

## Evaluation Performance of the Project Management Office in Oil Companies

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**Abstract:** The purpose of this study is understand the role of the PMO and its impact on the oil companies in Iraq and examining and analyzing the status quo of the PMO in SCOP and its performance indicators of the budget, scheduling and quality through study the organizational structure of this company in general and A self-administered survey questionnaire to collect data from project management community of these authorities. The importance of this study as develop add for the fields of knowledge, it can be benefit for researchers in academic field and engineers in the oil field. The Iraqi Ministry of oil was selected as a study population. Questionnaire content three axes. The first axis: (General data and information), the second axis: (Investigation and assess the application of Project Management Office in Iraqi construction sector) and The third axis: (The budget, scheduling and quality management by PMO), one of the important result of this study is Firm belief of the Senior management to the role of the PM Practices that obtained the highest mean with (4.17) and standard deviation (0.83). Also, effectiveness of the PMO in targeting the company's strategic goals has scored the highest arithmetic means (4.29) that means the PMO has significant effect in achieving these goals.

**Key words:** Project management office PMO, SCOP, questionnaires, performance, Iraq

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### INTRODUCTION

Advantages of project management are well documented, however projects failure rates still remain high. One necessary candidate for improvement the construction projects is that the Project Management Office (PMO). This paper will focus on the evaluation Performance of the Project Management Office in State Company of Oil Projects (SCOP) and studying the status quo of the PMO (PM authorities) in SCOP and its performance indicators of the budget, scheduling during the period (2008-2014) as the period that witnessed relatively stability in Iraq and a clear developmental movement in the oil sector especially after involving the international companies in this sector within the licensing rounds which have been requiring to re-construct the necessary Infrastructure to these activities, through. Study the organizational structure of this company in general and PM authorities:

- Survey questionnaire to collect data from project management community of these authorities
- Statistical overview of the results of the questionnaire with the analysis of these results and their interpretation

Importance of this study can be summarized in two main aspects; firstly, make the Project Management Office

(PMO) as a part of the culture of the engineer in everyday practice and secondly, this study can be provided to stakeholders in Iraq (Ministry of Oil) as a manual in order to use it in project management, because the positive implications of the results of this study could be contributed in the development the methods and approaches of implementation of infrastructure projects such as oil projects.

**State Company of Oil Projects (SCOP):** According to the website of the SCOP company. SCOP is Public Company which will be considered as a case study in this study is a consulting engineering company specialized in implementing the projects of the oil sector. It also participated in the implementation of projects outside the oil sector and it has been a leading company in implementing projects outside the country such as oil refinery in Somalia and the Iraqi-Saudi crude oil pipeline and the Iraqi-Turkish crude oil pipeline. This company was established in 1964 first under the name of (Planning and Oil Constructing Institution). It prepared technical and economic studies related to the Ministry of Oil as well implemented small projects such as oil depots to fuel filling stations. SCOP has developed in its works in kind and volume. In 1972 its name was changed to (Public Company for consulting and planning of Oil Projects) then in 1976 SCOP highly improved its ways of executing

its projects and it depended on its cadres in the direct implementation of its projects including preparing designs and providing materials and adopted the site executing on its projects. In 1998 and after enforcing the law of companies no. 22 for the year 1997, the company changed its name to (State company of oil project a state company) and it adopted the principle of earning or loss principle in implementing its projects. SCOP implies international engineering specifications (such as an API American Petroleum Institute, ASTM and ACI cod for the civil engineering standards and other norms and criteria used in the field) in preparing the basic and detailed designs, materials supplying, providing machineries, site project execution, testing and engineering inspection to ensure performance of projects during test-run.

Furthermore, SCOP also refers some of its biggest projects to international engineering companies specialized in the field whereas SCOP prepares engineering requirements, documents of the tenders, the commercial and technical studies of the submitted offers, negotiating the competing companies, attending the contracts and approving of basic and detailed designs and making follow-ups on the work both during on site execution and test-run stage.

**Organization structure of scop:** An organizational structure plans the nature of formal relationships for the employees and the entities and the ways of coordinating among them. This structure is presented by organizing map.

The organizational map describes the mechanism of distributing the tasks and the responsibilities among the different units within the organization and identifies the functional levels in its structure.

Many researches differed in specifying the nature of the organizational structures and their types and the advantages and disadvantages of these types, however the common classification divides these structures into (Radhia, 2008).

- Functional structure: it is one of classical organization structures that each portion of the organization is grouped according to its purpose and works very well for small businesses in which each department
- Divisional structure: typically is used in larger companies that operate in a wide geographic area or that have separate smaller organizations within the umbrella group to cover different types of products or market areas

- Matrix structure: is a hybrid of divisional and functional structure. Typically used in large multinational companies, the matrix structure allows for the benefits of functional and divisional structures to exist in one organization
- Project structure: it is a temporary structure that creates to achieve a specific project or group of projects at certain times in order to fulfill several of the targets through an aggregation number of experts from other different functional departments

From studying and analyzing the organizational map of SCOP (as shown in Fig. 1 and the respondents of the project managers through the interviews, the organizational structure of this company is matrix structure that gathers the property of the constancy of the functional structure and the property of flexibility of The divisional structure. This study attempted to identify the probable motivations to depend this structure in SCOP, these motivations are:

- Invalidate the central construction authority and promoting the level of the geographical construction departments to authorities with organizational structure in their geographical areas
- The confused security environment motivated SCOP to establish executive entities near the sites of their projects
- Increasing the number and size the projects required for execution
- Expanding the magnitude of the geographical areas required to execute the projects

From studying this structure as shown in Fig. 1 can be noticed the following characteristics as:

- This organizational structure included four an administrative levels are the top management, the middle management (the technical and administrative authorities) and The down management (the technical and administrative departments and divisions)
- This organizational structure included two types of project management offices, they are project management authority that represents controlling-PMO and Geographical project authorities that represents directive-PMO
- The type of this organizational structure is matrix structure that gathers the specifications of functional structure, like the identity function specialization in one administrative entity, the specifications of the divisional structure after establishing geographical project authorities (Field, 2005)

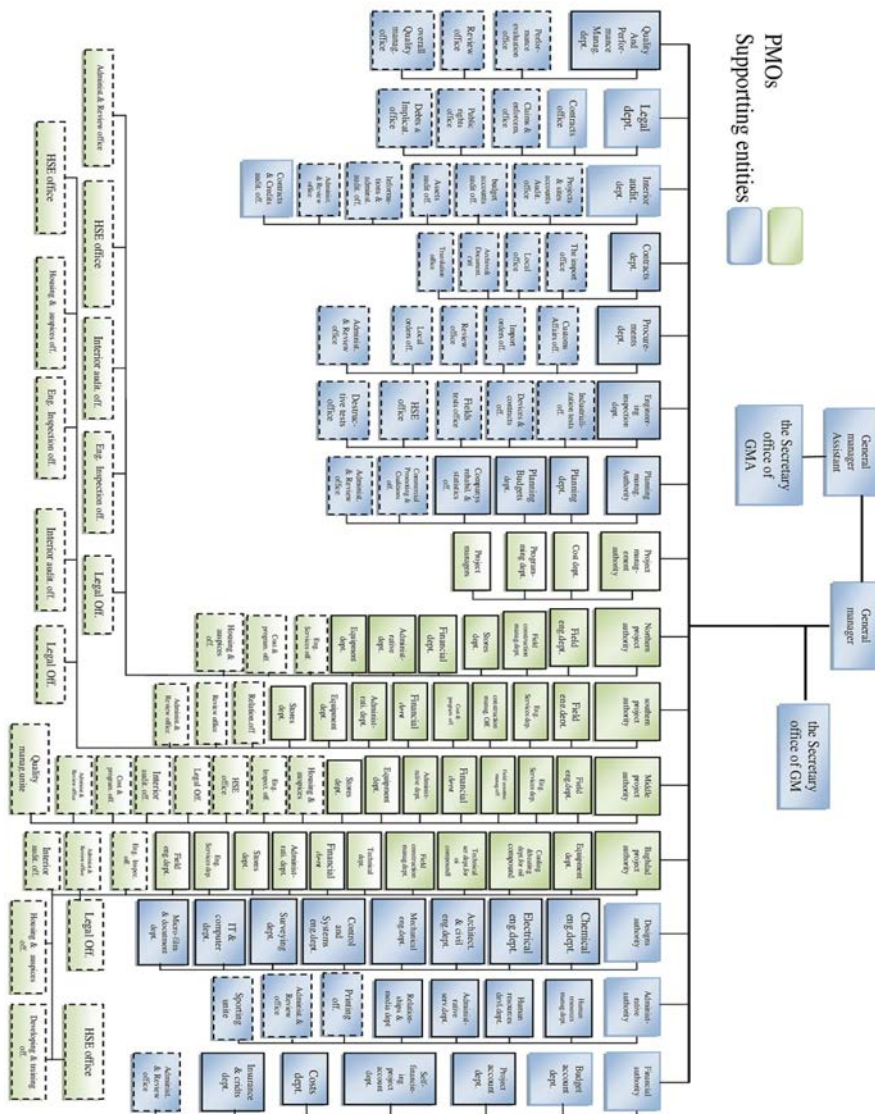


Fig. 1: The organizational structure of SCOP

This organizational structure depended on a hierarchical organizing form or (mechanism form) which has the following characteristics:

- Vertical concentration of authority
- The labor had fulfilled according to official instructions without recognition
- The authority had arranged by hierarchical style
- The rights of employees and their responsibilities had identified intelligibility by systems, laws and limited participation in adoption the decisions
- The centralization that means the authority of oversight and monitoring had focused by the upper administration

As mentioned before, organizational structure in this company includes two types of PMO, they are:

**Authority of project management:** This authority represents the main office of project management and was founded in the main office of SCOP in Baghdad and its type is controlling-PMO that observes, controls and coordinates the stages of project execution in coordination with the geographical project authorities and prepared execution units. This authority has 189 engineers as well other specialists, it consists of Office of authority manager, offices of projects managers, cost department and programming department:

**Geographical project execution authorities:** These authorities consider the second type of PMOs as directive-PMO and they consist of Northern project authority, Southern project authority, Baghdad project authority and middle project authority.

## MATERIALS AND METHODS

**Study the status quo of project management office in scop:** In order to achieve the objective of this study, a three-step research methodology is adopted:

- First step: data collection
- Second step: building a questionnaire form
- Third step: result analysis

**First step (data collection):** Using an exploratory approach both qualitative and quantitative data were gathered. Unlike the traditional way, the two methods were combined with the purpose of gaining the benefits of the strengths in each. The data collection was based on a pragmatic combination of tools which fitted to the assessment of maturity level. The research consists of two (2) stages of data collection.

**Primary data collection:** Saunders *et al.* (2012) acclaimed that secondary data can be a great tool to compare the findings of the primary data in a way that the researcher can place the primary findings within a more general context and triangulate it. Secondary data was collected through a detailed literature review, including PM books, some scientific and recent project management journals, thesis works and other related topics from the library and internet.

**Detailed data collection:** Randomly, semi-structured interviews were conducted with five senior managers of both PMO types in SCOP (as a pilot questionnaire) to facilitate the researcher to gain initial sight of issues and are helpful in fostering research questions. This is to understand/explore the project management practices and the role of the PMO. The inputs from these interviews also assisted the researcher in designing structured questionnaire to collect data from Project Management community in SCOP.

General information relating to the interviewee's involved in this research was compared as summarized in Table 1. It shows that all of the interviewees are given the position as project managers and minimum experiences years equal to 10 year, they have good experience with

PMO and reflective of the long period of experience needed in order to attain a status of manager. Also, all of them possesses academic BSc.

A semi-structured interview questionnaire began initially with ten questions. The questions were divided into two sections, first section about a background of the interviewee and another section about the project manager PMO roles. The main axes of these interviews as follows.

The tasks undertaken by the PMO where the interviewee is working. These tasks were defined by those managers in the questionnaire form with agreed point of views nearly. Some of the respondents suggested a comprehensive expansion of these tasks according to the standard PMOs practices as in the global organizations.

The contribution of the PMOs in targeting the company's strategic goals, fulfill the projects according the planning budget, schedule and specifications of them and predicting the probable risks that facing the projects from one side and the organization itself in the future from another side.

There are varied responses by the interviewees about this contribution and the role of these PMOs in drawing the advancement plans and programs in the organization. From other side, some of the respondents emphasized that the predicting of the probable risks that facing the projects is weak or not founded indeed.

Employing programs and techniques of project management to develop the performance of SCOP's staffs and the practices of PM community. Some of the respondents confirmed that these programs and techniques did not employ with consistent according to the latest versions

Another respondents adopted the modern programs by personal efforts, except the recent years where the focus became on the adoption of these programs officially and establish the required training courses. The axes of a knowledge efficiency of the PMO which adopted by the PMOs in SCOP.

Most of the respondent semphasized that the knowledge efficiency of the PMO is wide field, therefore the leadership staffs are eager to adopt the highest level of this efficiency but there are many constraints may prevent that ambitious.

The researcher has believed that there is no professional strategy in this company to develop this efficiency through his work with it as member of the department of supervision for >5 year and this what was emphasized by those interviewees.

**Table 1: Background of the interviewees**

| Interviewee name           | Mr. L.M                   | Mr. A.A                | Mr. M.R                | Mr. A.H                | Mr. F.S               |
|----------------------------|---------------------------|------------------------|------------------------|------------------------|-----------------------|
| Functional position        | Authority chief assistant | Authority chief        | Project manager        | Project manager        | Project manager       |
| Academic qualification     | BSc                       | BSc                    | BSc                    | BSc                    | BSc                   |
| Specialization             | Civil engineering         | Mechanical engineering | Mechanical engineering | Mechanical engineering | Architect engineering |
| Years of experience in PMO | 12                        | 10                     | 20                     | 25                     | 14                    |

**Table 2: The axes of the PMO questionnaire form**

| The study axes                                 | Classification as a variable | The axis phrases |
|--|------------------------------|------------------|
| Motivations of PMO establishment               | Status quo variables         | 1-6              |
| Tasks are undertaken by the PMO                | Status quo variables         | 9-7              |
| Programs and techniques of project management  | Independent variables        | 15-18            |
| The impact of geographic authorities on PMO    | Independent variables        | 24-27            |
| Foundations of the knowledge efficiency of PMO | Independent variables        | 28-31            |
| The qualifications of PMO management           | Independent variables        | 19-23            |
| Efficacy of PMO in PM maturity                 | Dependent variables          | 10-14            |
| Scheduling management by PMO                   | Dependent variables          | 39-43            |
| Budget management by PMO                       | Dependent variables          | 34-38            |
| Quality management by PMO                      | Dependent variables          | 44-47            |

The obstacles that faced the PMO in leading the PM practices through the government funding for projects and creating another entities with tasks concerning project management because of the security and economic situation.

This axis represented the most importance side by the interviewees to explain the problems that faced their work as PMO, one of these obstacles is the government funding for project (this point was suggested by some of interviewees) and creating another entities with tasks concerning project management which was suggested by the same interviewees and others.

All respondents emphasized that the security and economic situation has represented the biggest problem in Iraq for the latest 40 year which has led to many projects stopped completely or semi-completely that caused these projects did not deliver according their planning budget and schedule.

**Second step: Building a questionnaire form:** The questionnaire was designed to collect data related with PMO. Scientific method used in the design the questionnaires which can be summarized in determining the purpose, main and branch dimensions and procedural definitions and the drafting of paragraphs. The scientific method was prepared the questionnaire according (Zwainy, 2009; Sarhan *et al.*, 2012, 2013; Zwainy and Hadhal, 2015; Alzwainy *et al.*, 2015). The scientific method was designed according to the following procedure:

- Designing the questionnaire form and establishing the lines of questions depending on the information obtained from the review of literature and personal interview

- Distributing the questionnaire form among the individuals of the sample to answer the questions and then collecting these forms

Questionnaire form was designed by following a simple method with clear managerial expressions which enable all the individuals of the sample to answer the questions easily. The version of questionnaire form distributed among the individuals and covers the following articles.

**First article (general data and information):** This article aims to know the academy qualification for research sample, professional certificates, functional position, specialization, number of year' experience in the construction sector, number of years' experience as project manager as well as find out what types of projects implemented.

**Second article (investigation and assess the application of project management office in Iraqi construction sector):** This article aims to find out the status quo of PMO in SCOP and current reality of the SCOP as case study and this axis consist of twenty question as this questions aims to know the degree of application of the project management office in SCOP.

**Third article (the budget, scheduling and quality management by PMO):** This part addresses the role of the PMO in management the projects to achieve the main objects of all them and ensure achieving the success of the organization. As mentioned earlier, depending on the point views of the respondents and others, who contribute in enrich this research with ideas and suggestions which are important for it, this part was built.

Table 2 illustrates the axes of this form according the datum of the semi-structured interviews which were considered as a pilot questionnaire.

Table 3: Arbitrators of the questionnaire form

| The name               | Specialty                 | Current activity                   | Location work practice                                     | The most important notes and contributions   |
|------------------------|---------------------------|------------------------------------|--|--|
| Luay Mutashar          | Senior Chief-engineer     | Assistant Director of PM Authority | State Company of Oil Projects/Project Management Authority | Participation in the pilot survey<br>Reformulate some of the technical aspects<br>Reformulate some organizational aspects with the reality of PM in Iraq |
| Dr. Ibrahim Abdulla    | Assistant professor in PM | Expert in PM                       | Consulting Engineering Office                              | Participation in the pilot survey<br>Reformulate some organizational aspects with the reality of PM in Iraq  |
| Dr. Zyad Suleiman      | Assistant professor in PM | Academy professor                  | Nahrin University  | Reformulate some of the technical aspects<br>Reformulate some of the linguistic aspects  |
| Eng. Muazez            | Senior chief-engineer     | PM Head-Department                 | Sa'ad Co. for state contracts                              | Reformulate some organizational aspects with the reality of PM in Iraq<br>Reformulate some of the linguistic aspects                                     |
| Dr. Essam Huoidy       | Assistant professor in PM | Academy professor                  | Muthana University   | Participation in the pilot survey some of the technical aspects  |
| Eng. AdelShiaa'        | Sub senior chief-engineer | Project manager                    | State Company of Oil Projects/Middle Project Authority     | Participation in the pilot survey<br>Reformulate some organizational aspects with the reality of PM in Iraq  |
| Dr. Ibrahim A. Muhamed | Assistant professor in PM | Academy professor                  | Technology University                                      | Reformulate some of the technical aspects<br>Reformulate some of the linguistic aspects  |
| Dr. F.M. Alzwiny       | Assistant professor in PM | Academy professor                  | Nahrin University  | Reformulate some of the technical aspects<br>Reformulate some of the linguistic aspects  |

Researcher followed the same methodology researchers to prove the virtual honesty of the questionnaire through the presentation of the questionnaire to a group of arbitrators. The questionnaire form was arbitrated by six arbitrators who have good experience and specialization as shown in Table 3, before distributing it to the study sample to express their views and make their judgments on the questionnaire. And before that the researcher also piloted the questionnaire as well as referring it to the dissertation supervisors to enable clarification of questions before sending it out and to minimize the errors (Zwainy and Hadhal, 2015; Zwainya *et al.*, 2016).

Final questionnaire form was distributed to the selected of the project managers. There are some of the actions which included:

- To prevent the project managers of bias for their projects the name of these projects did not list in the questionnaire form in which were designed as a general evaluation form
- The researcher found out that interview and the questionnaire gave an opportunity to gain practical industry-based knowledge that was not available through secondary research. So, this knowledge helped the researcher to fulfill the purpose of this study
- Personal interviews were conducted with each project manager, discussing the questionnaire contents in order to resolve any misunderstanding regarding the questions

Table 4: Distribution of questionnaire form

| Sample survey                         | Distributed | Received | Responders (%) |
|---------------------------------------|-------------|----------|----------------|
| PMO authority managers                | 2           | 1        | 50             |
| Assistant director of PMO authorities | 2           | 2        | 100            |
| Project managers                      | 31          | 27       | 87             |
| Project engineers                     | 9           | 4        | 31             |
| Total                                 | 44          | 34       | 77             |

- A convenient period of time was given to each project managers to complete the questionnaire form
- All engineer answers were checked thoroughly to ensure that the questionnaire form was completed
- Answers of the questionnaire were converted to tables and figures and then prepared the statistical analysis

The study population consisted of project managers and engineers as a whole who have worked in PMOs in SCOP already. Table 4 shows the numbers of questionnaire forms which were distributed and received for the study sample.

## RESULTS AND DISCUSSION

**Third step (Result analysis):** For the purpose of simplification, organization and arrangement, the questionnaire form is classified and divided to three axis's, the first section: (general Information about the participant), the second section: (investigation and assess the application of Project Management Office in Iraqi construction sector) and The third section: (Relationship between PMO and budget, scheduling, quality).

**Table 5: Scoring system of PMO-survey**

| Items | Expression of the questionnaire | The scores of these levels | The value of Likert scale cells |
|-------|---------------------------------|----------------------------|---------------------------------|
| 1     | Strongly disagree               | 1 point                    | 1.0-1.8                         |
| 2     | Disagree                        | 2 points                   | 1.81-2.6                        |
| 3     | Neutral                         | 3 points                   | 2.61-3.4                        |
| 4     | Agree                           | 4 points                   | 3.41-4.2                        |
| 5     | Strongly agree                  | 5 points                   | 4.21-5.0                        |

In this study, the statistical analysis was conducted by SPSS v20 (Statistical Package for the Social Sciences) program which presents its underlying mathematical formulas in a simple and fully controllable form and conducting statistical treatments and data analysis using a Likert scale with a scoring system as shown in Table 5.

**First section (general information about the participant):**

Table 6 illustrates the results of the descriptive analysis of the study sample and distribution of sample researched by personal characteristics where the frequencies and percentages of properties are calculated and broken down by categories classified in the questionnaire. This table exhibits what follows:

- Age group: the individuals who ranged in age of (>50 year) constituted 64% of the sample study because it is the appropriate age to manage project requirements and this interprets the job title also
- Job title: the title of “Senior Chief-Engineer” attained 64% grade, this agreed the percentage of “age group” that was mentioned above. This point represents a good indication to the engineering experience of the research sample as a first envisage
- Functional position: the largest percentage was (73%), represented project manager to ensure the targeted responses
- Experience years of project management: the highest percentage in favor of individuals who experience between (8-15) year about 55% that means a good indication for the experience of the study sample in project management
- Number of projects directed as a project manager: there is 74% nearly of the sample which manages at least 5-6 project as project manager that means a significant indication to availability of integration the qualifications of real experience by the individuals of this selected sample
- Number of projects participated in and were brought to a close in a time and cost more than they were targeted: almost two to three of the study sample claimed that the projects which completed in a time and cost more than they were targeted, did not exceed one project, this opinion represents an optimistic view but considers good indication to manage the practices of PM in PMOs of SCOP

**Table 6: Distribution of respondents by individual personal characteristics**

| Personal characteristics/categories   | Frequencies | %  |
|---|-------------|----|
| <b>Age group</b>  |             |    |
| 31-35   | 2           | 6  |
| 36-40   | 5           | 15 |
| 41-45   | 1           | 3  |
| 46-50   | 4           | 12 |
| >50   | 22          | 64 |
| <b>Job title</b>  |             |    |
| Engineer  | 1           | 3  |
| Senior engineer   | 5           | 15 |
| Assistant chief-engineer  | 4           | 12 |
| Chief-engineer  | 1           | 3  |
| Senior chief-engineer   | 22          | 64 |
| Expert  | 1           | 3  |
| <b>Functional position</b>  |             |    |
| Authority director  | 1           | 3  |
| Department-head   | 2           | 6  |
| Division official   | 1           | 3  |
| Project manager   | 25          | 73 |
| Other (project engineers)   | 5           | 15 |
| <b>Experience years of project management</b>   |             |    |
| 1-7   | 8           | 22 |
| 8-15  | 18          | 54 |
| 16-23   | 6           | 18 |
| 24-30   | 2           | 6  |
| <b>Number of projects directed as a project manager</b>   |             |    |
| 1-2   | 3           | 9  |
| 3-4   | 7           | 20 |
| 5-6   | 10          | 29 |
| 7-8   | 5           | 15 |
| >8  | 9           | 27 |
| <b>Number of projects participated in and were brought to a close in a time and cost more than they were targeted</b> |             |    |
| 1   | 12          | 35 |
| 2-3   | 7           | 20 |
| 4-5   | 4           | 12 |
| None  | 11          | 32 |
| <b>Academic qualification</b>   |             |    |
| BSc   | 29          | 85 |
| Higher diploma  | 1           | 3  |
| Masters   | 4           | 12 |
| <b>Engineering specialty</b>  |             |    |
| Architect   | 1           | 3  |
| Civil   | 9           | 27 |
| Electrical  | 3           | 9  |
| Mechanical  | 12          | 35 |
| Other   | 9           | 27 |
| <b>Current syndicate title</b>  |             |    |
| Engineer  | 4           | 12 |
| Practicing  | 12          | 35 |
| Consulting  | 10          | 29 |
| Certified   | 5           | 15 |
| Expert  | 3           | 9  |
| <b>Do you have an idea about any of the following professional certificates?</b>                                      |             |    |
| PMP   | 27          | 71 |
| PgMP  | 4           | 11 |
| PMI-SP  | 3           | 7  |
| Other   | 4           | 11 |
| Have you obtained any of them?  | None        | -  |
| <b>The PM seminars and courses which the respondent had participated</b>  |             |    |
| PMI seminars  | 11          | 33 |
| PRINCE2 seminars  | -           | -  |
| EUROMETHOD seminars   | -           | -  |
| BS6079 seminars   | -           | -  |
| ISO 12207 seminars  | -           | -  |
| Other seminars  | 23          | 67 |

Table 6: Distribution of respondents by individual personal characteristics

| Personal characteristics/categories  | Frequencies | %  |
|--|-------------|----|
| <b>The methodology which the organization of the respondent forces PMI methodology</b> |             |    |
| PRINCE2Methodology   | 3           | 9  |
| EUROMETHODMethodology  | -           | -  |
| BS6079Methodology  | -           | -  |
| ISO 12207Methodology   | 4           | 11 |
| AnotherMethodology   | 7           | 21 |
| None   | 20          | 59 |

- Academic qualification and engineering specialty: it is clear that the bachelor degree is the academic qualification which is the most provided. As well as that the highest percentage of this sample have obtained bachelor degree in mechanical specialization because most of the projects in SCOP are manufacturing projects
- Current syndicate title: it can be noticed that these axes reinforce each other, this issue was confirmed through this side where >66% of this sample is practicing or consulting that means it is in line with the previous indicators
- For question ten in this axis, there is a significant percentage of individuals have well known about PMP, about 71% but no one has any professional certificate in project management
- The question eleven give us idea about the ratio of the seminars which had participated by the respondents. It may be noticed that a good trend towards training the PM staff on the professional certificates at recent period.
- While the question twelve describes the supposed methodology of this company. Unfortunately, the researcher realized that the SCOP did not depend clear professional methodology and still which relies general government instructions that caused lack of clarity the identity of it between being a contracting company (as contractor) from one side and as a government institution from other

The demographic results indicate that the sample used in this research is composed by a large majority of project team members or managers experienced in project issues in this company, thus increasing the quality of the answers given in this survey.

**Second section: investigation and assess the application of project management office in Iraqi construction sector:**

- The sector where SCOP is classified: 100% of the respondents emphasized that the sector of this company is public sector, so this is true as a company that is funded from the state budget

Table 6: KMO and Bartlett's test

| Tests   | Values   |
|---|----------|
| Kaiser-Meyer-Olkin Measure of sampling adequacy | 0.860    |
| Approx. Chi-square                              | 1707.414 |
| <b>Bartlett's test of sphericity</b>            |          |
| Df  | 276      |
| Sig.  | 0.000    |

Table 7: KMO and Bartlett's test

| Tests   | Values   |
|---|----------|
| Kaiser-Meyer-Olkin measure of sampling adequacy | 0.860    |
| Bartlett's test of sphericity                   | 1707.414 |
| <b>Approx. Chi-Square</b>                       |          |
| Df  | 276      |
| Sig.  | 0.000    |

- Nature of the activities of this company: most of the respondents emphasized that projects execution is the nature of the activities of this company
- Field specialty of the company: there is diversity in the responses about this side, however 89% of them agreed that the manufacturing project is the field specialty of the company
- All of the respondents emphasized that this company has an office or department specialized in project management named Project management authority and geographical projects authorities which represent the PMOs
- All of the respondents emphasized that the project management authority established by the same date the company was founded while the geographical projects authorities established in 2007 for security reasons, logistical together
- Principal source of funding SCOP's projects: most of the respondents emphasized that the government is the sole financier of these projects, so some of the respondents believe that these projects are funded by the government and the self-funding which it may mean misinterpretation of the question by those respondents

**Consistency of questionnaire:** The way in which the questionnaire was designed, considered a sign of sincerity logical of it in addition to the sincerity was reflected by the views of the arbitrators as previously reported. To determine the degree of validity and the reliance on the tool used to measure the responses of sample, the following tests were utilized by the researcher.

**Adequacy of the sample:** The adequacy of the sample considers the most important conditions that required to use the exploratory factor analysis. To investigate this condition, the researchers recommended the application of (The Kaiser-Meyer-Olkin Measure) which (KMO) ranges (0-1) that the accepted value of it is >0.5, otherwise it must to increase the sample size or redesign the variables of this scale (Field, 2005).

Table 6 and 7 shows the results of KMO and Bartlett's test of the axis of evaluating the status of the PMO and



the second axis of (time management, cost and quality by the PMO), respectively where it can be seen that the significant value of KMO in both tables and the Bartlett's test refers it is significant.

**Internal consistency coefficient:** The researcher measured the degree of credibility of the results achieved which depends primarily on the correlation coefficient, therefore it is necessary to be the primary criterion is the test of significance of the correlation coefficient. Table 8 shows the statistical analysis of the results of the study 11 axes.

Table 8: Statistical analysis of the results of the study axes

| The study axes                                      | Internal consistency coefficient | Sig. (2tailed) |
|---|----------------------------------|----------------|
| The motivations of PMO establishment                | 0.928**                          | 0.000          |
| The tasks are undertaken by the PMO                 | 0.96**                           | 0.000          |
| Programs and techniques of project management       | 0.871**                          | 0.000          |
| The impact of geographic authorities on PMO         | 0.924**                          | 0.000          |
| Foundations of the knowledge efficiency of PMO      | 0.913**                          | 0.000          |
| The qualifications of PMO management                | 0.887**                          | 0.000          |
| Efficacy of PMO in PM maturity                      | 0.845**                          | 0.000          |
| Consequences of the government funding for projects | 0.877**                          | 0.000          |
| Scheduling management by PMO                        | 0.866**                          | 0.000          |
| Budget management by PMO                            | 0.887**                          | 0.000          |
| Quality Management by PMO                           | 0.915**                          | 0.000          |

\*\*Indicate to the significance of the correlation coefficient at (0.01) and less

Table 9: Reliability and validity coefficients according the study axes

| The study axes                                      | Cronbach's alpha | Validity coefficient |
|---|------------------|----------------------|
| The motivations of PMO establishment                | 0.987            | 0.990                |
| The tasks are undertaken by the PMO                 | .987             | 0.990                |
| Efficacy of PMO in PM maturity                      | 0.986            | 0.989                |
| Programs and techniques of project management       | 0.988            | 0.990                |
| The qualifications of PMO management                | 0.984            | 0.988                |
| The impact of geographic authorities on PMO         | 0.987            | 0.990                |
| Foundations of the knowledge efficiency of PMO      | 0.986            | 0.989                |
| Consequences of the government funding for projects | 0.966            | 0.982                |
| Budget management by PMO                            | 0.987            | 0.990                |
| Scheduling management by PMO                        | 0.987            | 0.990                |
| Quality management by PMO                           | 0.987            | 0.990                |

Table 10: Means, standard deviation and response level of the first axis

| Phrases  | Mean | SD   | Response level |
|--|------|------|----------------|
| Firm belief of the senior management to the role of the PM practices       | 4.17 | 0.83 | Agree          |
| Due to performance-improvement workshops and dealing global institutions   | 3.61 | 0.92 | Agree          |
| By a request from customers or importers                                   | 2.44 | 0.92 | Disagree       |
| Increase in the activities of the company                                  | 4.11 | 0.97 | Agree          |
| The necessity of maintaining a centrality in managing all the activities   | 4.14 | 0.78 | Agree          |
| Availability of all elements and tools necessary for operating this office | 3.85 | 0.89 | Agree          |
| General average of this axis   | 3.72 | 0.82 | Agree          |

Table 11: Means, standard deviation and response level of the second axis

| Phrases  | Mean | SD   | Response level |
|--|------|------|----------------|
| Issuance and follow-up the execution of measures related to the projects | 4.41 | 0.65 | Strongly agree |
| Supervising and disclosing of variances and suggesting results           | 4.20 | 1.00 | Agree          |
| Preparing project's documents and assessing the project execution level  | 4.32 | 0.76 | Strongly agree |
| General average of this axis   | 4.31 | 0.77 | Strongly agree |

The result of the table shows the validity of all study axes through the values of correlation coefficients which ranges (0.845-0.96) and came at the significance level (0.01).

**Validity of measurement instrument:** For the purpose of determining "the reliability and validity of the data collection instrument, the Cronbach alpha test was used. Table 9 offers the reliability and validity coefficients according the study axes.

From the above table, it can be observed that the general reliability and validity coefficients of the questionnaire are high, i.e., it enjoys a high level of reliability and validity can be relied on in the application field of study since the less acceptable degree is 60% statistically according to Uma and Roger.

**Distribution the responses of the sample study axes:** This study included eleven axes will evaluate the status of the PMO and the second variable of (time management, cost and quality by the PMO) through the respondents' answers on allocated statements in the questionnaire as follows.

**Motivations of PMO establishment:** This axis includes 6 phrases which are from (1-6) as follows: It can be seen that the (firm belief of the Senior management to the role of the PM Practices) obtained the highest means with (4.17) and SD equal to (0.83) which means good harmony in the sample responses to this phrase. In general, this axis attained a good level according to the sample orientations.

**Tasks are undertaken by the PMO:** This axis includes the phrases (7-9) and Table 11 states the respondents' answers into it. It is clear that the sample agreed with these phrases.

Table 12: Means, standard deviation and response level of the 3rd axis

| Phrases  | Mean | SD   | Response level |
|--|------|------|----------------|
| The contribution of the PMO in the strategic planning effectively  | 3.44 | 1.46 | Agree          |
| The effectiveness of the PMO in targeting the company's strategic goals  | 4.29 | 0.79 | Strongly agree |
| The influence of PMO stronger than of other authorities  | 2.79 | 1.22 | Neutral        |
| The organizational Structure ensures Implementation of PMO its duties  | 3.32 | 1.06 | Neutral        |
| There is sufficient interest by the directors (in all levels) in applying scientific concepts in managing projects | 3.02 | 1.29 | Neutral        |
| General average of this axis   | 3.37 | 1.16 | Agree          |

Table 13: Means, standard deviation and response level of the 4th axis

| Phrases  | Mean | SD   | Response level |
|--|------|------|----------------|
| There are attention and interest in developing the staff in the PM technical         | 3.82 | 0.86 | Agree          |
| There is the actual employment of PM programs after training                         | 2.58 | 0.95 | Disagree       |
| There is not an actual employment of PM programs and focus on the existing one       | 3.61 | 1.04 | Agree          |
| There are training and development courses of PM standards have been holding in SCOP | 3.05 | 1.07 | Neutral        |
| General average of this axis   | 3.27 | 0.98 | Neutral        |

Table 14: Means, standard deviation and response level of the 5th axis

| Phrases   | Mean | SD   | Response level |
|---|------|------|----------------|
| The personal relationships are one of the criteria to select the top management of PMO  | 3.05 | 1.25 | Neutral        |
| The accumulated experience is one of the criteria to select the top management of PMO   | 4.0  | 1.07 | Agree          |
| The academy certificate is one of the criteria to select the top management of PMO      | 3.73 | 1.02 | Agree          |
| The Professional certificate is one of the criteria to select the top management of PMO | 3.26 | 1.16 | Neutral        |
| The project managers must be professionally licensed                                    | 2.53 | 1.13 | Disagree       |
| General average of this axis  | 3.51 | 1.12 | Agree          |

Table 15: Means, Standard deviation and response level of the 6th axis

| Phrases  | Mean | SD   | Response level |
|--|------|------|----------------|
| Establishing the geographic authorities led to overlapping with the PMO decisions                                  | 3.79 | 1.34 | Agree          |
| Establishing the geographic authorities led to create leading cadres with a limited experience in PM               | 3.2  | 1.24 | Neutral        |
| Establishing the geographic authorities led to a multiplicity of entities dealing with importers and other dealers | 3.47 | 1.07 | Agree          |
| Establishing the geographic authorities led to disperse and weaken the coordination with the higher management     | 3.23 | 1.28 | Neutral        |
| General average of this axis   | 3.42 | 1.23 | Agree          |

Table 16: Means, standard deviation and response level of the 7th axis

| Phrases   | Mean | SD   | Response level |
|---|------|------|----------------|
| The PMO knows the importance of projects management as competitive activity both nationally and internationally | 4.0  | 0.88 | Agree          |
| The PMO possesses the means to predict probable risks of market   | 3.26 | 1.30 | Neutral        |
| The PMO possesses the negotiating methods and Conflicts and dispute management                                  | 3.94 | 0.91 | Agree          |
| The PMO is aware of the safety factors and capable of protecting the project and its resources                  | 3.82 | 0.86 | Agree          |
| General average of this axis  | 3.75 | 0.95 | Agree          |

**Efficacy of PMO in PM maturity:** The phrases (10-14) were comprised in the third axis and Table 12 summarized the response trends into it.

The phrase of (the effectiveness of the PMO in targeting the company's strategic goals) scored the highest arithmetic means that means the PMO has significant effect in achieving these goals.

**Employing programs and techniques of project management:** Table 13 describes the response trends of the study sample into this axis where the first phrase attained the highest mean.

**Qualifications of PMO management:** It can be seen from Table 14 that the study sample agree with the concept that the academy certificate and accumulated experience are considered as the most important criteria for selecting the top management of the PMO.

**Impact of geographic authorities on the PMO:**

Table 15 exhibits the arithmetic means and the standard deviation of the sixth axis concerning establishing the geographic authorities. The results indicate that these authorities diverge the supervision and decision-making in project management.

**Knowledge efficiency of the PMO:** Table 16 offers the dimensions of this axis and concludes that the study sample agree with these skills as requirements of the knowledge efficiency of the PMO.

**Consequences of the government funding for projects:**

This axis includes the phrases (33-34) and Table 17 states the respondents' answers into it. It is clear that the sample agreed with these phrases.

Table 17: Means, standard deviation and response level of the 8th axis

| Phrases  | Mean | SD   | Response level |
|--|------|------|----------------|
| The government funding causes confusion in the streamlined execution of projects             | 3.70 | 1.26 | Agree          |
| The government funding causes weakness in adopting policies of developing staff capabilities | 3.76 | 1.15 | Agree          |
| General average of this axis   | 3.73 | 1.19 | Agree          |

Table 18: Means, standard deviation and response level of the 9th axis

| Phrases   | Mean | SD   | Response level |
|---|------|------|----------------|
| Weak management   | 3.58 | 1.32 | Agree          |
| Poor planning   | 4.38 | 0.92 | Strongly agree |
| Lack of skill of the project managers                                     | 3.76 | 1.10 | Agree          |
| Lack of precision and clarity in the preparation of the project documents | 4.50 | 0.50 | Strongly agree |
| Security situation  | 4.52 | 0.61 | Strongly agree |
| General average of this axis  | 4.15 | 0.82 | Agree          |

Table 19: Means, standard deviation and response level of the 10th axis

| Phrases                               | Mean | SD   | Response level |
|---------------------------------------|------|------|----------------|
| Weak management                       | 3.44 | 1.37 | Agree          |
| Poor planning                         | 4.52 | 0.66 | Strongly agree |
| Lack of commitment to schedule        | 4.23 | 1.01 | Strongly agree |
| Security situation                    | 4.70 | 0.52 | Strongly agree |
| Lack of skill of the project managers | 3.50 | 1.28 | Agree          |
| General average of this axis          | 4.08 | 0.91 | Strongly agree |

Table 20: Means, standard deviation and response level of the 11th axis

| Phrases                                 | Mean | SD   | Response level |
|---|------|------|----------------|
| Lack of skill of the project managers   | 3.35 | 1.27 | Agree          |
| Weak oversight and control              | 4.08 | 1.08 | Strongly agree |
| Financial and administrative corruption | 4.23 | 0.95 | Strongly agree |
| Security situation                      | 4.02 | 0.99 | Strongly agree |
| General average of this axis            | 3.92 | 1.01 | Agree          |

**Budget management by PMO:** It can be seen from Table 18 that the study sample agree with these phrases at whole which represents the main reasons to overcome allocated budget of the projects.

**Scheduling management by PMO:** This axis includes the phrases (39-43) which propose the main reasons to overcome the scheduling of the projects. Table 19 shows the arithmetic means, standard deviation and the response levels of the sample that approve with these reasons.

**Quality management by PMO:** The phrases (44-47) were comprised in the 11th axis and Table 20 summarized the response trends into it which agree with these reasons affecting the quality of the projects.

### CONCLUSION

This study aimed to assess the role of the project management office in manage the engineering construction projects from the point of view sample of project managers and others who works in this field and that through the use of documented scientific studies in addition to personal interviews, the questionnaire and analysis of the results of them that have been prepared and distributed to this sample, it can identify the most important conclusions as follows:

- The design of the questionnaire form and the establishment the lines of questions depending on the information obtained from the review of literature and personal interview.
- The PMOs in the State Company of Oil Projects were selected as a study population. This company is the specialized entity in execution all types of the oil projects of Oil Ministry in Iraq. It used the comprehensive survey method to study this population
- The researcher realized the veracity of the virtual questionnaire and their suitability through presented it to the group of arbitrators' about nine (8) arbitrator and take advantage of their expertise in making the necessary adjustments such as delete and add to access the final version of the questionnaire
- The questionnaire consists of three axis. The first axis: (personal data and information), the second axis: (the assessment the status quo of the administrative body (Office) of Projects Management) and the third axis: (the budget, scheduling and quality management by PMO)
- Eighty (66%) is the proportion of sample research who have a good background on the methodology for project management which is a positive indicator of the importance of applying the methodology in the project

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