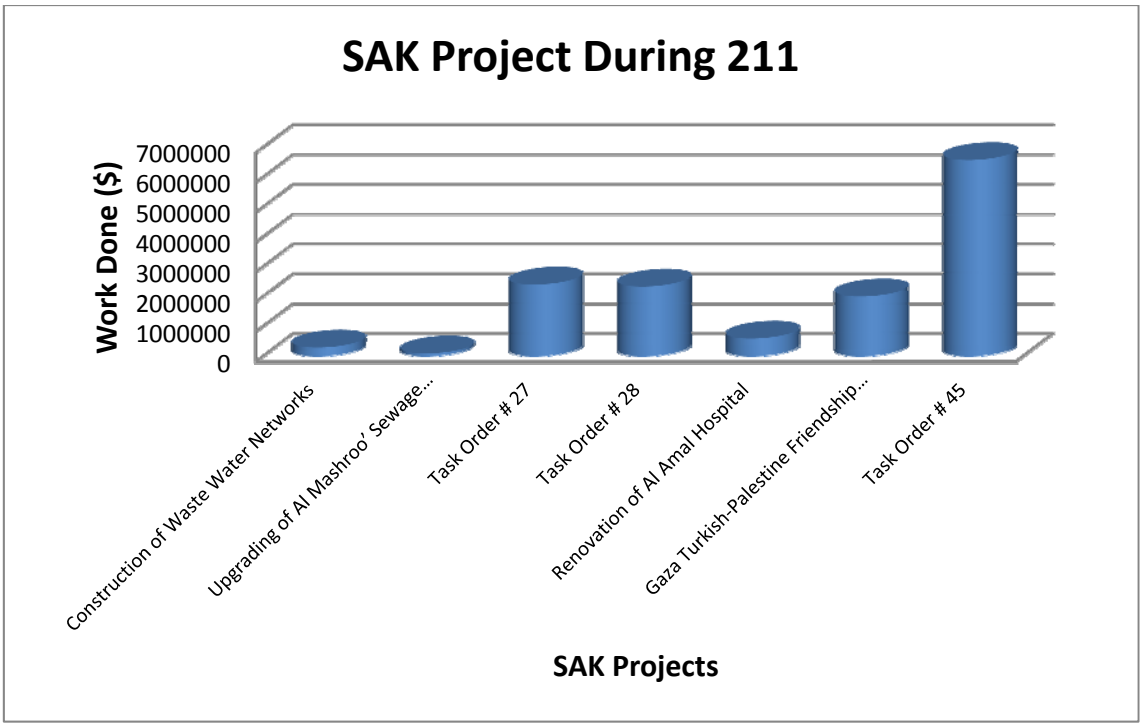


Figure (5.2) SAK Projects amounts during year 2011

ii. Calculating of the percentage of work done by each project in dollars to the total amount of work done in all projects during year 2011.

**Table (5.4): Percentage of each of SAK projects to total work done during year 2011**

| No. | Project Name | Symbol | Project Amount ($) | % of Project amount to Total |
|---|---|---|---|---|
| 1 | Construction of Waste Water Networks – Khan Younis City | A | 287,570 | 2.02% |
| 2 | Upgrading of Al Mashroo' Sewage Pumping Station | B | 87,739 | 0.62% |
| 3 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 27 | C | 2,399,163 | 16.82% |
| 4 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 28 | D | 2,330,108 | 16.34% |
| 5 | Renovation of Al Amal Hospital – Khan Younis City | E | 587,570 | 4.12% |
| 6 | Gaza Turkish-Palestine Friendship Hospital Project-Concrete Works | F | 2,000,000 | 14.02% |
| 7 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 45 | G | 6,570,849 | 46.07% |
| **Total** | | | **14,262,999** | **100.00%** |

iii. Calculating the allocated cost to each project in dollars by multiplying the percentage of each project to the total by total SAK head office overhead during year 2011.

**Table (5.5): Allocated overhead costs to each of SAK projects by using the traditional method**

| No. | Project Name | Symbol | % of Project amount to Total | Allocated Cost ($) |
|---|---|---|---|---|
| 1 | Construction of Waste Water Networks – Khan Younis City | A | 2.02% | 23,598 |
| 2 | Upgrading of Al Mashroo' Sewage Pumping Station | B | 0.62% | 7,200 |
| 3 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 27 | C | 16.82% | 196,876 |
| 4 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 28 | D | 16.34% | 191,210 |
| 5 | Renovation of Al Amal Hospital – Khanyounis City | E | 4.12% | 48,216 |
| 6 | Gaza Turkish-Palestine Friendship Hospital Project-Concrete Works | F | 14.02% | 164,121 |
| 7 | INFRASTRUCTURE NEEDS PROGRAM – Task Order # 45 | G | 46.07% | 539,207 |
| **Total** | | | **100.00%** | **1,170,427** |

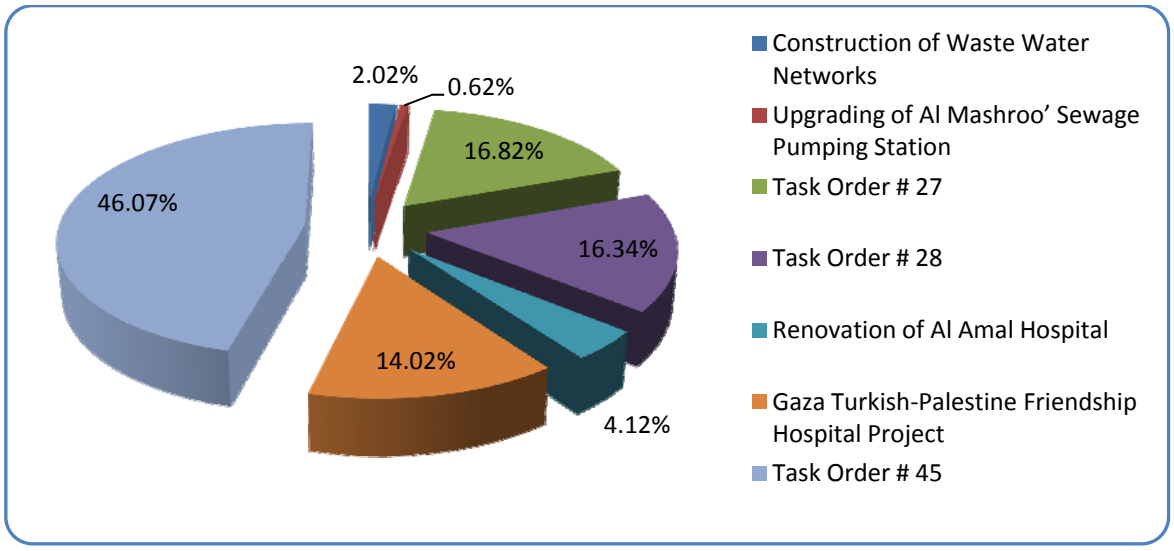


Figure (5.3) Allocated overhead costs to each of SAK projects by using the traditional method during year 2011

### 5.5.2 Allocation By Using the Direct Method – Activity Based Costing:

In this section HOOH allocation calculation will be done by using the direct method - activity based costing, the calculation will be done by depending on the cost drivers that obtained from the questionnaire results

The HOOH allocation by using the direct method will be done according the following steps:

i. Determining the cost drivers' consumption rate or amount by each project during year 2011, these data were obtained and collected by interviews with the persons in charges in each department in SAK, as shown in table No. (5.6).

ii. Calculating the consumed portion of overhead costs by each project, by multiplying the consumption rate obtained in step 1 above by the overhead cost then divides it to the total consumptions rates of all projects, as shown in table No. (5.7). For example:

- To calculate the portion of management department overhead cost that was consumed by project A, we can apply the following equation:
Cost = (123,989x5) / (100) = 6,199 USD.

- To calculate the portion of accounting department overhead cost that was consumed by project A, we can apply the following equation:
Cost = (107,773x4) / (92) = 4,686 USD.

**Table (5.6): Determining the cost drivers' consumption rate or amount by each project during year 2011**

| Department | Cost Driver | Total | Project A | Project B | Project C | Project D | Project E | Project F | Project G |
|---|---|---|---|---|---|---|---|---|---|
| Management | Time Consumed | 100 | 5 | 1 | 15 | 15 | 5 | 18 | 41 |
| Accounting | # of suppliers | 92 | 4 | 4 | 7 | 7 | 20 | 10 | 40 |
| Secretary | Time Consumed | 100 | 5 | 2 | 10 | 10 | 15 | 18 | 40 |
| Human Resource | Time Consumed | 100 | 2 | - | 16 | 15 | 15 | 25 | 27 |
| Procurement | # of Purchase Orders | 930 | 50 | 10 | 10 | 10 | 250 | 500 | 100 |
| Planning and IT | Time Consumed | 100 | 8 | - | 6 | 6 | 20 | 30 | 30 |
| Pricing | Project Amount | 14,265 | 288 | 88 | 2,400 | 2,330 | 588 | 2,000 | 6,571 |
| Public Relation | Time Consumed | 100 | 2 | - | 11 | 11 | 8 | 10 | 58 |
| Warehouses | # of receipt | 247 | 5 | 2 | 30 | 30 | 50 | 100 | 30 |
| Others | Project Amount | 14,265 | 288 | 88 | 2,400 | 2,330 | 588 | 2,000 | 6,571 |

**Table (5.7): Allocated overhead costs to each of SAK projects by using the activity based costing method**

| Department | Cost ($) | Project A | Project B | Project C | Project D | Project E | Project F | Project G |
|---|---|---|---|---|---|---|---|---|
| Management | 123,989 | 6,199 | 1,240 | 18,598 | 18,598 | 6,199 | 22,318 | 50,835 |
| Accounting | 107,773 | 4,686 | 4,686 | 8,200 | 8,200 | 23,429 | 11,714 | 46,858 |
| Secretary | 43,109 | 2,155 | 862 | 4,311 | 4,311 | 6,466 | 7,760 | 17,244 |
| Human Resource | 26,010 | 520 | - | 4,162 | 3,901 | 3,901 | 6,502 | 7,023 |
| Procurement | 127,056 | 6,831 | 1,366 | 1,366 | 1,366 | 34,155 | 68,309 | 13,662 |
| Planning and IT | 53,328 | 4,266 | - | 3,200 | 3,200 | 10,666 | 15,999 | 15,999 |
| Pricing | 43,109 | 870 | 266 | 7,253 | 7,041 | 1,777 | 6,044 | 19,858 |
| Public Relation | 21,596 | 432 | - | 2,376 | 2,376 | 1,728 | 2,160 | 12,526 |
| Warehouses | 51,536 | 1,043 | 417 | 6,259 | 6,259 | 10,432 | 20,865 | 6,259 |
| Others | 572,921 | 11,567 | 3,534 | 96,391 | 93,579 | 23,616 | 80,325 | 263,909 |
| **Total** | **1,170,428** | **38,570** | **12,372** | **152,115** | **148,832** | **122,369** | **241,997** | **454,172** |

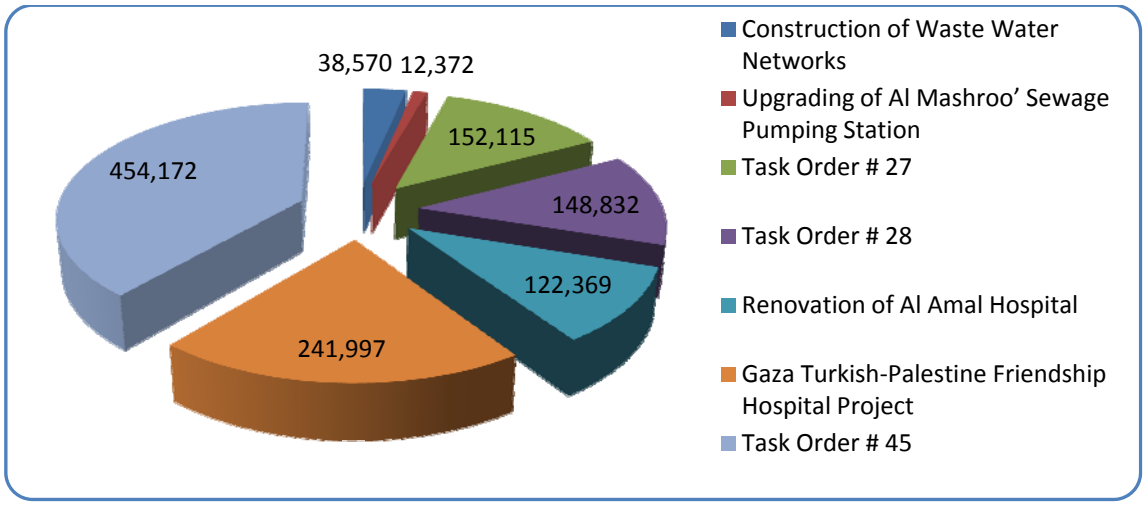

Figure (5.4) Allocated overhead costs to each of SAK projects by using ABC method during year 2011

### 5.5.3 Comparison between allocation by using the traditional method and the Direct Method:

Table (5.8) shows comparison between the results obtained from the allocation using the traditional method and the direct method.

After checking the results the following points are noted:

1. As general note using the direct method reduced the overhead cost that loaded to the projects with high projects amount.

2. As general note using the direct method increased the overhead cost that loaded to the projects executed in Gaza, this finding is logical if we knew that according to SAK strategy of works, lot of service department duties in West Bank projects were executed by the projects staff such as local procurement, stores and others.

3. Regarding Construction of Waste Water Networks in Khan Younis, the overhead cost allocated by using the direct method is approximately 13.4% of the contract, which is relatively high percentage but accepted.

4. Regarding Upgrading of Al Mashroo' Sewage Pumping Station in Beit Lahia, the overhead cost allocated by using the direct method is approximately 14.1% of the contract, which is high percentage, but it can be acceptable because the large part of this overhead come from the

accounting department which depends on number of suppliers and the nature of this project is supplying more than installation.

5. Regarding Tasks Orders # 27 and # 28, the overhead cost allocated by using the direct method is approximately 6.3% of the contract, which is acceptable because most of projects activity were executed before 2011.

6. Regarding Renovation of Al Amal Hospital, the overhead cost allocated by using the direct method is approximately 20% of the contract, which is very high percentage, this result come from the fact this type of work (finishing works in hospital building) needs huge efforts done by the procurement, accounting and stores departments due to the large quantities in finishing material types, and SAK must consider this issue in pricing such projects in the future.

7. Regarding Gaza Turkish-Palestine Friendship Hospital Project (Concrete Works), the overhead cost allocated by using the direct method is approximately 12% of the contract, which is accepted as a building project.

8. Regarding Tasks Orders # 45, the overhead cost allocated by using the direct method is approximately 7% of the contract, which is acceptable because large part of procurement process done by the project staff not by the head office procurement department.

**Table (5.8): Comparison between the traditional method and the direct method**

| Project Name | Project Symbol | Work done during 2011 | Allocated cost by using traditional method | Allocated cost by using direct method/ABC |
|---|---|---|---|---|
| Construction of Waste Water Networks | A | 287,570 | 23,598 | 38,570 |
| Upgrading of Al Mashroo' Sewage Pumping Station | B | 87,739 | 7,200 | 12,372 |
| Task Order # 27 | C | 2,399,163 | 196,876 | 152,115 |
| Task Order # 28 | D | 2,330,108 | 191,210 | 148,832 |
| Renovation of Al Amal Hospital | E | 587,570 | 48,216 | 122,369 |
| Gaza Turkish-Palestine Friendship Hospital Project | F | 2,000,000 | 164,121 | 241,997 |
| Task Order # 45 | G | 6,570,849 | 539,207 | 454,172 |
| **Total (USD)** | | **14,262,999** | **1,170,428** | **1,170,428** |

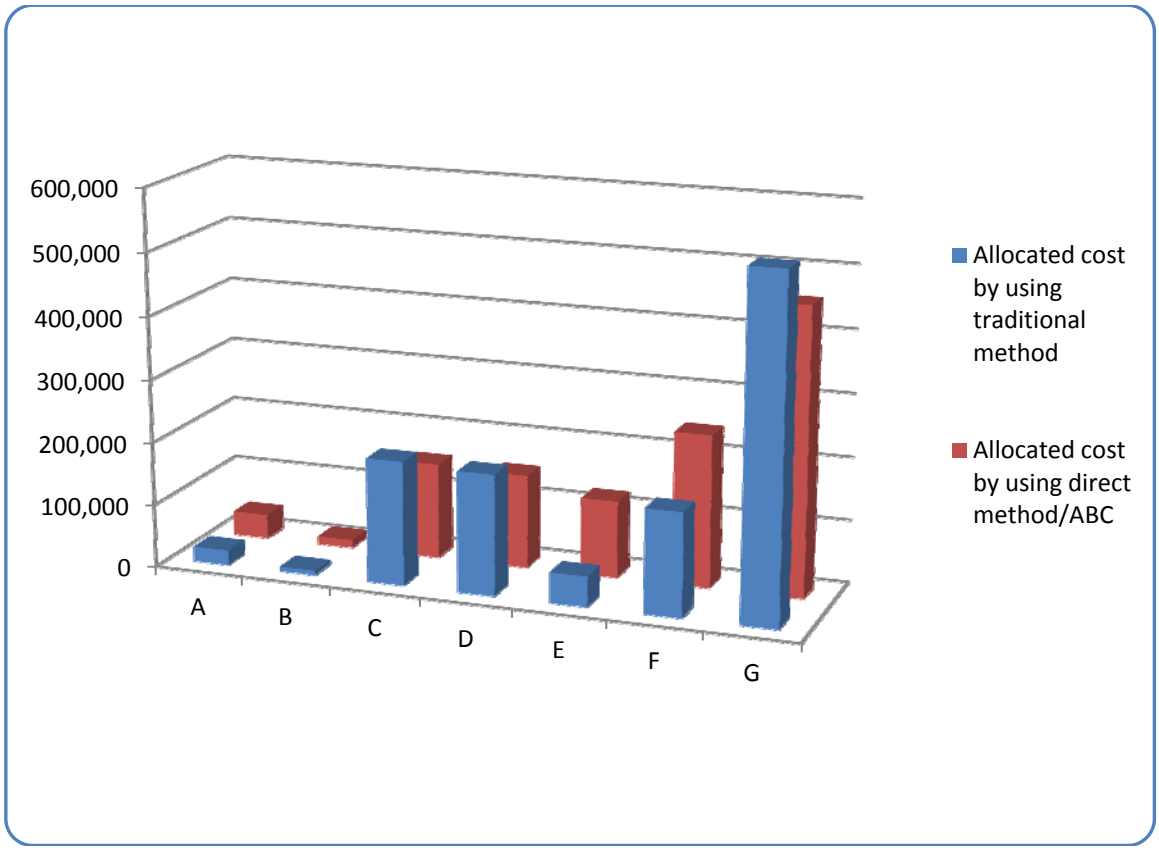


Figure (5.5) Comparison between overhead cost allocation by using the traditional method and the direct method

# CHAPTER SIX

# Conclusion and Recommendation

**This chapter consists of the following sections**

## 6.1 Introduction

## 6.2 Conclusion

## 6.3 Recommendation

## 6.1 Introduction

This research studies the overhead management in the construction companies in Gaza; it concentrates on many issues like the contractors understanding for the overhead, the ways that contractors calculate their overhead and how they allocated it on the current project.

Also, deep digging was done on the process of overhead allocation, where a field process by using a questionnaire were done to choose the best cost drivers to be used as bases of overhead allocation by using the direct method as a tool of the activity base costing system, after making the case study some issues were concluded and some actions that may improve overhead allocation process were recommended.

## 6.2 Conclusion

Construction companies face increasing competition in today's marketplace. Companies must react quickly and manufacture high-quality, low-cost products to be successful in this new environment. To make the proper decisions, senior managers must have accurate and updatable costing information. Traditional costing systems that utilize a volume-based allocation of overhead have lost relevance in the manufacturing environment that has seen as sharp increase in overhead and a subsequent decline in direct labor.

Most of contractors in Gaza depend on the projects amount in the HOOH allocation as traditional way to allocate HOOH costs.

To avoid the deficiencies of traditional costing systems; Activity Based Costing System can be used as innovative costing method.

Using ABC system in the overhead allocation process create a clear vision and rich data base about the costs components which help in reducing the overhead costs, and from another side give indications for the relationship between the project type and the overhead consumption.

Using ABC system in the allocation process overcome the troubles that raised in this process, especially for the cases when allocating costs for projects were not finished in the period of allocation.

Most of contractors think that overhead cost had a low to medium impact and they estimate that the percent of HOOH to the total annual turnover is between 5 to 10%.

The important step of using the ABC is to select the proper cost drives to be used as the allocation bases in the direct method. Table (6.1) shows the cost drivers obtained from the research results.

**Table (6.1): Overhead Allocation Bases**

| Department | Cost Driver |
|---|---|
| Management | Time Consumed |
| Accounting | # of suppliers |
| Secretary | Time Consumed |
| Human Resource | Time Consumed |
| Procurement | # of Purchase Orders |
| Planning and IT | Time Consumed |
| Pricing | Project Amount |
| Public Relation | Time Consumed |
| Warehouses | # of receipt |
| Others | Project Amount |

The direct allocation method is the most widely used method of allocating support department costs; the basic advantage of this method is its simplicity.

## 6.3 Recommendation

- It is recommended that contractors should make the necessary steps toward applying the Activity Based Costing as comprehensive system for company's different process as accounting, pricing, overhead allocation and others.

- It is recommended that contractors should apply the direct method as it is the simplest tool of the overhead allocation.

- It is recommended that contractors should arrange courses to improve the employees understanding about the overhead costs concept

- It is recommended that contractors should utilize as many cost drivers as possible to increase the accuracy and efficiency of overhead recovery.

- It is recommended that contractors should contentiously study and analyze the head office overhead components and amount, to minimize it as possible.

- It is recommended that contractors should obtain certifications from an authorized accounting editor for the overhead allocation system, especially in the case of contractors' claims.

- It is recommended that contractor should adapt the time management principles as the time consumption is the proper cost driver for most of support department.

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# List of Annexes

**Annex 1 Questionnaire in English language (Final Form)**

**Annex 2 Questionnaire in Arabic language (Final Form)**

# Annex 1

**The Islamic University-Gaza**
**Deanery of Graduate Studies**
**Faculty of Commerce**
**Department of Business Administration**

**الجامعة الإسلامية – غزة**
**عمادة الدراسات العليا**
**كلية التجارة**
**قسم إدارة الأعمال**

# Questionnaire

## A suggested System to Develop the Process of Allocating Head Office Overhead According to the "Direct Method" in Construction Industry in Gaza Strip

The aim of this study is to explore the overhead costs allocation basis actually used by contractors in Gaza Strip, and to demonstrate the use of "Direct Method" as a base for allocating the head office overhead between the ongoing projects.

All data in this questionnaire are confidential and will be used only for the purpose of the academic research. The research results will be available for all parties that working in construction fields

**Prepared by:**
**Ahmed Zeedia**

**Supervised by:**
**Prof. Yousif Ashour** **Dr. Issam Buhaisi**

## Part 1:
## Respondent Information

**1- Position**

☐ Executive Manager ☐ Technical Manager

☐ Financial Manager ☐ Others …….

**2- Gender**

□ Male □ Female

**3- Qualification**

□ Diploma or less □ Bachelors

□ High Education □ Others …….

**4- Years of Experiences**

□ Less that 3 years □ From 3 to less than 5 years

□ From 5 to less than 10 years □ 10 years and more

**5- Education**

□ Accountant □ Business Administration

□ Engineering □ Others …….

## Company Profile

**1- Company Classification**

□ 1st Degree □ 2nd Degree

**2- Number of Employees**

□ Less than 5 employee □ From 5 to less than 10 employee

□ From 10 to less than 20 employee □ 20 employee and more

**3- Number of executed projects in the last 5 years**

□ Less than 10 projects
□ From 11 to less than 20 projects
□ From 21 to less than 30 projects
□ From 31 to less than 40 projects
□ 44 projects and more

**4- Experience of the organization in construction (Years)**

□ 1 year or fewer
□ From 1 to less than-3 years
□ From 3 to less than 5 years
□ From 5 to less than 10 years
□ 10 years and more.

**5- Work volume in the last 5 years (USD)**

□ Less than 1 million
□ From 1 to less than 5 millions
□ From 5 to less than 10 millions
□ 10 million and more

## Part 2: Overhead Meaning and Management

*This part studies the overhead concept in the Palestinian Construction Companies, from your experience, please express your opinion and please tick the appropriate box.*

**1- The impact of head office overhead costs in construction costs:**

□ Very high Impact □ High Impact

□ Medium Impact □ Low impact

□ Very low Impact

**2- The percentage of the of head office overhead cost to the total project costs:**

□ Less than 5% □ From 5% to less than 10%

□ From 10% to less than 15% □ From 15% to less than 20%

□ More than 20%

**3- The best way to calculate the head office overhead costs during pricing new project:**

□ As percentage of total project cost

□ As percentage of dry cost

□ Fixed amount is added

□ Other way

……

……

**4- The used way to allocate the head office overhead costs to the current project:**

□ As percentage according to each project amount.

□ As percentage according to each project duration.

□ As percentage according to each project material costs.

□ As percentage according to each project material and labor costs.

□ As percentage according to each project material, labor, and equipment costs.

□ As percentage according to each project type.

□ As percentage according to each project profitability.

□ Equally between current projects.

□ Other way,

……

## Part 3: Direct Method as Head Office Overhead Cost Allocation System

*This part studies the using of Activity Based Costing – Direct Method, as a system for head office overhead cost allocation.*
*Activity Based Costing system is based on finding the cost deriver for each part of overhead cost, then allocates the overhead between project based on each project consumption of the cost driver. From your experience, please tick the appropriate box.*

| *No.* | *Cost / Cost Driver* | *Very High Impact* | *High Impact* | *Medium Impact* | *Low Low* | *Very Low Impact* |
|---|---|---|---|---|---|---|
| **1- The best *Cost Driver* to be used to allocate the cost of "Management Department" to each project is:** | | | | | | |
| *1* | Time consumed to complete works in each project (Time Sheet). | | | | | |
| *2* | Numbers of correspondences were done for each project | | | | | |
| *3* | Numbers of meetings were done for each project | | | | | |
| *4* | Numbers of employees in each project | | | | | |
| **2- The best Cost Driver to be used to allocate the cost of "Accounting Department" to each project is:** | | | | | | |
| *1* | Numbers of accounting entries were done for each project. | | | | | |
| *2* | Numbers of suppliers were in each project | | | | | |
| *3* | Numbers of subcontractors were in each project | | | | | |
| *4* | Time consumed to complete works in each project (Time Sheet) | | | | | |

| No. | Cost / Cost Driver | Very High Impact | High Impact | Medium Impact | Low Low | Very Low Impact |
|---|---|---|---|---|---|---|
| **3- The best Cost Driver to be used to allocate the cost of "Secretary Department" to each project is:** | | | | | | |
| *1* | Time consumed to complete works in each project (Time Sheet). | | | | | |
| *2* | Numbers of correspondences were done for each project | | | | | |
| *3* | Numbers of meetings were done for each project | | | | | |
| *4* | Numbers of telephone calls done for each project | | | | | |
| **4- The best Cost Driver to be used to allocate the cost of "Human Resource Department to each project:** | | | | | | |
| *1* | Time consumed to complete works in each project (Time Sheet). | | | | | |
| *2* | Numbers of employees were in each project | | | | | |
| *3* | Numbers of meetings were done for each project | | | | | |
| *4* | Numbers of training courses done for each project | | | | | |
| **5- The best Cost Driver to be used to allocate the cost of "Procurement Department" to each project:** | | | | | | |
| *1* | Numbers of purchase orders were in each project | | | | | |
| *2* | Time consumed to complete works in each project (Time Sheet). | | | | | |
| *3* | Numbers of correspondences were done for each project | | | | | |
| *4* | Numbers of suppliers were in each project | | | | | |

| No. | Cost / Cost Driver | Very High Impact | High Impact | Medium Impact | Low Low | Very Low Impact |
|---|---|---|---|---|---|---|
| 5 | Cost of materials in each project | | | | | |
| 6 | Project Amounts | | | | | |
| **6- The best Cost Driver to be used to allocate the cost of " Planning, Business Development and IT Departments" to each project:** | | | | | | |
| 1 | Time consumed to complete works in each project (Time Sheet). | | | | | |
| 2 | Numbers of correspondences were done for each project | | | | | |
| 3 | Numbers of training courses done for each project | | | | | |
| 4 | Numbers of computers for each project | | | | | |
| 5 | Numbers of visits for each project | | | | | |
| 6 | Numbers of technical proposals for each project | | | | | |
| **7- The best Cost Driver to be used to allocate the cost of " Pricing Department" to each project:** | | | | | | |
| 1 | Project Amount | | | | | |
| 2 | Project Duration | | | | | |
| 3 | Project Type | | | | | |
| **8- The best Cost Driver to be used to allocate the cost of "Quality Control Department Costs" to each project:** | | | | | | |
| 1 | Contract Amount | | | | | |
| 2 | Contract Duration | | | | | |
| 3 | Numbers of training courses done for each project | | | | | |
| 4 | Numbers of suppliers were in each project | | | | | |
| 5 | Cost of materials in each project | | | | | |

| No. | Cost / Cost Driver | Very High Impact | High Impact | Medium Impact | Low Low | Very Low Impact |
|---|---|---|---|---|---|---|
| 6 | Numbers of subcontracting contracts in each project | | | | | |
| **9- The best Cost Driver to be used to allocate the cost of "Marketing and Public Relation Department" to each project:** | | | | | | |
| 1 | Time consumed to complete works in each project (Time Sheet). | | | | | |
| 2 | Numbers of correspondences were done for each project | | | | | |
| 3 | Numbers of training courses done for each project | | | | | |
| 4 | Numbers of site visits were done for each project | | | | | |
| 5 | Project amount | | | | | |
| **10- The best Cost Driver to be used to allocate the cost of "Stores" to each project:** | | | | | | |
| 1 | Numbers of receipts done for each project | | | | | |
| 2 | Store volume occupied for each project | | | | | |
| 3 | Cost of materials in each project | | | | | |
| 4 | Project amount | | | | | |
| **11- The best Cost Driver to be used to allocate the cost of "Others*" to each project** | | | | | | |
| 1 | Project amount | | | | | |
| 2 | Project location | | | | | |
| 3 | Project type | | | | | |

* Others include the cost of rents, insurances, utilities, fuel consumption……..

***Thanks for Your Kind Time***

# Annex 2


**الجامعة الإسلامية – غزة**
**عمادة الدراسات العليا**
**كلية التجارة**
**قسم إدارة الأعمال**

**The Islamic University-Gaza**
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## استبيان

**طريقة مقترحة لتطوير عملية تخصيص التكاليف غير المباشرة (تكلفة المكتب الرئيسي) باستخدام "الطريقة المباشرة" لدى شركات المقاولات في قطاع غزة**

تهدف هذه الدراسة إلي استكشاف الأسس التي تقوم بموجبها شركات المقاولات الفلسطينية بتخصيص التكاليف غير المباشرة (تكلفة المكتب الرئيسي) في صناعة الإنشاءات في قطاع غزة، بالاضافة الى تقديم توصيات عملية لاستخدام "الطريقة المباشرة" كأساس لتوزيع التكلفة غير المباشرة على المشاريع القائمة.

كل المعلومات الموجودة بهذا الاستبيان سوف تستخدم فقط لهدف البحث الأكاديمي مع المحافظة على سريتها. تحليل البيانات لهذه الدراسة سوف يكون بمثابه تغذية راجعة لكل الأطراف العاملة في الصناعة الإنشائية بهدف الاستفادة منها في هذا المجال.


إعداد الباحث:

أحمد زاهد زيدية

إشراف

أ.د يوسف عاشور　　د.عصام البحيصي


**<u>الجزء الأول:</u>**

- **بيانات تخص معبىء الاستبانة**

6- طبيعة عمل الشخص المعني بتعبئة الإستبانة

□ المدير التنفيذي □ المدير الفني

□ المدير المالي □ أخرى : .....

7- الجنس

□ ذكر □ انثى

8- المؤهل العلمي

□ دبلوم فأقل □ بكالوريوس

□ دراسات عليا □ أخرى : .....

9- عدد سنوات الخبرة:

□ اقل من 3 سنوات □ من 3 – أقل من 5 سنوات

□ من 5 - أقل من 10 سنوات □ 10 سنوات فأكثر

10- التخصص:

□ محاسبة □ ادارة اعمال

□ هندسة □ أخرى : .....

- **بيانات تخص الشركة**

1- تصنيف الشركة

□ درجة أولى □درجة ثانية

2- عدد الموظفين الدائمين

□ اقل من 5 □ من 5 – أقل من 10

□ من 10 - أقل من 20 □ أكثر من 20

3- عدد المشايع المنفذة في السنوات الخمس الأخيرة

□ اقل من 10 مشاريع □ من 11-20 مشروع
□ من 21-30 مشروع □ من 31-40 مشروع
□ أكثر من 40 مشروع

4- عدد سنوات خبرة الشركة في مجال الإنشاء

□ اقل من سنة □ من 1 - أقل من 3 سنوات
□ من 3 - أقل من 5 سنوات □ من 5 - أقل من 10 سنوات
□ 10 سنوات فأكثر

5- حجم المشاريع المنفذة في السنوات الخمس الأخيرة بالدولار

□ اقل من مليون □ من 1- أقل من 5 ملايين
□ من 5 - 10 ملايين □ 10 ملايين فأكثر

**الجزء الثاني: مفهوم وإدارة التكلفة غير المباشرة**

*هذا الجزء من الدراسة يختص بدراسة مفهوم التكلفة غير المباشرة الفعلية في شركات المقاولات الفلسطينية، من خلال خبرتك ارجو ا بداء وجهة نظرك واختيار الإجابة المناسبة.*

1- تأثير تكلفة المكتب الرئيس على تكلفة الإنشاء الكلية:

□ مؤثرة بشكل كبير جدا □ مؤثرة بشكل كبير

□ متوسطة التأثير □ مؤثرة بشكل قليل

□ مؤثرة بشكل قليل جدا

2- نسبة تكلفة المكتب الرئيسي إلى التكلفة الكلية للمشروع .....%

□ أقل من 5% □ من 5% - 10%

□ من 10% - 15% □ من 15% - 20%

□ أكبر من 20%

3- أفضل طريقة لاحتساب تكلفة المكتب الرئيس خلال تسعير العطاءات

□ نسبة من تكلفة المشروع الكلية

□ نسبة من التكاليف المباشرة

□ إضافة قيمة محددة

□ طرق أخرى

.....

.....

4- الطريقة المتبعة لتخصيص تكلفة المكتب الرئيس على المشاريع القائمة

□ كنسبة طبقا لقيمة كل مشروع

□ كنسبة طبقا لمدة كل مشروع

□ كنسبة طبقا لتكلفة المواد

□ كنسبة طبقا لتكلفة المواد والعمال

□ كنسبة طبقا لتكلفة المواد والعمال والمعدات

□ كنسبة طبقا لنوع كل مشروع

□ كنسبة طبقا لربحية كل مشروع

□ بالتساوي بين جميع المشاريع

□ طرق أخرى

.....

**الجزء الثالث: استخدام "الطريقة المباشرة" كأساس لتخصيص التكلفة غير المباشرة (تكلفة المكتب الرئيس) في شركات المقاولات**

*هذا الجزء من الدراسة يختص بدراسة نظام تخصيص التكلفة غير المباشرة على أساس النشاط Activity Based Costing (ABC) باستخدام (الطريقة المباشرة) كأساس للتخصيص.*

*يعتمد نظام التكلفة على أساس النشاط على إيجاد مسبب التكلفة لكل قسم من أقسام تكلفة المكتب ا لرئيس، ومن ثم توزيع التكلفة على المشاريع القائمة بقدر استهلاك المشروع لمسبب التكلفة.*

*في الجدول التالي عدد من مسببات التكلفة التي يمكن استخدامها لتخصيص تكلفة كل من التكلفة غير المباشرة لشركات المقاولات في المشاريع الإنشائية في قطاع غزة (الرجاء إملاء الفراغ المناسب).*

| رقم | نوع التكلفة / مسبب التكلفة | تأثير عالي جدا | تأثير عالي | تأثير متوسط | تأثير منخفض | تأثير منخفض جدا |
|---|---|---|---|---|---|---|
| **1. أفضل مسبب تكلفة يمكن استخدامه لتخصيص تكلفة الإدارة العليا على المشاريع القائمة:** | | | | | | |
| 1 | الوقت المستهلك لمتابعة انجاز العمل في كل مشروع. | | | | | |
| 2 | عدد المراسلات الخاصة بكل مشروع. | | | | | |
| 3 | عدد الاجتماعات الخاصة بكل مشروع. | | | | | |
| 4 | عدد الموظفين العاملين في كل مشروع. | | | | | |
| **2. أفضل مسبب تكلفة يمكن استخدامه لتخصيص تكلفة قسم الحسابات على المشاريع القائمة:** | | | | | | |
| 1 | عدد القيود المحاسبية الخاصة في كل مشروع. | | | | | |
| 2 | عدد الموردين التابعين لكل مشروع. | | | | | |
| 3 | عدد مقاولين الباطن التابعين لكل مشروع. | | | | | |
| 4 | الوقت المستهلك لمتابعة انجاز العمل في كل مشروع. | | | | | |
| **3. أفضل مسبب تكلفة يمكن استخدامه لتخصيص تكلفة قسم السكرتارية على المشاريع القائمة:** | | | | | | |
| 1 | الوقت المستهلك لمتابعة انجاز العمل في كل مشروع. | | | | | |
| 2 | عدد المراسلات الخاصة بكل مشروع. | | | | | |
| 3 | عدد الاجتماعات الخاصة بكل مشروع. | | | | | |
| 4 | عدد المكالمات الهاتفية الخاصة بكل مشروع. | | | | | |
| **4. أفضل مسبب تكلفة يمكن استخدامه لتخصيص تكلفة قسم الموارد البشرية على المشاريع القائمة:** | | | | | | |

| رقم | نوع التكلفة / مسبب التكلفة | تأثير عالي جدا | تأثير عالي | تأثير متوسط | تأثير منخفض | تأثير منخفض جدا |
|---|---|---|---|---|---|---|
| 1 | عدد الموظفين العاملين في كل مشروع. | | | | | |
| 2 | عدد الاجتماعات الخاصة بكل مشروع. | | | | | |
| 3 | عدد دورات التأهيل الخاصة بكل مشروع. | | | | | |
| 4 | الوقت المستهلك لمتابعة انجاز العمل في كل مشروع. | | | | | |
| **5. أفضل مسبب تكلفة يمكن استخدامه لتخصيص تكلفة قسم المشريات والتعاقدات على المشاريع القائمة:** | | | | | | |
| 1 | عدد أوامر الشراء الخاصة بكل مشروع. | | | | | |
| 2 | الوقت المستهلك لمتابعة انجاز العمل في كل مشروع. | | | | | |
| 3 | عدد المراسلات الخاصة بكل مشروع. | | | | | |
| 4 | عدد الموردين التابعين لكل مشروع | | | | | |
| 5 | تكلفة المواد لكل مشروع | | | | | |
| 6 | عدج العقود المبرمة لكل مشروع | | | | | |
| **6. أفضل مسبب تكلفة يمكن استخدامه لتخصيص تكلفة قسم التخطيط والتطوير وتكنلوجيا المعلومات على المشاريع القائمة:** | | | | | | |
| 1 | الوقت المستهلك لمتابعة انجاز العمل في كل مشروع. | | | | | |
| 2 | عدد المراسلات الخاصة بكل مشروع. | | | | | |
| 3 | الدورات التدريبية اللازمة لكل مشروع | | | | | |
| 4 | عدد اجهزة الحاسوب المستخدمة لكل مشروع | | | | | |
| 5 | عدد الزيارات لكل مشروع | | | | | |
| 6 | عدد المقترحات الفنية لكل مشروع | | | | | |
| **7. أفضل مسبب تكلفة يمكن استخدامه لتخصيص تكلفة قسم التسعير على المشاريع القائمة:** | | | | | | |
| 1 | قيمة كل المشروع | | | | | |
| 2 | مدة كل مشروع | | | | | |
| 3 | نوع كل مشروع | | | | | |

| رقم | نوع التكلفة / مسبب التكلفة | تأثير عالي جدا | تأثير عالي | تأثير متوسط | تأثير منخفض | تأثير منخفض جدا |
|---|---|---|---|---|---|---|
| **8. أفضل مسبب تكلفة يمكن استخدامه لتخصيص تكلفة قسم ضبط الجودة على المشاريع القائمة:** | | | | | | |
| 1 | قيمة المشروع | | | | | |
| 2 | مدة كل مشروع | | | | | |
| 3 | الدورات التدريبية اللازمة لكل مشروع | | | | | |
| 4 | عدد الموردين التابعين لكل مشروع | | | | | |
| 5 | تكلفة المواد لكل مشروع | | | | | |
| 6 | عدد العقود المبرمة لكل مشروع | | | | | |
| **9. أفضل مسبب تكلفة يمكن استخدامه لتخصيص تكلفة قسم التسويق والعلاقات العامة على المشاريع القائمة:** | | | | | | |
| 1 | الوقت المستهلك لمتابعة انجاز العمل في كل مشروع. | | | | | |
| 2 | عدد المراسلات الخاصة بكل مشروع. | | | | | |
| 3 | الدورات التدريبية اللازمة لكل مشروع | | | | | |
| 4 | عدد الزيارات لكل المشروع | | | | | |
| 5 | قيمة المشروع | | | | | |
| **10. أفضل مسبب تكلفة يمكن استخدامه لتخصيص تكلفة المخازن على المشاريع القائمة:** | | | | | | |
| 1 | عدد سندات الاستلام لكل مشروع | | | | | |
| 2 | الحجم المستغل لمواد كل مشروع | | | | | |
| 3 | تكلفة مواد كل مشروع | | | | | |
| 4 | قيمة المشروع | | | | | |
| **11. أفضل مسبب تكلفة يمكن استخدامه لتخصيص التكاليف الاخرى على المشاريع القائمة:** | | | | | | |
| 1 | قيمة المشروع | | | | | |
| 2 | موقع المشروع | | | | | |
| 3 | نوع المشروع | | | | | |

*(التكاليف الأخرى مثل الإيجار والتامين والخدمات واستهلاك الوقود وغيرها)*

**شكرا جزيلا لكم**