



Program

Master in Project Management

Types of PMO and their roles in the UAE Oil & Gas Production Companies

انواع مكاتب إدارة المشاريع و دورها في شركات انتاج النفط و الغاز في
دولة الإمارات العربية المتحدة

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List of Abbreviations

ADNOC	Abu Dhabi National Oil Company
ADPC	Abu Dhabi Petroleum Company
CAQDAS	Computer Aided Qualitative Data Analysis Software
PMBok	Project Management Body of Knowledge
PMCOE	Project Management Centre of Excellence
PMI	Project Management Institute
PMO	Project Management Office
PPM	Project Portfolio Management
PPMO	Project Portfolio Management Office
PSO	Project Support Office
UAE	United Arab Emirates
VAP	Value Assurance Processes

Abstract

In spite of that the projects management was studied in depth through the last few decades, it had been noticed that there is a noticeable increase of the project's performance dissatisfaction in worldwide in terms of achieving their objectives within the approved budget and schedule. Some researchers argued that this failure might be due to the increase in the concurrent projects number in big organizations which were increasing the project management complexity while competing, and in the same time depleting the organization resources. The Project Management Office (PMO) was considered as one of the most important ways in supporting the concurrent multiple projects to achieve their objectives by sharing or re-allocating the available resources of these projects, besides providing support in many other ways. One of the most important business fields in the United Arab Emirates (UAE) that had so many concurrent projects was the oil and gas production business field in Abu Dhabi.

This research tried to investigate the existence, types and sizes of the PMOs in the oil and gas companies in Abu Dhabi, and tried to define their roles in enhancing the projects performance and the project management processes, in general, in these companies. The subject was reviewed in the literatures to trying to find out the PMOs' worldwide types, sizes and most important roles and functions. The outputs of the literature review were compared with the data collected through the interviews with some of the senior managers in Abu Dhabi oil and gas production companies. The qualitative analysis findings confirmed that there are different types, sizes, and roles of the PMO in these companies, while none of them was called a "PMO" at any time. Accordingly, the research recommended some recommendations that might help in empowering these PMOs in these companies and helping them to achieve more projects performance enhancement.

ملخص البحث

على الرغم من أنه قد تم دراسة إدارة المشاريع بعمق و من عدة اوجه خلال العقود القليلة الماضية، فقد لوحظ أن هناك زيادة ملحوظة من عدم الرضا على أداء المشاريع في جميع أنحاء العالم من حيث تحقيق أهدافها في حدود الميزانية المعتمدة والجدول الزمني. و لقد جادل بعض الباحثين أن هذا الفشل قد يكون راجعا إلى الزيادة في عدد المشاريع المتزامنة في المنظمات الكبيرة التي تؤدي إلى زيادة تعقيد إدارة هذه المشاريع حيث انها تتنافس معا داخل المنظمة وفي الوقت نفسه تستنزف مواردها. وقد اعتبرت "مكاتب إدارة المشاريع" كواحدة من أهم طرق دعم إدارة المشاريع المتعددة و المتزامنة لتحقيق أهدافها من خلال المشاركة في الموارد المتاحة لهذه المشاريع أو إعادة توزيعها فيما بينهم ، إلى جانب أنها - مكاتب إدارة المشاريع - تقوم بتوفير الدعم للمشاريع المتزامنة بعدة طرق أخرى. و يعتبر مجال قطاع إنتاج النفط والغاز في أبوظبي واحدا من اهم مجالات العمل الأكثر أهمية في دولة الإمارات العربية المتحدة التي لديها العديد من المشاريع المتزامنة.

وقد حاولت هذه الدراسة التحقق من وجود مكاتب إدارة المشاريع في شركات النفط والغاز في أبوظبي وتعيين أنواعها وأحجامها - إن وجدت - و محاولة تحديد دورها في تعزيز أداء المشاريع وعمليات إدارة المشاريع - بشكل عام - في هذه الشركات. و لقد تمت محاولة مراجعة هذا الموضوع في جميع المراجع المتاحة للباحث لمحاولة معرفة وتعيين أنواع وأحجام مكاتب إدارة المشاريع في جميع أنحاء العالم و محاولة تحديد مهامها و وظائفها الأكثر أهمية. ثم تمت مقارنة مخرجات هذه المراجعة الأدبية مع البيانات التي تم جمعها من خلال المقابلات الشخصية لبعض من كبار المديرين في شركات إنتاج النفط والغاز بأبوظبي. ولقد أكدت نتائج التحليل النوعي لهذا البحث أن هناك أنواع و أحجام وأدوار مختلفة لمكاتب إدارة المشاريع في هذه الشركات، في حين أن أيا منها لم يكن يسمى "مكتب إدارة المشاريع" في أي وقت. و بناء على ذلك، فقد أوصى البحث بعض التوصيات التي قد تساعد في تمكين ومساعدة مكاتب إدارة المشاريع في هذه الشركات على تحقيق تحسين الأداء للمزيد من المشاريع فيها و بشكل افضل.

1. Chapter-1: Introduction

1.1. Background and Research Problem

While the project management was studied in details during the last few decades, many of the projects performance and/or achievement were not satisfactory in terms of achieving the project objectives within the planned duration and/or the allocated budget and may lead to a project failure (Dai & wells 2004). This unsatisfactory projects performance tended to increase with the recent increment of the projects number due to the boom in many businesses such as IT, telecommunications, real estate ...etc, and drastically was affected by the complexity of some of these projects. Accordingly, many researchers tried to find out the reasons of the insufficient projects performance, how to improve these projects achievement, and how to reduce the chances of its failure. Out of many possible reasons of this failure, it was highlighted by Gardiner (2005) that limited resources may be considered as the most significant cause of organizations' failure in managing the complexity and change especially when these resources are required to be pooled between the organization normal operations and the projects.

Sometimes, due to the big number of the concurrent projects in the organization and/or the high complexity of some of the projects, project managers might seek for a support in managing these limited resources. The Project Management Institute (2013) mentioned in the PMBoK that the project management office (PMO) can help the project managers in several means that may include the resources management by sharing or reallocating these resources across the projects which are under the direction/custodian of the PMO. The Project Management Office (PMO) is one of the most important ways of supporting the project managers in managing their projects in such ways to improve these projects performance and reduce or avoid failure, while on the other hand "the PMO will be responsible for the oversight of all projects" (Levine 2005, p. 55).

The Project Management Offices (PMOs) might be considered as the normal evolution of the projects management in any organization when the project management become a normal part of the organization's business (Levine 2005).

Most of the oil and gas production in the United Arab Emirates is coming from Abu Dhabi Emirate oil fields. "According to *Oil & Gas Journal* estimates, the UAE holds the

seventh-largest proved reserves of oil in the world at 97.8 billion barrels, with the majority of reserves located in Abu Dhabi (approximately 94% of the UAE's total)" (eia, 2013). These reserves was estimated to be about 10% of whole globe stock of the verified crude oil reserves making the UAE as one of the most important oil supplier to the international energy market. Abu Dhabi oil production is about 2.7 million barrel per day, almost 62% of it is exported to Japan. Abu Dhabi is aiming to increase their oil production to reach 4 million barrels per day by 2020 by investing what was estimated about US\$ 50 billion from 2004 to 2020 (The UAE Embassy in Washington DC, 2009).

In order to achieve this aspiring goal with such huge investment, many projects were planned and launched during the last few years by ADNOC (Abu Dhabi National Oil Company). ADNOC was established in 1971 when acquired about 60% of ADPC (Abu Dhabi Petroleum Company). ADPC was established in early 1960s after the first oil discovery in Abu Dhabi (FRD-LOC, 2013). Nowadays, ADNOC consists of 16 different specialized subsidiary companies who are working in almost all the oil and gas business branches starting from the exploration and up to the final product distribution, three of these 16 companies are for producing oil either from onshore or from offshore of Abu Dhabi (ADNOC, 2014). Most of the most important projects, with big portion of the mentioned hug investment that was planned to achieve Abu Dhabi ambitious goal, are in these three oil production companies.

The researcher is working in one of these three Oil and Gas production companies in Abu Dhabi which planned and launched a big number of projects (about 70 small, medium, major, and mega simultaneous projects) to achieve its part of ADNOC strategic plan of increasing the oil production to 4 million barrel per day. Many projects' conflicts were notices that may lead to some of these projects failure. The researcher was interested to study the application of the PMO concept as a tool to enhancing his organization's projects performance and to avoid projects failure. The researcher noticed that although his organization is currently having so many running projects (and programs) with estimated budgets of billions of dollars, but there is no clear entity in the organization that considered as the sole responsible entity of managing and following up these huge budget

projects, and hence no clear responsibility for poor projects performance or projects failure. As applying the PMO is considered as one of the most important tool in managing the multi-projects environment, it might be found that it is very suitable for the Oil & Gas organizations in UAE to enhance their projects performance.

In this research, the researcher tried to study the existence of the different PMO types and their roles and functions in the UAE oil and gas production companies

This research investigated the several types of PMOs from the literature and their role in implementing the organization's strategic objectives. This research will study multiple projects environments in the UAE Oil & Gas production organizations, and will try to link the existing project management entities in these Oil & Gas organizations to the different types of PMO and how they might be converted to more effective, clear and well established PMOs.

1.2. Research Aim and Objectives

The aim of this research was to study the PMOs and the suitability of applying their principles in the oil & gas organizations in the UAE, and the main objectives of this research were to try to:

- Identify the PMOs existence in the oil and gas production companies in the UAE, and to investigate whether similar projects management entities exist in the oil and gas organizations in the UAE or not,
- Define the most common PMO's types in these organizations, if exist, and to
- Identify the PMO's roles and functions in these organizations.

1.3. Structure of the Dissertation Report

In this dissertation report structure consists of 5 chapters which can be described as the following:

Chapter-1: Introduction

In this chapter the idea of the study was introduced by giving a brief about the project conflict and / or failure reasons, and what is the relation of the projects problem

solutions and the PMO. A brief about the oil and gas industry in the UAE was given and why the researcher was interested to study the PMO existence, roles and function in this branch of industry. Then, the research problem, aim and objectives were introduced at the end of this chapter.

Chapter-2: Literature Review

In this chapter, the related topics to the PMO in literatures were introduced as the following: the PMO Definition, History, Types, Roles and Functions, Roles of the Project Portfolio Management Offices (PPMOs), and the PMO Stability and Changes. Then, the Research Proposition and the Conceptual Framework were introduced.

Chapter-3: Methodology

This chapter included all the related research methodology aspects as the following: Introduction, Research Philosophy, Research Approach, Research Strategy, Choice of Research Method, Research Time Horizon, Research Data Collection Techniques and Analysis Procedures, Limitations of the research, and the Research Ethical Norms and Considerations.

Chapter-4: Results, Discussion and Analysis

This chapter applied the qualitative analysis procedures on the research collected data by: giving general notes on the interviews, summarizing the interviews' results, categorizing these results and finally discussing and analyzing these results.

Chapter-5: Conclusion and Recommendations

In this chapter, the conclusion of the research study and the driven recommendations were stated along with the recommendations for future researches those might be related to the research topic.

2. Chapter-2: Literature Review

During the last few decades, the project management importance, roles and implementations in any project, regardless what is the project size or who are its internal or external customers, were studied in details and frequently highlighted in many researches. But in spite of these detailed studies and researches, the projects' success rates in achieving its strategic objectives, those objectives which were inherited from the organization's strategic objectives, within the allocated budget and planned duration still not satisfactory (Dai & wells 2004).

Nevertheless, Due to the need of innovation to compete and sustain in the market while needs to shortening the time of introducing the product or service to the end user (Schumpeter 1950 cited in Aubry, et al., 2008), organisations had to increase the concurrent project's number. This concurrent projects' number increment led to complicating the process of managing these multi-projects at the same time (Aubry, Hobbs & Thuillier 2007). It was recently noticed that an increment in recognizing the multi-project management issues as it became serious for companies, even though most of the researches still reviewing and studying single projects management (Unger, Gemünden & Aubry 2012).

Recently, many researchers studied these issues and tried to find ways to improve the multi-project management achievement. Aubry, Hobbs and Thuillier (2007) agreed with Dai and wells (2004) on that the project management office (PMO) might be considered as one of the most important methods to improve the organisation's performance in managing multi-projects to achieve the organisation's strategic objectives. Unger, Gemünden and Aubry (2012) argued that PMOs had appeared as a main tool in organizations that have multi-projects to improve its project management capabilities as a whole, and to coordinate between the multi-projects and stakeholders while improving the performance of single projects. It was claimed by Aubry, Hobbs and Thuillier (2007) that PMOs shouldn't be treated as separate entities in companies anymore, they may be considered as a gate for studying and applying the basis of the organisational project management for the organisation hence PMOs may form the relations between the organisation's strategy, projects, and the organisation's structures. Where PMO was pointed out as one of the organisation's entities those "form a complex web of relationships working in a network-like

form invisible on the organisation chart” to achieve the organisation’s strategic objectives “through projects in order to maximize value” (Aubry, Hobbs & Thuillier 2007, p. 332).

It was explained that PMO seeks different targets than the project manager as it was developed to fulfill different needs but both are aligned to the organization’s strategic objectives (PMI 2008 & PMI 2013), Table 1 below suggests some of these differences between the PMO and Project Manager:

Table 1: Some Differences between PMO and Project Manager

Item	Project Manager	PMO
Objectives	Focuses on the specified project objectives	Manages major program scope changes which may be seen as potential opportunities to better achieve business objectives
Resources	Controls the assigned project resources to best meet project objectives	Optimizes the use of shared organizational resources across all projects
Roles and Functions	Manages the constrains (scope, schedule, cost, and quality, etc.) of the individual projects	Manages methodologies, standards, overall risk/opportunity, metrics, and interdependencies among projects at the enterprise level

Adapted from PMI (2008 & 2013 , p. 12)

2.1. PMO Definition

Desouza and Evaristo (2006) claimed that there is no single worldwide definition of the project management office (PMO), but on the other hand, PMI (2008) defined the PMO as:

An organizational body or entity assigned various responsibilities related to the centralized and coordinated management of those projects under its domain. The responsibilities of the PMO can range from providing project management support functions to actually being responsible for the direct management of a project. (p.11).

It might worth to mention that PMI (2008) highlighted that it is not necessarily for the projects which are managed by the PMO to be related, it might be only managed and coordinated together through the PMO.

Aubry, Hobbs and Thuillier (2007) argued that although the PMI’s definition of the PMO may be considered as a generic definition but it is crucial as it is covering all the empirical results that were found related to the PMO, they also described the PMO as “one of the dynamic structures within organisational project management” (p. 334). Unger, Gemünden and Aubry (2012) agreed with this argue and added that this definition clearly represents the

shortage of knowledge about the effect of PMOs and the shortage of agreement on how to implement them. They clarified that this was the reason of focusing their research on the project portfolio management offices (PPMOs), which is a subgroup of the multi-project PMOs, and to determining the precise roles of them.

However, in 2013, PMI redefined the project management office (PMO) as “a management structure that standardizes the project-related governance process and facilitate the sharing resources, methodologies, tools, and techniques” (p. 10). While PMI (2013) added to the PMO’s responsibilities the possibility of directly managing more than a project; not only one project as mentioned in the PMI definition in 2008.

2.2. PMO History

The project management offices (PMOs) began to be common in the last 20 years, and since then, PMOs’ number increased rapidly and remarkably (Dai & Wells 2004). During this period, PMOs were recommended by people who were involved in practicing the project management office or were consulted to do so (Williams, 2005).

Hobbs and Aubry (2010) argued that the reason of the recent emerge of the PMOs in the last few decades was that the large increase in the competition in all industries, and the surge of the productivity and innovation in many fields, those forced many organizations to react by forming new entities to manage such big number of projects which were initiated to deal with these rapid industry changes, and to ensure the most effective implementation of the organizational strategic objectives through these projects. These entities are commonly named PMOs although it may have different forms and roles, and sometimes different names, in each organization.

Sharp differences between the PMOs along the world were found when it was reviewed in the literatures. A clear example of these differences is the PMOs manpower, it was found that the manpower of these PMOs, as an indication of its size, is strongly affected and varied by the PMOs structure, assumed roles, and perceived values (Hobbs & Aubry 2010), it was claimed that as these factors are varied from an organization to the other, it is better to understand the current state of the PMO in any organization through investigating its development history in its organization (Aubry, et al., 2008).

2.3. Types of PMOs

PMOs' in the literatures are usually summarized into few types based on its functionality and roles in the organization. Dinsmore (1999, cited in Hobbs & Aubry 2010) was one of the first researchers who sorted the PMOs into four types, one type of them for the single-project entity and three types for the multi-projects entities, since then, many other researchers sorted the PMOs into three or four types as illustrated in Table 2 below that summarized the most common types of the PMOs in the literatures:

Table 2: Summary of the Most Common PMOs' Types in the Literatures

Author	Single-project entities	Multi-project entities			
Dinsmore (1999)	Autonomous Project Team	Project Support Office	Project Management Center of Excellence	Program Management Office	
Gartner Research Group		Project Repository	Coach [PMO]	Enterprise [PMO]	
Crawford (2002)	Level 1: Project Control Office	Level 2: Business Unit Project Office	Level 3: Strategic Project Office		
Englund, Graham, & Dinsmore (2003)		Project Support Office	Project Management Center of Excellence	Program Management Office	
Kendall & Rollins (2003)		Project Repository [PMO Model]	Coach [PMO Model]	Enterprise [PMO Model]	Deliver [Value] Now [Model]
Garfein (2005)	Project Office	Basic PMO	Mature PMO	Enterprise PMO	

(Modified from Hobbs and Aubry, 2010)

'**Single-project Entities**' as explained by Dinsmore (1999), Crawford (2002), and Garfein (2005, cited in Hobbs and Aubry 2010) is the simplest shape of the project management office which consists of a project team who are dedicated to run and manage a single project by focusing on scheduling and reporting the progress of this single project's activities. Crawford (2002) called the single-project PMO as 'Level 1: Project controls Office' that has a main task of supporting and managing a single project by focusing on and controlling the project's plan, schedule and monitoring and controlling reports. In this level the PMO doesn't see any other project and doesn't involve or participate in these other projects' management processes.

While the '**Multi-project PMOs Entities**' were defined and categorized by Dinsmore (1999) and Englund, Graham, & Dinsmore (2003) into the following three (3) categories:

- Project Support Office (PSO): in this category, the project management office main duty is to support the organization's various projects by providing some of the project administration, controlling and monitoring services such as planning, scheduling, tracking, documentation, project auditing ...etc.
- Project Management Center of Excellence (PMCOE): in this category, the project management office main duty is to seek the project management processes excellence in all over the organization's projects by providing much more focused services related to methodologies and competences rather than providing management support to the projects. The PMCOE is concerned more to provide services such as project management training, standardization of the project management processes, project consultation, management skills enhancement, best practice identification, portfolio reporting, prioritizing the organization projects ...etc.
- Program Management Office (PMO): in this category, the project management office is responsible for much higher and broader responsibilities, besides the responsibilities of the PMCOE it is assumed to allocate the projects resources, recruiting projects' team, ensure the project alignment with business strategies, coordinating and managing the projects managers.

Gartner Research Group (cited in Kendall & Rollins 2003) categorized the 'Multi-project PMOs Entities' into three (3) PMOs' models:

- Project Repository Model: responsibilities of this PMO model is limited of being an information source on projects, and by being a repository of various projects standards, codes, methodologies, and reports. Kendall & Rollins (2003) described this model by the "low or no value model because it lacks accountability for bottom-line results" (p. 43)
- Coach Model: in this model the PMO responsibilities become bigger and wider by providing support, best practice documenting and sharing, consultation, and coordinating communication between projects and departments, and by providing training and mentoring for these projects' staff. This PMO model often assists in project initiation and review the project performance and results after project completion.
- Enterprise Model: in this model responsibilities of the PMO become much larger, besides the above mentioned responsibilities of the mentioned two models, the

‘Enterprise Model’ may manage risks during the projects’ initiation and life cycle, and it may try to identifying and debottlenecking the multi-project management issues, it may have a role in building the enterprise project portfolio by gathering data about projects, and in some cases it may directly runs projects.

A fourth model of the PMO called ‘Deliver Value Now Model’ was added by Kendall & Rollins (2003), they claimed that in this PMO model “the emphasis is on delivering measurable value to the executive team within each 6-month period. At initial startup of this PMO, the resources focus on accelerated project deliveries across all major projects” (p. 44). This model should be sponsored by the organization top management and its performance should be directly tied to the senior managers’ performance. In this model the organization’s strategic objectives have the highest priority. The enhancement of the organization project management methodology shouldn’t be the target, it should be a tool to enhance the overall organization performance. “It enables consistent motivation for the entire organization to seek out accelerated project deliveries, a stronger, more balanced project portfolio and better project performance” (Kendall & Rollins 2003, p. 287).

The ‘Multi-project PMOs Entities’ were categorized by Crawford (2002) into two categories:

- Level 2: Business Unit Project Office, and
- Level 3: Strategic Project Office.

In Level 2 or the ‘Business Unit Project Office’, the project management office main task is to integrate between various projects, small and short-term to major and long-term projects, those running within a department (or a division) while still supporting single projects. it was claimed that in this level “an organization can, for the first time, integrate resources effectively, because it’s at the organizational level that resource control begins to play a much higher-value role in the payback of a project management system” (Crawford 2002, p. 4). PMOs in level 2 is the entity that facilitate an early determination of where and when the resources’ shortages may occur along the projects and how to overcome this shortage by hiring or outsourcing the required additional resources.

In Level 3 or the 'Strategic Project Office', the PMO main task is to apply the project management procedures, resources administration, projects ordering, and systems thinking through the whole organization. Crawford (2002) claimed that at this high level (the corporate level), the PMO may be considered as a source for the project management standards, processes, and methodologies that improve the performance of single projects in the whole organization while preventing the resources allocation conflict, giving tools to manage the organization projects as individual projects or related portfolios, and plying the role of a single source of giving the top management the whole picture of the projects status. Therefore, Crawford (2002) added that the project management office is the entity which is designed to integrate the project management within the organization more than be a group of persons. At this level, the organization capabilities of managing its projects can be promoted to a higher level and "given the appropriate governance, it can improve communication, establish an enterprise standard for project management and help reduce the disastrous effect of failed development projects on enterprise effectiveness and productivity" (Gartner Group 2000, cited in Crawford 2002, p. 5).

Another sorting of the PMOs was introduced by Desouza and Evaristo, in 2006, who classified the PMO into: Administrative PMOs which they were titled as *Supporters*, and Knowledge-intensive PMOs those were sub-classified into *Information Managers*, *Knowledge Managers*, and *Coaches*.

Unger, Gemünden and Aubry (2012) suggested that " PMOs should be differentiated based on comparable realities such as project portfolios" (p. 608), they continued by concentrating their research on the project portfolio management offices (PPMOs) to give a better understanding of the multi-project PMOs mandates apart of the single project and / or program PMOs. They referred to the project portfolio management offices (PPMOs) as a subgroup of the project management offices (PMOs) those managing groups of several single projects and programs. They claimed that these project portfolio management offices (PPMOs) were introduced by their organisation's management as a reaction to the growing management issues those emerged from project portfolios.

PMI (2013) claimed that based on the degree of control and the effect on projects, PMOs may occur in organizations in different types:

- Supportive PMOs: This type has a low degree of control and effect on projects. They support projects by providing consultation, required data, training, best practice and lessons learned, and by supplying standard forms, templates and procedures. They might be considered as projects repository.
- Controlling PMOs: This type has a moderate degree of control and effect on projects. They provide support and compliance to projects (i.e. aligning the project to the organization's management methodologies, procedures, tools, ...etc).
- Directive PMOs: This type has a high degree of control and effect on projects as they directly managing the projects.

2.4. Roles and Functions of PMOs

Crawford (2002) highlighted that there are six main functions of the project management office, and they become more complex as the project management office getting more strategic responsibilities. These six main functions are:

1. Project Support: by providing support to the projects managers in many items such as the project management documentation, change control process, being a project repository (by being a reference and providing all the project plans, historical records and lesson learned), tracking & reporting, risk management, projects' resources repository, and cost tracking.
2. Software Tools Support: by identifying the needs of the project management software and supporting software, integrating between these software, maintaining and monitoring its performance, and playing the role of a professional expert helpdesk for these software to help these software's users of the project managers or projects' team members.
3. Processes, Standards, and Methodologies: by developing, applying and maintaining the project management standards, processes and methodologies and playing the role of a central source of these standards and the professional party in implementing it throughout the organization's projects, and regularly update these documents by applying the best practice and lesson learned.

4. Training: by participating with the organization training department and expert training centers in preparing various project management courses for the project managers and the other team members in order to enhance their capabilities and achieve their maximum performance.
5. Consulting and Monitoring: by providing consultation to other departments (such as IT) who might want to manage their internal project themselves, also by providing consultation to project managers in case of any project difficulties they may face, and by performing regular monitoring and auditing on projects and provide support to the project team by in case of over budget or being behind the schedule to enhance the project performance.
6. Project Managers: by evaluating, coaching, and developing project managers through the directions of the manager or the director of the project management office who is having and managing a database of the project manager's capabilities and skills. The PMO manager and the PMO are also the responsible party of assigning the project managers for their best matching new projects based on their database.

However, Aubry, Hobbs and Thuillier (2007) claimed that the project management offices' roles and functions are strongly depending on its recognized structure and location in the organization those guarantee the knowledge sharing among the whole organization and the achievement of the organization's targets, objectives and actions. Though, the intricacy of PMOs has already been recognized through the explanation of the diversity in both the PMOs' arrangements and its roles in the organization (Aubry, et al., 2008). While the PMI (2013) stated that the function of the PMO depends on its organization requirements, and continued in identifying some primary functions of the PMOs by stating that:

A primary function of the PMO is to support project managers in a variety of ways which may include, but not limited to:

- Managing shared resources across all projects administrated by the PMO;
- Identifying and developing project management methodology, best practices, and standards;
- Coaching, monitoring, training, and oversight [of project managers];
- Monitoring Compliance with project management standards, policies, procedures, and templates via project audits;
- Developing and managing project policies, procedures, templates, and other shared documentation (organizational process assets); and
- Coordinate communication across projects. (p. 11).

The specific type, roles, arrangement of the PMOs are strongly contingent on the supported organization and its requirements of these PMOs, as they may play the role of essential stakeholder and major decision maker who has the power of taking actions such as recommending or terminating projects when needed to achieve the organization's strategic objectives (PMI 2013). However, responsibilities of making and implanting these roles and functions should be clearly defined and to be accepted by all parties in the organisation in order to avoid any conflict may occur between the PMO and the other organisation's entities (Aubry, Hobbs & Thuillier 2007).

Huemann and Anbari (2007) added that lessons learned should be recorded and deployed by PMOs as a result of the projects audit, while Huemann, Keegan, and Turner (2007) claimed that in project-oriented organizations, PMOs should have a main role in managing, and/or recruiting, project human resources.

Other researchers such as Desouza and Evaristo (2006) argued that PMOs' roles can be segregated into three levels:

1. Strategic Level; at which the PMO role is to ensure that the projects are aligned with:
 - The organizations' strategic objectives,
 - Strategic growth, and
 - The efficient and effective knowledge management.
2. Tactical Level; at which the role of the PMO is to ensure:
 - Close integration between project initiatives,
 - Consistent quality of products and services generated by projects, and
 - Knowledge sharing.
3. Operational Level; at which the PMO is responsible for:
 - Conducting project evaluation,
 - Integration of knowledge derived from projects,
 - Expert knowledge of project management, and
 - Constant monitor of customer satisfaction.

Aubry, Hobbs & Thuillier (2007) suggested that PMO may be considered as "a translation center where information from projects originates from different sources and is then integrated in intermediate deliverables to be disseminated at different levels within the organisation" (p. 336).

Artto et al. (2011) did an intensive literature review in order to trying to identify all the possible roles and functions of the PMO and the accountabilities that a PMO can implement to satisfy the requirements of the organization. Artto et al. (2011) analysed the literature and summerised these PMO's possible roles and functions in Table 3. In their review of several

researchers work, Artto et al. (2011) categorized the PMO's roles and functions into five distinctive categories:

1. Managing Practices

This PMO tasks' category is managing the development of the organization's project management procedures, tools, systems, forms ...etc. It integrates the incessant development of the project management processes in the organization.

2. Providing Administrative Support

In this tasks' category, the PMO has the accountability of doing part of the project managers' duties to gain the advantage of the accumulated skills and saving or to decrease the load on the project managers by providing support in executing, facilitating, reporting, tracking, and coordinating some tasks that should be done by the project managers.

3. Monitoring and Controlling Projects

Artto et al. considered this category tasks as vital tasks of the PMO as it includes collecting various reports, doing the projects' audits, performing the project evaluations when project closed or completed, and allocating the projects' resources.

4. Training and Consulting

This category deals with improving the project management culture in the organization by providing advising, consultation, mentoring and training for the organization's teams who handle the project management.

5. Evaluating, Analyzing and Choosing Projects

This category includes all of the portfolio management processes and methods.

Table 3: Project Management Office Tasks
Summary of all the possible roles and functions of the PMO in the literature

Task category	Specific tasks of PMO	References
Managing practices	<p>Monitor and control performance of the project management office.</p> <p>Develop, implement and maintain project tools, standards and processes (methodology).</p> <p>Implement and operate a project information system.</p> <p>Manage project documentation archives.</p> <p>Manage customer interfaces.</p> <p>Provide a set of tools without efforts to standardize.</p> <p>Implement and manage a database of lessons learned.</p> <p>Implement and manage a risk database.</p> <p>Develop and maintain a project scoreboard.</p> <p>Ensure mandated processes are followed.</p> <p>Project organizations and structure.</p> <p>Standardize report forms.</p> <p>Promote issue resolution.</p> <p>Maintain a project workbook or library.</p> <p>Improve accuracy and timeliness of timesheets.</p> <p>Standardize project reviews.</p> <p>Identify and document best practices.</p>	<p>Hill (2008), Hobbs and Aubry (2007), Letavec (2006), Marsh (2001), Pellegrinelli and Garagna (2009), Rad and Levin (2002).</p>
Providing administrative support	<p>Report project status to upper management.</p> <p>Provide advice to upper management.</p> <p>Execute specialized tasks for project managers.</p> <p>Conduct networking and environmental scanning.</p> <p>Recruit, select, evaluate and determine salaries for project managers.</p> <p>Leverage economies of scale and scope.</p> <p>Provide facilities and equipment support.</p> <p>Support project planning.</p> <p>Support customer relationship management.</p> <p>Coordinate vendor / contractor relationship management.</p> <p>Facilitate project kickoff meetings.</p> <p>Track and record changes made to project requirements.</p> <p>Support project closeouts.</p> <p>Assemble project assets from across the organization.</p>	<p>Hill (2008), Hobbs and Aubry (2007), Letavec (2006), Marsh (2001), Pellegrinelli and Garagna (2009), Rad and Levin (2002).</p>
Monitoring and controlling projects	<p>Monitor and control project performance.</p> <p>Manage benefits.</p> <p>Allocate resources to different projects.</p> <p>Conduct post-project reviews.</p> <p>Conduct project audits.</p> <p>Manage risks.</p> <p>Evaluate and develop a reward system.</p> <p>Measure and track customer satisfaction.</p>	<p>Hill (2008), Hobbs and Aubry (2007), Letavec (2006), Marsh (2001), Rad and Levin (2002).</p>
Training and consulting	<p>Develop competency in personnel, including training.</p> <p>Promote project management within organization.</p> <p>Provide mentoring for project managers.</p> <p>Capture knowledge and enhance knowledge dissemination.</p> <p>Supply experience and knowledge.</p> <p>Facilitate re-use, Career development.</p> <p>Enhance team development.</p> <p>Facilitate communication.</p> <p>Provide consultations to troubled projects.</p> <p>Create a project management training material.</p>	<p>Hobbs and Aubry (2007), Hill (2008), Letavec (2006), Marsh (2001), Pellegrinelli and Garagna (2009), Rad and Levin (2002).</p>
Evaluating, analyzing and choosing projects	<p>Coordinate between projects.</p> <p>Participate in strategic planning.</p> <p>Manage one or more portfolio.</p> <p>Identify, select and prioritize new projects.</p> <p>Manage one or more programs.</p> <p>Evaluate project definition and planning.</p> <p>Conduct cost/benefit analysis of projects.</p> <p>Supervise funding submissions.</p> <p>Assess competency, capability and maturity.</p> <p>Provide project start-up assistance.</p>	<p>Hobbs and Aubry (2007), Hill (2008), Letavec (2006), Marsh (2001), Pellegrinelli and Garagna (2009), Rad and Levin (2002).</p>

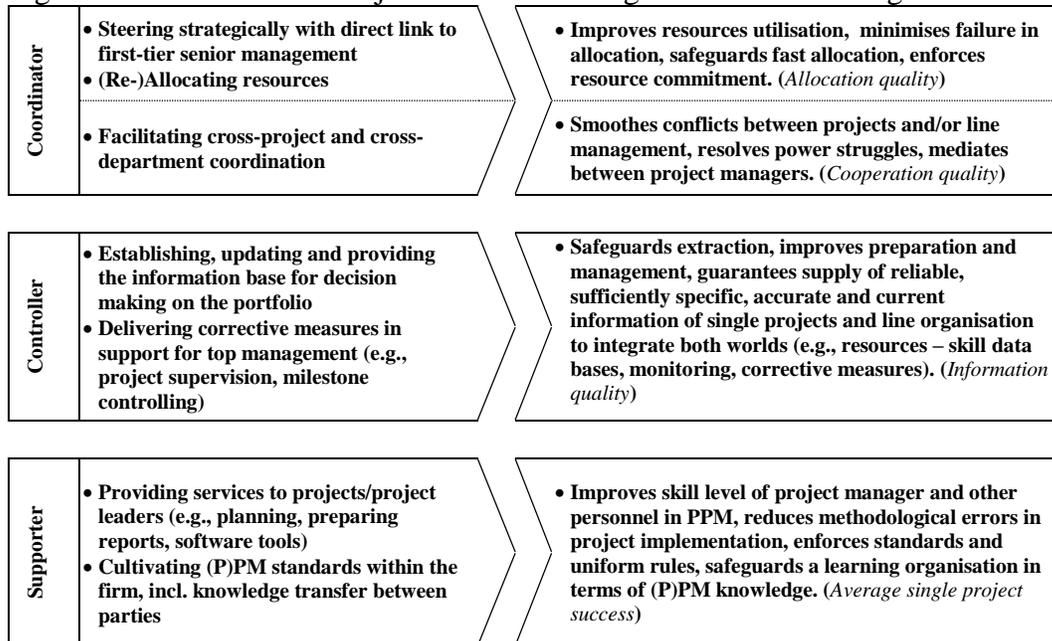
(Arto, et al., 2011, p. 412)

Unger, Gemünden and Aubry (2012) argued that due to the PMI's broad definition of the PMO and the generic identification of their roles and functions as it clearly represents the shortage of knowledge about the effect of PMOs and the shortage of agreement on how to implement them, they, Unger, Gemünden and Aubry (2012), focused their research on the project portfolio management offices (PPMOs), which is a subgroup of the multi-project PMOs, and they tried to determine the precise roles of them. They conclude that PPMOs are facing clear and different requirements those creating a governance mandate. "Thus, their role taking is not arbitrary, but needs to be derived directly from the requirements of the prime decision makers and other stakeholders for coordination, decision-making, information and support during PPM" (p. 611).

2.5. Roles of the Project Portfolio Management Offices (PPMOs)

In the following framework chart (Figure 1), Unger, Gemünden and Aubry (2012) illustrated the distinguished three roles those have various and diverse effects on the performance of the project portfolio:

Figure 1: Framework for Project Portfolio Management Office Configuration



(Adapted from Unger, Gemünden & Aubry 2012, p. 616)

Unger, Gemünden and Aubry (2012) described these roles' outlines as they are harmonized with other researchers' suggestions that the 'Coordinator' function is similar to the 'Deliver Value Now' PMO model function, while the 'Controller' function could be familiar in the 'Coach' model described by Kendall and Rollins (2003), and the 'Supporter' functions are evocative of 'Project Support Offices' which was explained by Dinsmore (1999, cited in Hobbs & Aubry 2010, and Unger, Gemünden & Aubry 2012). But they highlighted that sometimes, these three roles of PPMOs might exercise contradictory effects on project managers. Project managers may accept the PPMOs' roles of supporting, coordinating and controlling but in the same time they may be hesitated on getting this help from an entity that is monitoring their projects' performance and may advise punishment for the managers' low performance to achieve the projects' objectives. "When taking the controlling role, a PPMO should collect and handle information responsibly. Thus, PPMOs need to deal with project managers in a respectful way and refrain from exerting pressure to avoid tension" (p. 616). Unger, Gemünden and Aubry (2012) concluded that the roles of the 'Coordinator' and the 'Controller' help to approve that the suitable projects had been chosen and ordered, and the role of the 'Supporter' helps to guarantee that a proper projects management processes are in place. They claimed that these results might be further applied on other types of PMOs in multi-project settings, such as programme management offices (those managing programmes).

2.6. PMO Stability and Changes

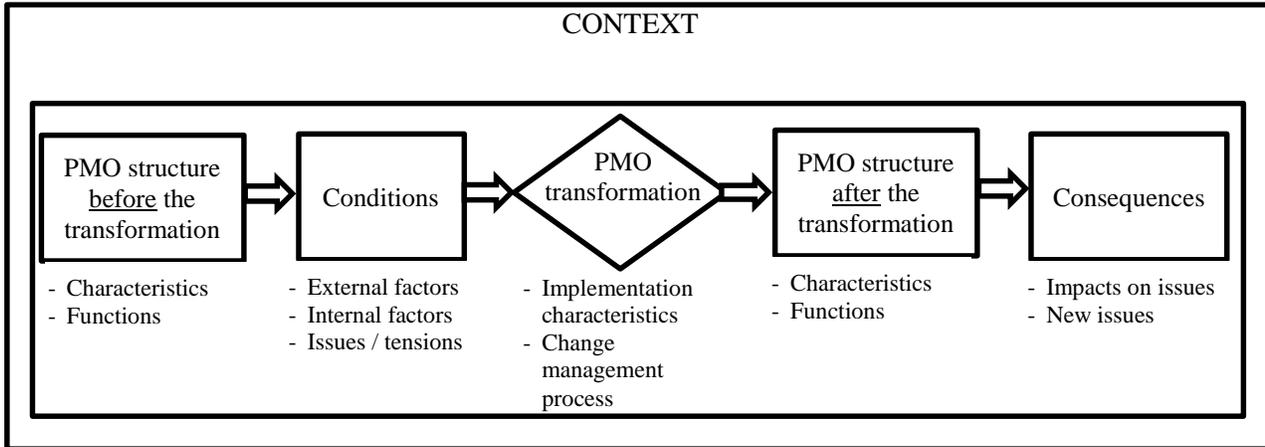
It was claimed by Aubry et al. (2011) in their comprehensive research that PMOs are often not stable entities; they are in contentious transformation process with an average age of about two years. The researchers added that PMOs are frequently changing due to external and internal factors, but important PMOs' changes might be directly related to senior management personnel changes and/or changes in the vision of the organization or its strategic objectives.

Because of the complexity of the PMOs and their integrated roles into many other issues in the organization, these PMOs' changes would have effects on the organization, these effects might be evaluated by the degree of enhancement or decline in these organization issues.

These external and internal changing factors initiate the transformation process of the PMO.

The transformation process was illustrated by Aubry (2013) as the following:

Figure 2: The PMO Transformation Process



(Adapted from Aubry 2013, p. 28)

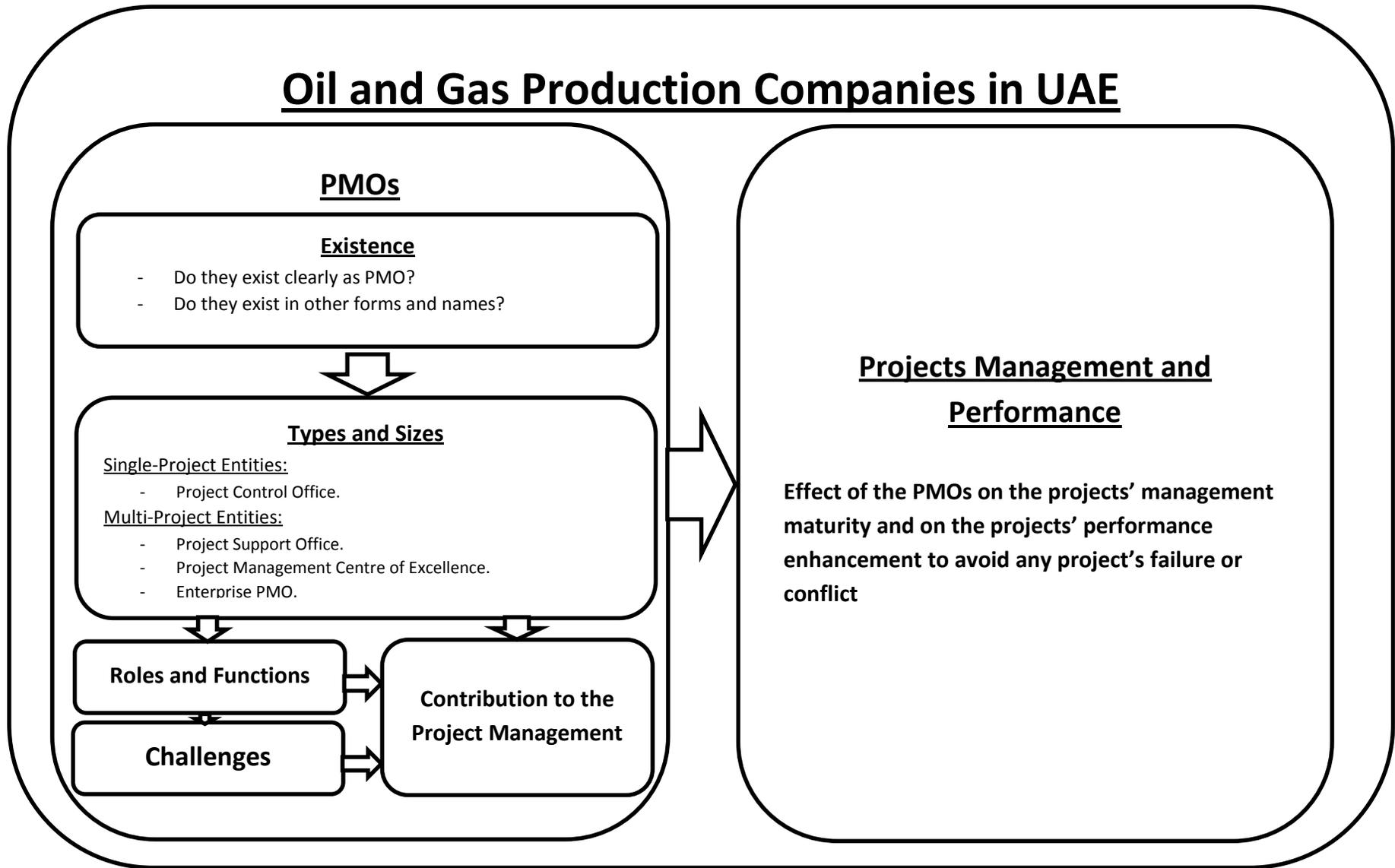
2.7. Research Proposition

The research proposition is that ‘different types of PMOs are already existing in the UAE oil and gas production companies but in different names, and are playing most of the roles and functions of the PMOs that were defined in the academic researches and studies’. Applying the project management office in the Oil and Gas organizations in the UAE would improve its projects performance and reduce project conflicts and/or failures’.

2.8. Conceptual Framework

In this study, the researcher should study the existence of the PMOs in the oil and gas production companies in UAE, and should find out what types of PMOs are exist, find out what roles and functions are these PMOs playing in these companies, what challenges these PMOs are facing, and what is their contribution to the projects’ management in these companies, trying to study the effect of these PMOs on the project management maturity in these companies and on the projects’ performance enhancement to avoid any project’s failure or conflict.

Figure 3: Conceptual Framework



3. Chapter-3: Methodology

3.1. Introduction

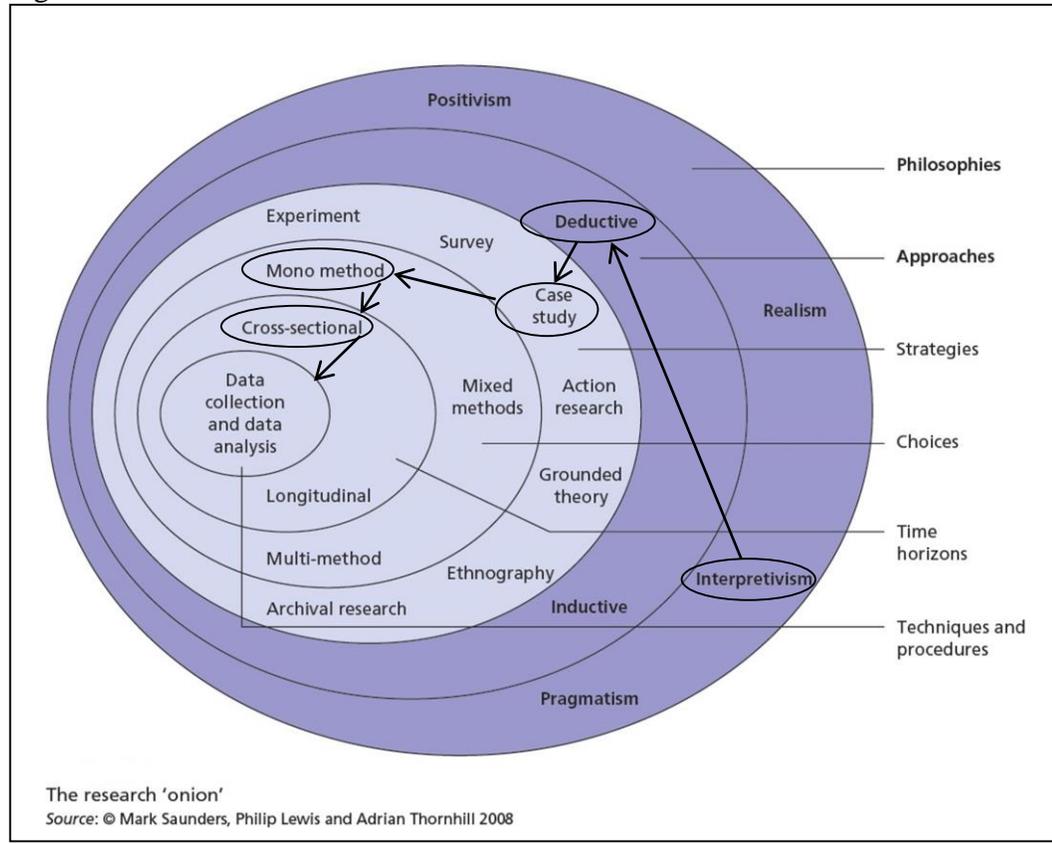
This section of the dissertation describes the research methodology that was used to answer the research questions and to achieve the research objectives. It starts by introducing a brief about the research philosophy, what research approach was used, why this research approach was used, research strategy, research choice, research time horizon, and the research data collection technique; interview, sampling, piloting the interview questions, and final interview questions. It also contains the limitations of the research, and the research ethical norms and considerations.

In order to answer the research questions, a systematic research process of having observations, collecting data, analyzing these data, assuming hypothesis, and building a theory, should be followed to claim that the research questions were answered scientifically and the research added to or developed new knowledge. It is not necessary to generate a theory that drastically change or develop the human knowledge to consider any research outputs and results are developing new knowledge, it might be simple as answering the research questions and solving a certain problem in a precise organization to consider the research achieved its objectives and developed new knowledge. Saunders et al. (2009) explained this meaning when stated that:

The knowledge development you are embarking upon may not be as dramatic as a new theory of human motivation. But even if the purpose has the relatively modest ambition of answering a specific problem in a particular organization it is, nonetheless, developing new knowledge. (p. 107).

Trying to valuably adding to or developing new knowledge, researchers should firstly choose their research philosophy. Different types of the research philosophies, approaches, strategies, choices, time horizons, and techniques and procedures are illustrated by Saunders et al. (2009) in the following 'research onion' (Figure 4).

Figure 4: The Research Onion



(Adopted from Saunders et al. 2009, p. 108)

3.2. Research Philosophy

It might be noticed from the research onion (Figure 4) that in any research, the researcher should choose one of the four research philosophies in his/her research process: Positivism, Realism, Interpretivism, and Pragmatism. It was explained by Saunders et al. (2009) that the research philosophy which is used in any research would reflect the researcher's perception and expectations of the world, these expectations would support his/her choice of the research strategy and method. However, they claimed that the research strategy and method might be greatly affected by the researcher's "particular view of the relationship between knowledge and the process by which it is developed" (Saunders et al., 2009, p. 108). They explained that the researcher who is thinking in specific elements, i.e. a business development process assets and outputs, is to be expected to have a dissimilar interpretation of how the research should be done, than the researcher who is mainly thinking about the

work environment and relationship between the employees and their leaders in a typical business development process.

Saunders et al. (2009) made a comparison (Table 4) of the four research philosophies that may help the researchers in selecting their research philosophy and hence choose the data collection and analysis techniques and procedures based on: the researcher's view of the nature of reality or being, the researcher's view regarding what constitutes acceptable knowledge, and the researcher's view of the role of values in research.

In this research which is studying the various types of the project management offices (PMOs) and their role in the oil and gas companies in UAE, while the researcher is working in the projects management department in one of these companies, and concurring with Saunders et al. comparison, the researcher chose the 'Interpretivism' research philosophy to follow in this research hence "the researcher is part of what is being researched, cannot be separated and so will be subjective" (Saunders et al. 2009, p. 119).

The researcher also chose the 'Interpretivism' research philosophy for this research for the reason of the research is mainly related to the business and management. This choice might be supported by Saunders et al. (2009) statement when stated that "some would argue that an interpretivist perspective is highly appropriate in the case of business and management research, particularly in such fields as organisational behavior, marketing and human resource management" (p. 116). The researcher adopted the qualitative research as it is of precise significance to the social science researches (Flick 2009).

Based on this choice, and as illustrated in the comparison in Table 4, the researcher would go for the qualitative research method by collecting the research data in small samples, interviewing senior managers who are related to the projects' management in the under-study organizations, and by doing in-depth qualitative investigations and analyses (as shown in the highlighted column in Table 4).

The explanations of choosing the qualitative research approach and reasoning in this research are clarified in the following section; the research approach.

Table 4: Comparison of four research philosophies in management research

	Positivism	Realism	Interpretivism	Pragmatism
Ontology: <i>the researcher's view of the nature of reality or being</i>	External, objective and independent of social actors	Is objective. Exists independently of human thoughts and beliefs or knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)	Socially constructed, subjective, may change, multiple	External, multiple, view chosen to best enable answering of research question
Epistemology: <i>the researcher's view regarding what constitutes acceptable knowledge</i>	Only observable phenomena can provide credible data, facts. Focus on causality and law like generalisations, reducing phenomena to simplest elements	Observable phenomena provide credible data, facts. Insufficient data means inaccuracies in sensation (direct realism). Alternatively, phenomena create sensations which are open to misinterpretation (critical realism). Focus on explaining within a context or contexts.	Subjective meanings and social phenomena. Focus upon the details of situation, a reality behind these details, subjective meanings motivating actions	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspectives to help interpret the data
Axiology: <i>the researcher's view of the role of values in research</i>	Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance	Research is value laden; the researcher is biased by the world view, cultural experiences and upbringing. These will impact on the research	Research is value bound, the researcher is part of what is being researched, cannot be separated and so will be subjective	Values play a large role in interpreting results, the researcher adopting both objective and subjective points of view
Data collection techniques most often used	Highly structured, large samples, measurement, quantitative, but can use qualitative	Methods chosen must fit the subject matter, quantitative or qualitative	Small samples, in-depth investigations, qualitative	Mixed or multiple method designs, quantitative and qualitative

(Adopted from Saunders et al., 2009, p. 119)

3.3. Research Approach

The second step in the research is to choose the research approach. The choice of the research approach is strongly depending on the clarity of the theory which the researcher is thinking about, and on the research philosophy that he/she chose to develop his/her research to answer the research question(s).

Kothari (2004) argued that there are two basic research approaches which are the qualitative approach and the quantitative approach. The quantitative approach was further explained as the approach that “involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in formal and rigid fashion” (Kothari 2004, p. 5). It could be afterward divided into three types: inferential, experimental, and simulation. While the “qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behaviour. Research in such a situation is a function of the researcher’s insights and impressions.” (Kothari 2004, p. 5). While the crucial characteristics of the qualitative research were pointed out by Flick (2009) as the following:

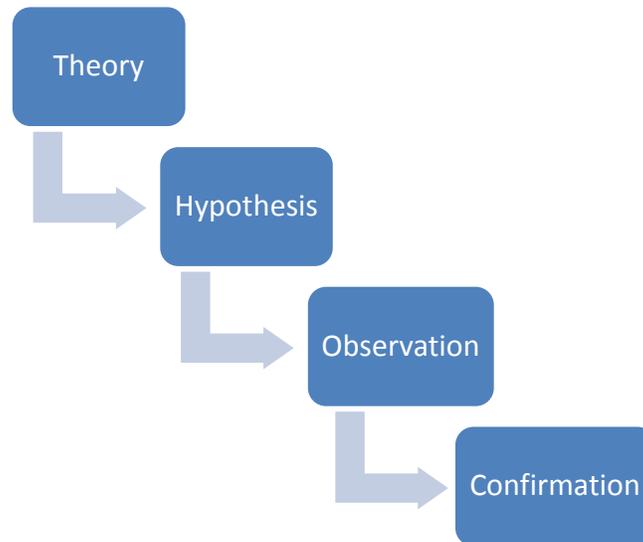
- Suitability of methods and theories,
- Standpoints of the participants and their variety,
- The impact of researchers' points of view on the study,
- Multiplicity of approaches and methods.

However, other researchers such as Saunders, et al. (2009) classified the research approaches into two main approaches: ‘Deductive Approach’ and the ‘Inductive Approach’. They argued that when trying to relate these two approaches to the research philosophies, it was claimed that the deductive approach is more related or suitable to the positivism philosophy and the inductive approach is more suitable to interpretivism philosophy while they, Saunders et al. (2009), disagreed with this claim when added that this linking or classification is possibly deceptive and of no actual applied significance.

Trochim (2004) stated that “in logic, we often refer to the two broad methods of reasoning as the deductive and inductive approaches”. (p. 47). He explained that the deductive approach moves from the very wide general theory, developing the

hypotheses, collecting the data, testing and analyzing these precise data, to confirming the original theory, revising, or rejecting it. He highlighted that at times the deductive approach informally called ‘top-down’ approach due to its sequences as illustrated in Figure 5.

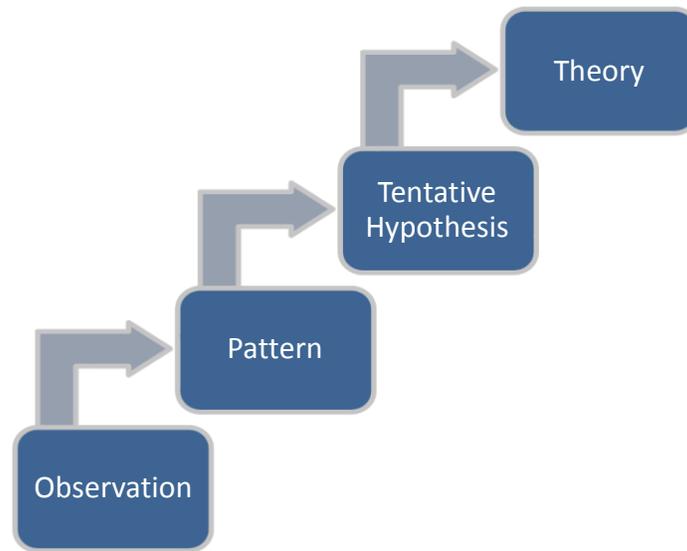
Figure 5: The Deductive Approach



(Adopted from Trochim, 2004, p. 47)

On the other hand, the inductive approach, as illustrated in Figure 6, starts by collecting particular observations and going up to develop the theory through noticing patterns for these observations, develop hypotheses based on these patterns then frame the general theory.

In this research, the deductive research approach (top-down approach) was adopted in the current research. This was based on a general theory of the role of the various types of PMOs in achieving the organization's objectives in the oil and gas production companies in the UAE, and on that the research was examining patterns and relationships between variables by collecting appropriate data and observations, and doing the required analysis. This will help in refining the original general theory.

Figure 6: The Inductive Approach

(Adopted from Trochim, 2004, p. 47)

3.4. Research Strategy

Following the order of the research onion (Figure 4), the researcher should choose the research strategy which is one of many strategies mentioned and detailed by Saunders et al. (2009) who explained that some of these strategies obviously fit the deductive research approach and others fit the inductive research approach, he also emphasised that there is no strategy more important (nor less important) than the others, the utmost significant strategy is the one which will help the researcher to answer the research questions. These strategies were listed by Saunders et al. (2009) as the following: “experiment, survey, case study, action research, grounded theory, ethnography, and archival research” (p. 141).

Among these research strategies, case study can be considered as one of the most important strategies in social studies and researches as claimed by Gerring (2006) who suggested that, for several reasons, case study occupies a privileged position between all strategies presently used in social researches. However, Yin (2009) argued that “case study is but one of several ways of doing social science research. Other ways

include but are not limited to experiments, surveys, histories, and economic and epidemiologic research” (p. 2). But it might be considered as the more suitable for gaining deep understanding of certain events like social events or real-life cases as suggested by Morris and Wood (1991).

In this research, the researcher chose to employ the case study strategy because of its importance in understanding “complex social phenomena” like PMO and the deep understanding that will be gained by concentrating on studying single crucial issue as highlighted by Gerring (2006) who explained that when researchers use case studies they achieve more in-depth knowledge of the entire study point by concentrating on single crucial issue. While, case study gives as well researchers the way to recall the complete and expressive features of “real-life events such as the organizational and managerial processes ...” Yin (2003, p. 2).

3.5. Choice of Research Method

The next step in accomplishing the research as per the research onion (Figure 4), is to choose between the following data collection techniques and analysis procedures to answer the research questions as explained by Saunders, et al. (2009):

- Mono Method: to use single qualitative data collection technique (i.e. interviews) with a qualitative data analysis procedures, or to use single quantitative data collection technique (i.e. questionnaire) with a quantitative data analysis procedures.
- Multiple Method:
 - o Multi-Method: to use multi-method qualitative studies, or multi-method quantitative studies.
 - o Mixed-Methods: to use “quantitative and qualitative data collection techniques and analysis procedures either at the same time (parallel) or one after the other (sequential) but does not combine them” (p. 152).

In this research, the researcher chose to use the mono method as only single qualitative data collection technique, which is interview in this research, with a qualitative data analysis procedures were employed.

3.6. Research Time Horizon

There are two types of time horizon of any research; cross-sectional and longitudinal. If the research is studying certain phenomena or events in a specific short duration then it is called cross-sectional study. On the other hand, if it is studying the progress, development and change of these phenomena or events over time, then it is called longitudinal studies (Saunders, et al., 2009).

In this research, it is considered a cross-sectional study because of all the interviews, including the pilot interviews, and the analysis process were conducted in a short period.

3.7. Research Data Collection Techniques and Analysis Procedures

Based on the above choices of the research philosophy, approach, strategy, method choice and time horizon, the researcher chose to employ the interviews as in-depth qualitative data collection technique.

3.7.1. Interview

It was explained by Kahn and Cannell (1957 cited in Saunders, et al., 2009) that the interview is considered as a decided conversation between two or more persons. The researchers may decide to go for the interview technique to collect primary empirical data which are related to their research questions and objectives (Saunders, et al., 2009). Researchers can use different interview types based on the degree of formality and the interview structure. Saunders, et al. (2009) listed the main interviews types into:

- Structured Interviews;
- Semi-structured Interviews;
- Unstructured or In-depth Interviews.

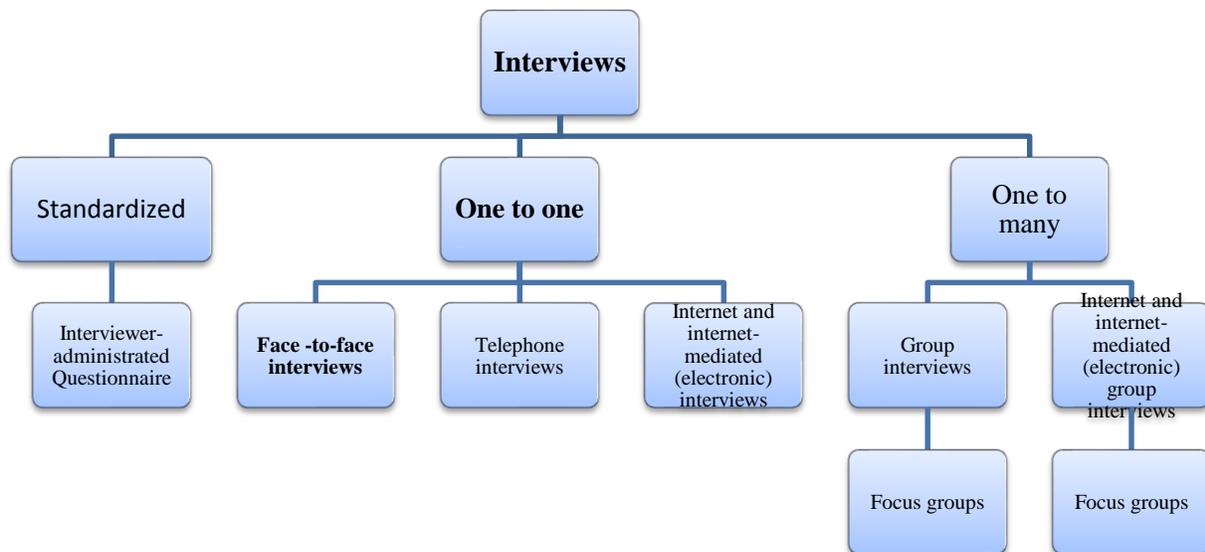
They also elaborated the forms of interview in Figure 7.

While Flick (2009) sorted the main interview types into: Focused Interview, Semi-Standardized Interview, Problem-centered Interview, Expert Interview, and Ethnographic Interview.

Out of these interview types, the semi-structured interviews, in specific, withdrew the attention of researchers and broadly utilized by them due to the belief that the participants' (respondents) points of view are more expected to be articulated in an agreeably planned interview condition rather than in a standardized interview or questionnaire as explained by Flick (2009).

While Saunders, et al. (2009) argued that researchers who are using the semi-structure interviews in collecting their researches data are generally using it in their qualitative analysis. "These data are likely to be used not only to reveal and understand the 'what' and the 'how' but also to place more emphasis on exploring the 'why' " (Saunders, et al., 2009, p. 321).

Figure 7: Forms of interview



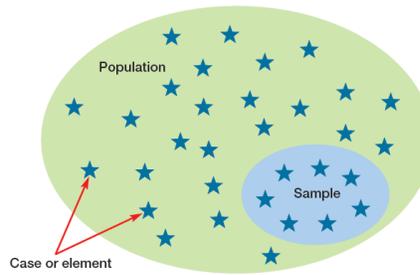
(Adopted from Saunders, et al., 2009, p. 321)

In this research, the researcher chose to use the semi-structured face-to-face interviews as most of the interviewees (participants or responders) are managers who preferred to

be interviewed rather than answering a questionnaire this is also highlighted by Saunders, et al. (2009) due to several reasons. The semi-structured interview also allow for more flexibility in alter, modify, rephrase, delete, add, or change the order of the interview questions depending on the progress and flow of the interview conversation, without deviating from the interview target of getting the suitable answers that are related to the research questions. Also, the researcher chose the semi-structured interview as the questions are complex, open-ended, and need to be tuning from interview to another. “Semi-structured and in-depth interviews provide you with the opportunity to ‘probe’ answers, where you want your interviewees to explain, or build on, their responses” (Saunders, et al., 2009, p. 324).

3.7.2. Sampling

In order to collect the data required for the research analysis to answer the research questions, it was found that it is impossible to interview all the PMOs’ managers, or the related and similar managers who are dealing with the projects management, in the UAE Oil and Gas production companies. A small sample of the entire population was used for this research. Saunders, et al. (2009) pointed out that sampling techniques offer a variety of means that allow the researcher to decrease the volume of information he/she needs to gather by analyzing smaller volume of information which were collected from only a sub-group (sample) rather than the entire population (cases or elements) as elaborated in Figure 8. He also highlighted that the mentioned expression ‘population’ does not necessary mean the people, it is pointing to the entire number of cases that the researcher selected his/her sample from, and it might be people or cars or any other type of cases.

Figure 8: Population, sample and individual cases

(Adopted from Saunders, et al., 2009, p. 321)

As the implementation of the PMO and defining its roles through any organization requires a high level of management and a strategic planning to smoothly transfer the organizational project management to a PMO, and because of reason that there are only few organizations in the field of the Oil and Gas production in UAE, it would be better to use the qualitative research methodology to study and analyse the application of the PMO in these organizations. However, a big number of project managers are in these few organizations that make it impossible to interview all of them.

Interviews of eight participants (two for the pilot and six for the main interviews) of senior to top managers in these organizations were used to collect the research data. The choice of the research sample (the eight interviewees) was based on their position and experience duration in their organization, and also was based on their level of knowledge and participation in their organization project management changes. The researcher tried to choose the research sample from high level, long experienced, senior managers who were deeply involved in establishing or developing their organization project management departments and procedures to be able to collect from them reliable data related to the existence, history, roles and types of PMOs those might be in their organizations.

The interviews were personally (face-to-face interview) and lasted for about two hours each in order to allow the researcher to:

- Describe the concept of the PMOs and their roles to the interviewee,

- Discuss what sort of departments / entities are playing these roles in his/her organization, if there is no clear PMO existing in it, and obstacles these departments / entities are facing,
- History, number and size of these PMOs (or departments / entities) in these organizations.
- Discuss with the interviewee what are the advantages/disadvantages might his/her organization gain or lose if established PMOs, and what would be the best way to smoothly transfer to the PMO.
- What is the maturity level of these PMOs (or departments / entities) and their participation in implementing the organization strategic objectives in his/her organization.

3.7.3. Accessing / Approaching the Interviewees

To access these high levels of managers, the researchers approached his organization senior projects managers for the interview and asked them to nominate other managers in the other two organizations. The researcher also asked for their help in contacting these nominees, the other organization managers, for the interview.

3.7.4. Data Gathering

Collecting and recording data, for the research analysis, are important to avoid missing some of these data and to allow the researcher later on to review, analyze and extract results from it. The method of recording these data depends on the type of the research interview. In case of the researcher decided to conduct interviews to collect the research data, several data recording methods might be used such as Note-Taking, Tape Recording (or Voice Recording) , Video Recording, and Box-Ticking (Dawson, 2002). Advantages and disadvantages of these four data recording methods are summarized by Dawson (2002) in Appendix-A.

Even for the simplest way of data recording, by taking notes using pen and paper, there are several consideration should be taken by the researcher in order to effectively perform the interview and avoid missing any piece of information while noting it. The researcher should develop his own shorthand writing style to be able to take notes

quickly and maintain the conversation and the eye contacts in the same time. It's recommended also to translate these shorthanded notes into interview report just after the interview to avoid missing any part of the data while still remembering it.

In this research the researcher decided to use the note-taking method to record the interview data, tape or video recording might be also used, in case that the interviewee allow to use these types of data recording methods, however, it might be avoided to give the interviewees the freedom of expressing themselves without being worry of the confidentiality of the information they will give.

3.7.5. Piloting the Interview Questions

In order to properly formulate a suitable interview questions and to be able to gather the related data from the participants regarding the research subject, pilot interviews with two participants were held (apart from the six participants in the main interviews). The goal of these pilot interviews was to test the interview questions prior performing the main interviews in order to get the pilot interviews' participants feedback on the questions types and phrasing as pointed out by Dawson (2002) who defined the expression piloting as testing. The result of this piloting is to modify, rephrase and fine tuning the main interview questions to be more clear, intensive and targeting the research questions answers to maximize the data that will be gathered, for the research discussion and analysis, in relatively short time from such high level managers who are always busy and do not have spare time to repeat the interview if needed.

During these two pilot interviews, the participants suggested some questions merging, deletions and rephrasing to avoid repeating the questions and to collect the correct related data. They also suggested simplifying the organization chart of each company to avoid violating the confidentiality of these information.

The pilot interview questions are mentioned in this section, while the final interview questions are listed in each interview as it might be slightly changed from one to the other.

Pilot Interview Questions

The following question sets were used for the pilot interviews with two senior managers (related to the projects management or PMO) in two different organizations of the three organizations under study of which the main interview sampling and population had been selected from.

PMOs' Existence Questions' Set:

- Q1. What is the definition of the project management office (PMO) in your organization? In your opinion what should be its roles and functions in your organization?
- Q2. Would you elaborate if there is any department/team (or many departments/teams) in your organization has/have a direct role in managing, controlling and coordinating single and/or multi-projects? If there are many departments/teams, please elaborate what are the main differences between them?
- Q3. What are the average lifespan, scope, and roles & functions of each department/team? And how frequent does it change?
- Q4. Are these departments/teams directly managing each project individually or are providing help, support, project management standards, and other services to these projects' managers?
- Q5. Are any of these departments/teams in your organization called a "Project Management Office (PMO)"? Did your organization at any time have a temporary department/team (such as a taskforce, ...etc) that plays some (or all) of these PMO roles and functions? Please give examples of these teams and its roles and functions.
- Q6. What challenges your organization faced to establish these departments/teams?

PMOs' Current Status Questions' Set:

- Q7. What is your role in these departments/teams?
- Q8. What are the organizational structures and staff numbers of these departments/teams? How do these departments/teams members report to the organization management?

- Q9. How many projects are these departments/teams managing? Please specify sizes (small, medium, and major projects) and rough numbers of each?
- Q10. What is the total number of employees in your whole organization and in these departments/teams?

PMOs' Roles and Functions Questions' Set: (see Table 3 for more details)

- Q11. Which department/team in your organisation is responsible for:
- Practicing the projects management?
 - Providing administrative support to the projects managers, projects teams and the organization upper management?
 - Monitoring and controlling projects?
 - Training and consulting of the projects managers and teams?
 - Evaluating, analyzing, choosing, and coordinating between the simultaneously running projects?

PMOs' Contribution in the Organization Strategic Objectives Implementation Questions' Set:

- Q12. Which department/team in your organisation is responsible for monitoring the implementation of the organization's strategic objectives through projects?
- Q13. Were the organization strategic objectives implemented / met through these departments/teams?
- Q14. What are the operational challenges these departments/teams in you organization?
- Q15. What is your Assessment of these departments/teams success?
- Q16. Based on your observation, in which level of the following PMO maturity levels are these departments/teams:
- Level 1: Most PM Procedures are unplanned and / or unclear.
 - Level 2: Most PM Procedures are clear, but not well followed or implemented.
 - Level 3: Most PM Procedures are clear and continually followed or implemented.
 - Level 4: Most PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.
 - Level 5: Most PM Procedures are continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented.

3.7.6. Interview Questions

After doing the pilot interviews, some modifications were made to the questions based on the interviewees' comments and recommendations, and also based on the researcher notes on the interview conversation flow.

The interview questions were used to examine the existence of the project management offices (PMOs) or any similar departments / teams in the Oil and Gas production companies in UAE; mainly in the three oil and gas production companies in the emirate of Abu Dhabi who are considered as the major offshore and onshore oil and gas producers in the UAE. The interview questions were also used for studying these PMOs current status, their roles and functions, and to check to which extent are their contributions in aligning all projects to efficiently implementing the organization strategic objectives.

Six PMO heads and / or senior managers in these three oil and gas production companies were interviewed to trying to get detailed answers on the following interview questions to help in analyzing these data, and to get a comprehensive view of the PMOs context in these companies through investigating all the related factors to the research problem.

The interview questions which were used for gathering the data for the research analysis are listed in each interview, in the appendices, as it might be slightly changed from one to the other.

3.7.7. Qualitative Data Analysis

In any research, and depending on the data collection method(s), researchers should choose a proper analysis method to analyse their collected data either be a quantitative data or qualitative data. While the quantitative data analysis is depending on extracting meanings resulting from statistical data through the utilisation of charts and statistics, qualitative data analysis is depending of extracting these meanings through the utilization of the concepts that emerge from the expressions and wordings of the participants that explore and describe the real-life conditions of the research subject. Robson (2002) stated that “qualitative data are associated with such concepts and are

characterised by their richness and fullness based on your opportunity to explore a subject in as real a manner as is possible” (pp. 455-457).

It was explained by Saunders et al. (2009) that qualitative data may vary from a simple small question’s answer to a quite long statements and description. The qualitative data analysis procedures, which include the deductive and inductive analysis approaches, help in organizing these answers and using it for finding the patterns in these data. Upon these data size, researchers may choose to analyse it manually, if the data size is small, or to use one of the new Computer Aided Qualitative Data Analysis Software (CAQDAS) for large data that they cannot analyse by the traditional qualitative analysis method.

By applying the qualitative data analysis procedures, either manually of using a software, researchers will be able to gather the collected small parts of data to generate the overall theory that these data may lead to. Nevertheless, in order to generate this overall theory, during the collection of these data during interviews, researchers should be interested not only in what the interviewee are telling but also in how they are telling these data including the non-verbal signs that may give, indicate or add to the meaning of these data. It might be considered that the qualitative analysis started by taking notes on the data collection environment and non-verbal signs during the interviews hence it is part of the data preparation for the analysis as argued by Kvale (1996) who highlighted that the analysis might start from the early stages of the data preparation during the data collection and continue to the end of the research.

Qualitative Analysis Approaches

There are two types of approaches are used in the qualitative analysis, the deductive approach and the inductive approach. The deductive approach would be used when the researcher has a general theory and using the collected data relations, analysis and conclusion to prove or confirm this theory. While in the inductive approach the researcher uses the collected data relations and observations to define patterns and

ultimately build the theory. In some cases, mixing both approaches may lead to more logical results in the research.

The Qualitative Analysis Processes

It was pointed out by Saunders et al. (2009) that there is no specific ways of analysing the qualitative data. However, he argued that the qualitative data analysis processes may be clustered into three major kinds of processes:

- Summarising the collected data: where the long statements would be condensed, compressed, or briefed into shorter statements without losing the meanings or the core ideas.
- Categorising the collected data: by grouping related data portions under categories.
- Structuring of meanings using narrative: just like a story by determining what the subject of the story, who are involved in it, what happened to them, the results of this, how important it is, and what is the conclusion.

In this research the researcher summarized and categorized the collected data, as shown in the following chapter, and used the deductive approach in the qualitative analysis adopting the pattern matching analytical procedure that based on expecting a pattern of results extracted from the research proposition to clarify what is probably to be found from the collected data.

3.8. Limitations of the research

The following limitations should be considered while reading and assessing this research:

- This research study and results were limited to three major Oil and Gas production companies in the Emirate of Abu Dhabi, in the United Arab Emirates (UAE). Therefore, the results and recommendations of this research should not be generalized to other types of populations, rather than the mentioned population only.
- Only eight interviews were done with senior and top managers who are related to or directly managing projects in the three organizations under the study; two pilot interviews from two different organizations and six main interviews (two of each organization), the researcher tried to select them from different levels of the projects management in these companies but well experienced and had deep involvement in establishing and developing the project management processes and departments in their organizations in order to have a broad variety of data and reliable information that were used in the analysis to answer the research questions.
- The researchers could not use the voice recording tools due to the participants' requests of avoiding the recording; they asked to stick to taking notes only as they will not feel comfortable in recording their answers.
- Other studies and researches might be needed to study the subject in bigger population volume, and it might need to use other data collection and analysis method(s) to be able to find out results related to the subject in other organizations and business areas.

3.9. Research Ethical Norms and Considerations

Saunders, et al. (2009) defined ethics as the “appropriateness of your behaviour in relation to the rights of those who become the subject of your work, or are affected by it” (pp. 183-184). While it was defined as the norms or morals that lead our ethical adoptions about our performance and our relations with the other people (Cooper & Schindler, 2008).

Resnik (2011) stated that “there are several reasons why it is important to adhere to ethical norms in research” (p. 2), he summarized these reasons into the following points:

1. Ethical Norms encourage the research goals.
2. It increases the morals (i.e. trust, liability, etc) that are crucial to cooperative effort such as the research work.
3. It helps to confirm that researchers can be held responsible to the community.
4. It helps to get public funding for research.
5. It helps in encouraging other vital social ethics; i.e. accountability towards the society, avoiding discriminations, respecting the human and animal rights, ...etc. (p. 2).

It was pointed out by Resnik (2011) that due to the importance of the research ethics, many universities, international corporations, and governmental organizations had developed their own Code of Ethics which in general include, more or less, the following ethical values:

Honesty, Objectivity, Integrity, Carefulness, Openness, Respect for Intellectual Property, Confidentiality, Responsible Mentoring, Respect for Colleagues, Social Responsibility, Non-Discrimination, Competence, Legality, Animal Care, and Human Subjects Protection. (Adapted from Shamoo & Resnik, 2009).

Dawson (2002) emphasized on that all researchers can only accomplish their researches with the help of other persons, and it is important to handle other people personal and business data with “honesty and respect”, which she called the “research ethics”, hence most of these participants are trusting in the researchers, and are ready to unveil lots of information for nothing in return (p. 146).

4. Chapter-4: Results, Discussion and Analysis

4.1. General

In this chapter, results of the interviews that had been done for this research will be discussed and analyzed against the research proposition. But first, and in order to understand all the aspects of the collected data, some notes, observations and comments on the participants and the interview meetings' conditions should be mentioned to help in drawing the whole picture of the data collection process and hence help in identifying any factors that might affect on the nature of the collected data. Saunders et al. (2009) concurred with this meaning when stressed on the requirement of not only the participants' statements that researchers should note, but also the way of saying these statements, surrounding conditions, and any other elements that may affect on the nature of the collected data should be noticed and recorded to understand the true meaning of these statements.

Based on that, the following are some of these notes, observations and comments that the researcher had noted during the interviews:

- In the beginning, it might worth to mention that all the interviews lasted for more than two hours each, all of them were held in the participants' offices at their companies.
- Some of the interview meetings (5 out of 8) were held in two sessions due to the participants' busy schedule.
- During the interview, most of the participants were interrupted by phone calls, emails, and / or few minutes' visitors of their staff.
- All the participants preferred to answer the interview questions in writing (by having notes by the researcher) rather than audio recording their answers, and sometimes they reviewed and modified their answers to avoid waiving their organizations' roles and data confidentiality.
- Most of the participants (6 out of 8) asked about the details of the research and who may participate from their companies and other sister companies.
- The researcher felt that most of the participants tried to avoid mentioning any failure or shortage in their organization's project management processes. That is

why most of them ranked their organization's project management maturity by level-4 or level-5 while, and as per their statements, some of their projects failed in achieving their objectives in its planned schedule or within the approved budget and referred to other failure reasons.

4.2. Results Summary

As mentioned in the Data Analysis section in the Methodology chapter, qualitative data may vary from a simple question's answer to a quite long statements and description. Because of that, it is recommended to summarize the collected data in order to condense the very long statements into shorter statements that give same meanings and allow to concentrate on testing the research proposition elements through these data. Summarizing the data also will allow for identifying the relationships between the data categories that will be used in the analysis and hence will help in draw the research conclusion.

The original write-up of the interviews results are attached to the research report in the appendices as the following:

- Appendix-B: Pilot Interview - A.
- Appendix-B: Pilot Interview - Z.
- Appendix-C: Interview – A1.
- Appendix-C: Interview – A2.
- Appendix-C: Interview – D1.
- Appendix-C: Interview – D2.
- Appendix-C: Interview – Z1.
- Appendix-C: Interview – Z2.

The following are the interview questions and their answers summary of the eight interviews responses (6 main interviews + 2 pilot interviews):

Category I: PMOs' Existence Questions'

Q1. What is the definition of the project management office (PMO) in your organization? In your opinion what should be its roles and functions in your organization?

A1 Summary:

All the eight participants agreed on that none of their organizations had a specific definition of the PMO. All of their project management staff are using the PMI's PMBoK for defining the PMO and understanding their roles.

All of participants are considering the mega projects' taskforces as PMOs because they are doing all the roles and functions of the PMO that mentioned in the PMBoK.

Q2. Would you please elaborate if there is any department/team (or many departments/teams) in your organization has/have a direct role in managing, controlling and coordinating single and/or multi-projects? If there are many departments/teams, please elaborate what are the main differences between them?

A2 Summary:

In the three organizations there are more than a department or team who have a direct role in managing projects. These departments or teams are managing, controlling and coordinating single and multi-projects. Besides these project management teams, there are supporting teams who provide engineering, planning and monitoring services to the project management teams.

Only Mega projects' taskforces in these three organizations who are managing the projects and do the engineering, planning and monitoring services through their standalone taskforce staff.

Q3. How many projects are in your organization? Please specify its types, sizes (small, medium, major and mega projects) and rough numbers of each?

A3 Summary:

In each organization the projects sizes are sorted as the following:

- 40 to 60 small to medium projects (less than US\$ 15 million).
- 10 to 20 major projects (above US\$ 15 million and less than US\$ 50 million).
- 2 to 3 mega projects (above US\$ 50 million).

All the participants called the mega projects' teams as 'Taskforce' teams.

Q4. What is the average lifespan of these departments/teams? And how frequent does it change?

A4 Summary:

The average lifespan of these departments/teams in these three organizations varied from 3 to 5 years for the project management teams, who manage the small, medium and major projects, and 4 to 7 years for mega project teams (taskforces).

Q5. Are these departments/teams directly managing each project individually or are providing help, support, project management standards, and other services to these projects' managers?

A5 Summary:

In the three organizations the project management teams are directly managing projects, and other teams are providing services (planning, monitoring, recruitment, training, ...etc) support for these project management teams.

Except mega projects' teams (taskforces) who are totally standalone teams and doing all the project management and support through their dedicated staff.

Q6. Are any of these departments/teams in your organization called a "Project Management Office (PMO)"? Did your organization at any time have a temporary department/team (such as a taskforce ...etc.) that plays some (or all) of these

PMO roles and functions? Please give examples of these teams and its roles and functions.

A6 Summary:

All the participants mentioned that neither now nor in anytime in the past a department or a team called a PMO in their organizations, however, mega projects' taskforces in the three organizations are doing all the roles and functions of the PMO, and might be considered as PMOs.

Q7. What challenges your organization faced to establish or manage these departments/teams?

A7 Summary:

The three organizations faced the following challenges during the establishment of these departments/teams:

- People resistance to change while establishing or reforming new project management teams or departments.
- The unspecified or conflicts in roles and functions of these teams due to unclear organization hierarchy relationships.

While during managing these teams the major challenge is the refusal of the project's progress monitoring and controlling by other teams such as the planning, monitoring and controlling teams.

Category II: PMOs' Current Status Questions'

Q8. What is your role in these departments/teams?

A8 Summary:

The eight participants' roles in these departments varied from a project team leader or a department manager to a senior vice president for projects.

They were senior to top managers with long and focused experiences in project management in the oil and gas field.

Q9. What are the organizational structures and staff numbers of these departments /teams? How do these departments/teams members report to the organization management?

A9 Summary:

In the three organizations, it is hierarchal organization structures; all team members report to their direct manager, who reports to the department manager, who, in sequence, reports to the SVP-P.

Q10. What is the total number of employees in your whole organization and in these departments/teams?

A10 Summary:

In each organization, there are a total number 3500 to 5000 employees distributed in all the organization business units and production fields.

Out of this total number, there are 1000 to 1500 permanent employees working for the project management departments/teams (almost 25% of the total employees' number).

Taskforces manpower may be up to 1500 employees who are recruited only for that particular project and dismissed when finished their tasks.

Category III: PMOs' Roles and Functions Questions'

Q11. Which department/team in your organization is responsible for:

- a. Practicing the projects management?
- b. Providing administrative support to the projects managers, projects teams and the organization upper management?
- c. Monitoring and controlling projects?
- d. Training and consulting of the projects managers and teams?
- e. Evaluating, analyzing, choosing, and coordinating between the simultaneously running projects?

A11 Summary:

- a. Project management departments, teams and taskforces.
- b. Project support departments and teams (for the taskforces, internal staff provide these services).

- c. An independent department/team for planning, monitoring and controlling the projects and is directly reporting to top management (for the taskforces, the taskforce management team do these roles).
- d. The training department of the company.
- e. Project support departments and teams (for the taskforces, the taskforce management team do these roles).

Category IV: PMOs' Contribution in the Organization Strategic Objectives Implementation Questions'

Q12. Which department/team in your organization is responsible for monitoring the implementation of the organization's strategic objectives through projects?

A12 Summary:

In the three organizations, the Corporate Planning Department (CP) is responsible for setting, defining and monitoring the implementation of the organization's strategic objectives through projects, but the implementation of these strategic objectives is the responsibility of the project management departments/teams.

Q13. Were the organization's strategic objectives implemented/met through these departments/teams?

A13 Summary:

All the participants believed that it was implemented and met through these departments/teams because of the fact that these departments/teams were originally formed to achieve these strategic objectives through projects.

Q14. What are the operational challenges these departments/teams in you organization?

A14 Summary:

Scope creep, frequent change of the scope of work, conflicts during the projects executions, limited resources, and lack of project coordination and interface.

Q15. What is your Assessment of these departments/teams success?

A15 Summary:

All the participants described their companies' projects management teams by (very) successful teams who are continuously improving their performance.

Q16. Based on your observation, in which level of the following is PMO maturity levels are these departments/teams:

- a. Level 1: Most PM Procedures are unplanned and / or unclear.
- b. Level 2: Most PM Procedures are clear, but not well followed or implemented.
- c. Level 3: Most PM Procedures are clear and continually followed or implemented.
- d. Level 4: Most PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.
- e. Level 5: Most PM Procedures are continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented.

A16 Summary:

Most of the participants (7 out of 8) gave level-4 to 5 rank to their PMO maturity level (only one participant gave it level-3).

They claim that, in most of projects of their organizations, the project management procedures are clear, continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented, and problems are due to individual behaviors of external factors such as market instability, depressions, ..etc.

4.3. Results Categorizing

As shown in the previous section, Results Summary section, the interview questions can be categorized as the following:

- **Category I:** Questions number 1 to 7 can be gathered together under the PMO existence category which is trying to define the PMO types and existence in the studied companies.
- **Category II:** Questions number 8, 9 and 10 can be gathered together under the PMOs' current status category which is trying to define the role of the interviewee in the PMO, structure of the PMO, and the number of employees in the whole organization and the PMO.

- **Category III:** Question number 11 is under the PMOs' roles and functions category which is trying to define the PMO's roles and functions in the studied companies.
- **Category IV:** Questions 12 to 16 can be gathered together under the PMOs' contribution in the organization strategic objectives implementation category which is trying to define the role of the PMO in implementing the strategic objectives in the studied companies and how much they, the PMOs, succeeded in this role.

4.4. Discussion and Analysis

In this research, the researcher analyzed the interviews' qualitative data manually without using any of the new computer aided qualitative data analysis software (CAQDAS), and started the analysis by summarizing the interviews' results, then categorized these results' summary, and finally used the deductive approach in the results qualitative analysis adopting the pattern matching analytical procedure that based on expecting a pattern of results extracted from the research proposition to clarify what is probably to be found from the collected data.

As shown in the conceptual framework in the literature review chapter, Figure 3, the researcher examined the effect of the PMOs in the studied sample of the UAE oil and gas companies on these companies' project management process, maturity and on the projects' performance enhancement to avoid any project's failure or conflict. The researchers examined this effect by studying the PMO's existence, types and sizes, roles and functions, challenges, and how much they contribute to the project management maturity.

From the collected data and through the summarizing process of the interview results, the researcher could notice the following patterns in the interviews' results:

- There is a pattern matching in the collected data; there are several types of PMOs exist in the participants' companies, however in all of these companies it was not called a PMO, it is either the engineering department, project department, the

engineering and project department, or the program management teams of mega projects who are in most of the cases called taskforces.

- The PMOs types in the studied companies varied from the single project control office and up to the program management offices for the multi-projects entities. These program management offices are related to these companies' mega projects which are consisted of several related projects.
- All the participants called their companies' mega projects teams as taskforce teams, and all of them considered these taskforces as the only groups or teams in their companies who might be fully applying the PMO's roles and functions, and because of that reason the participants considered them as PMOs.
- The other repeated pattern in most of the interviews results that was also related to the PMOs existence was that all the participants considered the taskforces' teams as PMOs because of these teams are more independent and free from their companies' management restrictions, this freedom allowed them to act more like program management offices or enterprise PMOs rather than be project repositories or project support offices.
- These taskforces, in these cases, are playing much more roles and functions of the PMO (as defined and listed in table-3 in the literature review chapter) than the other projects' departments/teams who are managing the other small to major projects in the same companies. Nevertheless, it was noticed that, in all the studied companies, some of the PMO's roles were performed by other disciplines in the organization such as HR and training departments, while all the project management related roles are in the project management departments and taskforces.
- In all the studied companies, the average lifespan of these PMOs is 4 to 7 years for the mega projects' taskforces and shorter durations, up to 4 years, for the other smaller projects; small to major projects. There were some challenges during establishing these teams and other challenges during the operation phase of these teams.
- All of these teams were hierarchal organization; all the team members were reporting to their direct managers.

- In all the studied companies, these teams were around 25% of the total number of each company workforce.
- All the participants agreed on that these teams were very successful teams who were continuously improving themselves, enhancing their performance, positively affecting on the project management processes and maturity, and were deeply involved in implementing the strategic objectives of their companies.

Using the above repeated patterns, it might be predicted that the research proposition and theory were correct and could be proved throughout this sample responds, it could be predicted from these patterns that the project management offices were already existing in the UAE oil and gas production companies in different names, types and sizes, and were playing most of the roles and functions of the PMOs that were defined in the academic researches and studies.

All the participants stated that there are teams in their companies that play most of the roles and functions of the PMOs but do not called PMOs, also their shapes and sizes vary from small teams with limited functions that can be matched with the PMO types of the Single-Project management entities which were called, in the literatures, *Project Control Office*, *Autonomous Project Team*, or *Project Office* and up to the independent and almost full authorized big taskforces those manage mega projects and can be matched with the PMO types which were called *Enterprise PMO* or *Program Management Office*.

It might be predicted also from these repeated patterns that applying the project management office in the Oil and Gas organizations in the UAE, such as forming independent taskforces for mega projects that have more freedom in the projects' management than the traditional project management teams in these companies, would improve these companies' project management performance and reduce projects' conflicts and/or failures. All the participants claimed that these teams were very successful in implementing the organization's strategic objectives through the projects they managed, and that they were regularly improving the project management processes, participating in enhancing their own projects' performance. And as mentioned in most of the participants answers that the more freedom in the projects

management these teams had the more successful they will be, that could be easily predicted from their statements of that the mega projects management teams that in most cases called taskforces were more successful hence they were independent and have more freedom than the other teams and that led to play most of the PMOs roles and functions which helped in their projects' success.

5. Chapter-5: Conclusion and Recommendations

5.1. Introduction

This research investigated the existence of the PMOs in the oil and gas production companies in the UAE, mainly in the emirate of Abu Dhabi. The research also tried to identify their types, if exist, and their roles and functions in these organizations. The aim of this research was to study the PMOs and the suitability of applying their principles in the oil & gas organizations in the UAE, and the main objectives of this research were to try to:

- Identify the PMOs existence in the oil and gas production companies in the UAE, and to investigate whether similar projects management entities exist in the oil and gas organizations in the UAE or not,
- Define the most common PMO's types in these organizations, if exist, and to
- Identify the PMO's roles and functions in these organizations.

The research proposition suggested that different types of PMOs are already existing in the UAE oil and gas production companies but in different names, and are playing most of the roles and functions of the PMOs that were defined in the academic researches and studies. Applying the project management office in the Oil and Gas organizations in the UAE would improve its projects performance and reduce project conflicts and/or failures'.

Based on that, a literature review was done to review some of the related items to the PMOs such as their different types in other different worldwide organizations, and the roles and functions of these types which were identified by the academic researchers. Using the qualitative analysis methodology, data were collected through interviews, analyzed, and discussed in the previous chapter.

The following points were concluded from the results analysis and discussion.

5.2. Conclusion

As shown in the previous chapter, results analysis and discussion, it might be concluded that the project management offices were already existing in the oil and gas production companies in the UAE but in different names. Entities such as the engineering department, engineering and projects department, and/or the project management department were playing the same roles and can be considered as PMOs. These entities, PMOs, were in different types and sizes depending on the number of the projects they were managing and the sizes of these projects.

Mega projects or programs, which were consisting of many related projects, were managed by taskforces that could be compared or matched with the PMO's type called the *Program Management Office*. These taskforces were playing most of the PMOs roles and functions that were defined in the academic researches and studies.

Other projects, mainly the medium and major projects, were managed by relatively smaller teams those could be matched with another PMOs' types such as the *Project Management Center of Excellence* and/or *Project Repository*. These teams were managing projects which had no relation to each other but in the same areas or business units in their organization. These teams were playing some of the PMOs roles and functions such as resources reallocating between their own projects in the same areas or business units.

Smaller projects or single projects were managed by other types of teams that could be matched with the single-project management offices' type called *Project Control Office* that played relatively fewer roles and functions of the PMOs' roles and functions defined by the researches.

It would be concluded also that applying the project management offices' principles in the oil and gas production companies in the UAE, such as forming independent taskforces for mega projects that have more freedom in the projects' management than the traditional project management teams in these companies, would improve these companies' project management performance and reduce the projects' conflicts and/or failures.

The research revealed that the more empowerment and independence the project management offices got from their organization top management, the more successful

roles they played in the studied organizations as these organizations are mainly production and operation companies and hence their roles and normal procedures were restricting the project management teams and might have caused in some cases to some projects' failures.

That was very clear in the mega project management teams, which were in most of the cases called taskforces. These taskforces were very successful in managing these mega projects due to their independence from the non-project based companies; these taskforces were more projectized organization rather than functional organization like their original companies and hence were free to apply the project management offices' roles and functions which allowed them to achieve their objectives without any influences from their original companies management procedures.

5.3. Recommendations

Based on the gathered data through the interviews and the qualitative analysis done in the previous chapter, the following recommendations may help in improving the performance of the projects management teams in the oil and gas companies in the UAE and in the similar organizations worldwide:

- The main recommendation that can be driven from this research is to give more freedom to the project management teams in these organizations to allow them to implement the suitable roles and functions that matches with their projects' sizes, types and criticality and not to follow the mother company's management procedures in these projects as these companies are mainly operation and production companies and their management processes and procedures might not be suitable to the project management environment that sometimes needs quick, swift and agile decision making processes which are not available in most cases in these operation companies.
- Clear definitions of the project management teams' scope of work and job responsibilities would improve the project management performance in these organization and will avoid most of the common conflicts between the project management teams and the operation teams who are considered as the clients of these projects teams.

- It is highly recommended to clearly define the PMOs in these organizations, and to define their roles and functions in different levels in the organization to clarify to all parties, including the PMOs members, these roles and functions and to identify the inputs, outputs and responsibilities of each team to all parties. This will significantly improve the performance of these teams and will lead to reducing or avoiding conflicts which may cause projects' failures.
- Based on the previous recommendation, it might be helpful to identify the procedures, terms and conditions of sharing, or reallocating, the resources between projects within the same area or business unit that allow for more project management flexibility and performance enhancement.
- Defining and communicating the PMOs' roles and functions across the organization would allow for optimizing the knowledge sharing, resources sharing/reallocation, experiences transfer across the projects' teams, specialized training programs, ...etc.
- To improve the performance of the small to major projects management teams, it is recommended that these teams to have a projectized organization rather than having functional organization; such as the engineering departments in some of these organization who form weak matrix organizations to manage their projects with job officers instead of project managers, and their project team members are working in functional departments for many projects and sometimes for daily operation and maintenance tasks.
- A proper or more effective change management procedures should be introduced to these organizations to allow for reducing the frequent changing of the project scope of work or the statement of requirements during the project final stages; most of the participants mentioned that the most common operational challenge was the frequent changing of the project client (the operation teams) requirements while the project is in progress or is going to its final stages.

5.4. Recommendations for Future Researches

For future researches, the researcher would recommend to expand the area of research to cover all the oil and gas companies in the UAE either being exploration, engineering, production, refinery, distribution or service companies to be able to study the existence, types, sizes, and roles of the PMOs in the UAE oil and gas business that is considered the main industry field in the country and in the entire region.

For such big research, it might be recommended to use the mixed qualitative and quantitative methodologies and data analysis, to collect as much as possible of data about the research subject and to be more accurate in analyzing these data.

The amount of the collected data in such big research would be too large to be analyzed manually and / or in short time, that is why it might be recommended to use computer aided qualitative data analysis software (CAQDAS) for analyzing the collected qualitative data and the SPSS software for the collected quantitative data to facilitate the analysis of this large amount of data in easier and faster ways to obtain more accurate results.

Another future researches area that could be suggested is to investigate the internal relationships between PMOs in different levels in the same company in order to facilitate for more smooth coordination and communication between these PMOs to enhance the overall project management process in the studied company.

Similar research could be done to study the relationships between the different PMOs across the oil and gas sister companies in the UAE.

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Appendices

Appendix-A

Recording Methods Advantages and Disadvantages

RECORDING METHODS: ADVANTAGES AND DISADVANTAGES

RECORDING METHOD	ADVANTAGES	DISADVANTAGES	ADDITIONAL INFORMATION
Tape recorder	<p>Can concentrate on listening to what they say.</p> <p>Able to maintain eye contact.</p> <p>Have a complete record of interview for analysis, including what is said and interaction between interviewer and interviewee.</p> <p>Have plenty of useful quotations for report.</p>	<p>Rely on equipment – if it fails you have no record of interview.</p> <p>Can become complacent – don't listen as much as you should because it's being recorded.</p> <p>Some interviewees may be nervous of tape-recorders.</p>	<p>Overcome equipment failure by practice beforehand and checking throughout interview, without drawing attention to machine.</p> <p>Could take a few notes as well – helps you to write down important issues and you will have some record if equipment fails.</p>
Video recorder	<p>Produces the most comprehensive recording of an interview.</p> <p>Gives a permanent record of what is said and includes a record of body language, facial expressions and interaction.</p>	<p>The more equipment you use the more chances there are that something will go wrong.</p> <p>This method can be expensive and the equipment hard to transport.</p>	<p>If you want to use video equipment it is preferable to obtain the help of someone experienced in the use of the equipment. That way you can concentrate on the interview while someone else makes sure that it is recorded correctly.</p> <p>Need to make sure that you have a suitable venue for this type of recording.</p>
Note-taking	<p>Don't have to rely on recording equipment which could fail.</p> <p>Is the cheapest method if on a very limited budget.</p> <p>Interviewees may think they have something important to say if they see you taking notes – while you write they may add more information.</p>	<p>Cannot maintain eye contact all the time.</p> <p>Can be hard to concentrate on what they're saying and to probe for more information.</p> <p>Can be tiring.</p> <p>Will not have many verbatim quotations for final report.</p>	<p>You will need to develop a type of shorthand which you can understand and you will need to learn to write very quickly.</p>
Box-ticking	<p>Simple to use.</p> <p>Easy to analyse.</p> <p>Easy to compare information with that obtained from other interviews.</p>	<p>Inflexible – no scope for additional information.</p> <p>Forces interviewees to answer in a certain way.</p> <p>May leave interviewees feeling that they have not answered in the way they would have liked to have done.</p>	<p>You have to make sure that the questionnaire is very carefully designed so that you cover as many types of answer as possible.</p>

Appendix-B:

Pilot Interview - A

Pilot Interview-A

PMOs' Existence Questions' Set: (an organization chart may help in answering these questions)

Q1. What is the definition of the project management office (PMO) in your organization? In your opinion what should be its roles and functions in your organization?

A1. There is no definite definition for the PMO in our organization; in fact most of our organization project managers understand the PMO as a support center for all projects who should support them by providing the project forms, procedures and planning services. Project managers in our organization may sometimes refer to the PMBoK definition of the PMO; however, they only referring to the supportive PMO type and do not like to have any control from the PMOs on their projects. But I'd like to highlight that due to the nature of the Oil & Gas business in our region, we might have different joint ventures projects with different international organizations that have, to high extent, well-defined PMOs. In these cases we may follow their understanding of the PMOs and their roles and functions in these specific projects.

Q2. Would you please elaborate if there is any department/team (or many departments/teams) in your organization has/have a direct role in managing, controlling and coordinating single and/or multi-projects? If there are many departments/teams, please elaborate what are the main differences between them?

A2. As elaborated in the simplified organization chart of our company (attached) under the CEO there is a senior vice president for projects (SVP-P) who is managing the Project Business Unit (BU-P), in this BU-P there are four (4) departments/teams who are directly involving in managing different types of projects depending on their sizes, and two (2) other departments/teams who are supporting these project management departments/teams. These departments are as the following:

- Brown Field Projects Department (BF): who are managing all the existing facilities modification projects, most of their projects are small to medium size projects.
- Pipelines and Towers Projects Department (PL&T): who are managing all the pipelines and towers projects, most of their project are major projects size.
- New Field Development Division (NFD-x and NFD-y): these divisions are taskforce teams who are managing two separate mega projects in two separate new production fields (x and y). They concern only on the green field work (new facilities engineering and construction) in their specific field and coordinate with the brown field teams who are modifying the existing facilities to accommodate the new production increment.
- Engineering Disciplines Department (EDD): this department is supporting all the above mentioned project management departments by providing the technical teams' members, in an away-team basis, who specify, review and approve all the projects technical requirements and documents during the project lifetime and return back to their discipline when the project completed. Also, they are sharing with extra high experienced members in the different projects workshops; i.e. Design Review, HAZOP, Risk Assessment ...etc.
- Project Support Department (PSD): this team is supporting all the projects by providing the projects templates, forms, standards, and recommended practices based on the organization lesson learned. They also are responsible of reporting the progress of all projects to the SVP-P.

Q3. How many projects are these departments/teams managing? Please specify sizes (small, medium, major and mega projects) and rough numbers of each?

A3. In our organization, there are about 40 to 50 small to medium projects, 10 to 15 major projects and two (2) mega projects (NFD-x and NFD-y); sizes are classified as the following:

- Small projects are less than US\$ 5 million,
- Medium projects are above US\$ 5 million and less than US\$ 15 million,
- Major projects are above US\$ 15 million and less than US\$ 50 million, and

- Mega projects are above US\$ 50 million.

Q4. What is the average lifespan of these departments/teams? And how frequent does it change?

A4. As most of the organization projects were initiated to enhance, improve, and increase the oil production which directly affecting the national income, most of the project management departments/teams have a medium lifespan/cycle; it needs 4 to 5 years to change the hierarchical organization of the company, and to develop and deploy their roles, functions, and technical procedures that allow for achieving their targets.

In the beginning, when we as a production company decided to establish a team to manage our project, we established one team titles 'Project Support Team (PS)'. This team was responsible for managing and supporting all the organization projects. But in 3 to 4 years later, our business development plan included big number of projects which this team couldn't manage and support it all in the same time. The organization decided to create a new team for the project management and keep the PS team for only supporting the projects.

Some of these projects were medium to big size projects that required other new departments/teams to be established to manage it. This needed about 4 years to accomplish. When bigger projects were approved (known as mega projects), the organization decided to establish new teams (taskforces) to manage these mega project. These taskforces had a lifespan of 4 to 6 years depending on its project completion date which was decide by the organization.

In the current organization structure, which is almost 3 years old, the projects are managed by four (4) departments/teams (BF, PL&T, NFD-x, and NFD-y), and are supported by two departments/teams; EDD and PSD.

Q5. Are these departments/teams directly managing each project individually or are providing help, support, project management standards, and other services to these projects' managers?

A5. As mentioned four (4) departments/teams are directly involved in managing the projects while another two (2) departments/teams are supporting them.

Q6. Are any of these departments/teams in your organization called a “Project Management Office (PMO)”? Did your organization at any time have a temporary department/team (such as a taskforce ...etc.) that plays some (or all) of these PMO roles and functions? Please give examples of these teams and its roles and functions.

A6. No, none of the mentioned departments/teams, or others, called a PMO at any time, but some of them are acting as PMO to a high extent, they are managing, coordinating and supporting several projects, with the help of the EDD and PSD.

Q7. What challenges your organization faced to establish or manage these departments/teams?

A7. There are several challenges faced the organization in each changing phase to establish these departments/teams; the biggest one was the people resistance to the new structure changing as they tend to like the way they are working rather than changing it to new ways even if the organization ensured to them that these changes are for the overall organization benefit.

Another challenge is that most of the project managers are refusing the PSD monitoring and controlling roles, and asking for their support only. However, part of the PSD roles are to monitor the projects progress, report these projects progress to the SVP-P, and to take the necessary actions that help these projects to return to its planned course to achieve its objectives if necessary.

PMOs’ Current Status Questions’ Set:

Q8. What is your role in these departments/teams?

A8. I’m the program manager of the NFD-x; it’s a taskforce that consists of several project management teams, all are related and managed by one program management team that I’m the head of it.

Q9. What are the organizational structures and staff numbers of these departments /teams? How do these departments/teams members report to the organization management?

A9. The organizational structures of these departments/teams are a hierarchical organization; each staff member reports to his specialty leader (if any) or directly to the project manager, who reports to the department manager, who, in sequence, reports to the SVP-P. (Please refer to the attached simplified organization chart).

Q10. What is the total number of employees in your whole organization and in these departments/teams?

A10. The total number of our organization is around 4000 employees, about 1000 are in all the projects departments/teams at any time; most of them were recruited for a specific project duration and should be dismissed once finish the project, but by this time other project starts and we may keep the current team for it as they already aware of the organization's procedures, technical guidelines, historical data and issues.

PMOs' Roles and Functions Questions' Set:

Q11. Which department/team in your organisation is responsible for:

a. Practicing the projects management?

A11. BF, PL&T, NFD-x, and NFD-y.

b. Providing administrative support to the projects managers, projects teams and the organization upper management?

HR Department, Financial Department, Commercial Department, Legal Department, Contract Department, ...etc.

c. Monitoring and controlling projects?

PSD for all projects except Mega Projects (NFD-x and NFD-y) which are directly monitored and controlled by their program management teams.

d. Training and consulting of the projects managers and teams?

None; high qualified and well trained staff were recruited for each project. Also, High level of PMC and PMT were recruited to review and support these projects activities.

PMC: Project Management Consultant.

PMT: Project Management Technical Team.

- e. Evaluating, analyzing, choosing, and coordinating between the simultaneously running projects?

PSD are responsible for evaluating, analyzing, choosing, and coordinating between the simultaneously running projects based on the projects progress, requirements, its alignment to the business plan and its objectives, and the SVP-P recommendations.

PMOs' Contribution in the Organization Strategic Objectives Implementation

Questions' Set:

- Q12. Which department/team in your organisation is responsible for monitoring the implementation of the organization's strategic objectives through projects?

A12. Corporate Planning Department is responsible for developing the organization business plan, and for monitoring the implementation of the organization's strategic objectives through projects.

Each business unit, specially the projects and engineering business unit (P&E BU) which is headed by the SVP-P, is responsible of implementing its dedicated organization's strategic objectives.

- Q13. Were the organization's strategic objectives implemented/met through these departments/teams?

A13. Yes, to high extent most of the organization's strategic objectives were met through these departments/teams although there are many challenges due to the O&G business type as it's somehow related to the international and regional politics which periodically affecting and may sometimes change these objectives.

Q14. What are the operational challenges these departments/teams in you organization?

A14. Operation and Production divisions, as the client and end users of most of the projects, sometimes induce major changes in late project phases due to the lack of identifying their requirements in the begging of the project and hence no well-defined scope of work (SOW) of some of the projects, and due to the long lifetime of most of the projects in our business, and also due to the lack of a proper communication and coordination between the projects' teams themselves, and between the projects' teams and the operation and production teams. These changes lead most of the time to bad schedule and cost impact on the projects.

Q15. What is your Assessment of these departments/teams success?

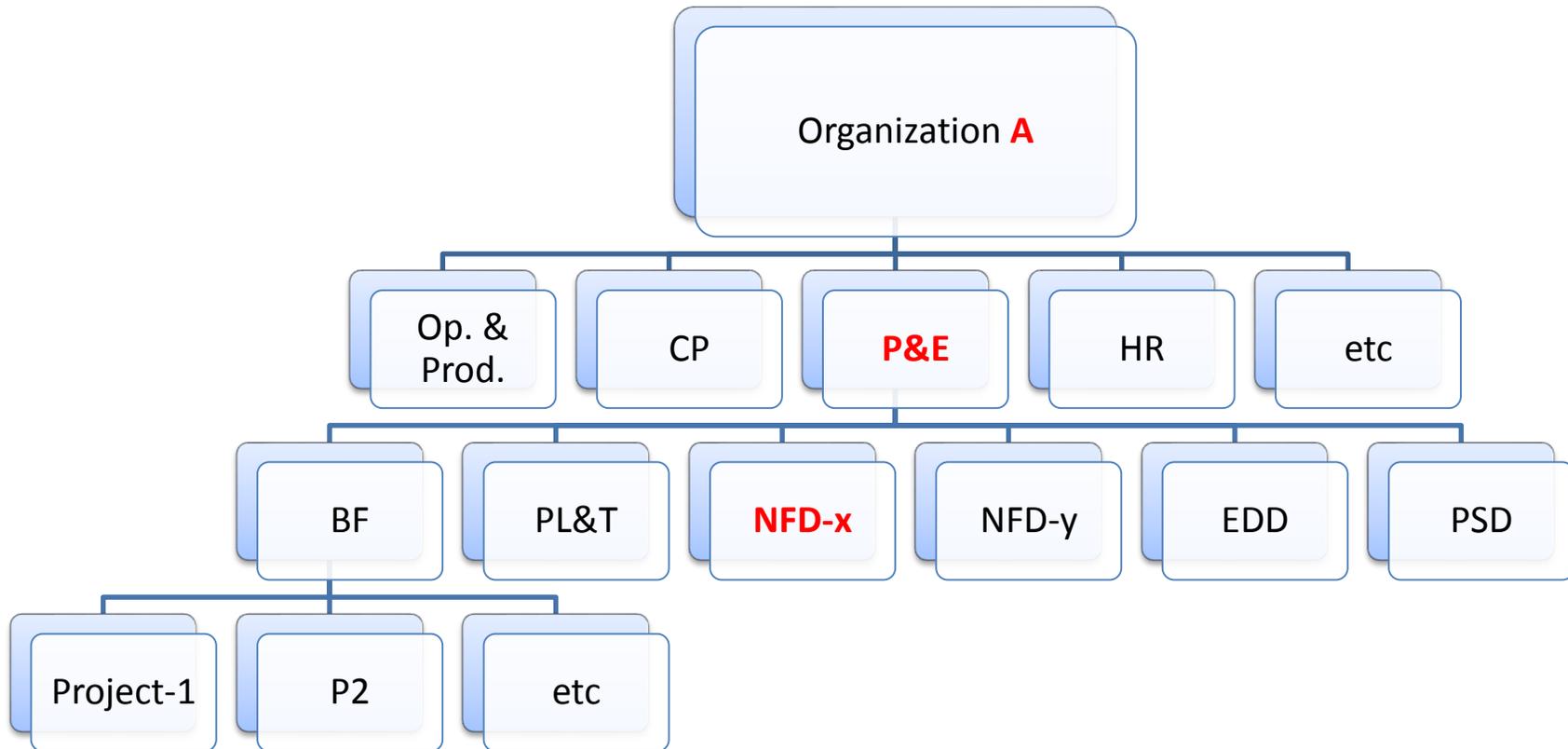
A15. I can comfortably say that these departments/teams can be considered as successful teams to high extent as they are doing their best to accomplish and achieve their projects' targets within a reasonable tolerance. They are improving their progress with time and enhancing their project management practices.

Q16. Based on your observation, in which level of the following is PMO maturity levels are these departments/teams:

- a. Level 1: Most PM Procedures are unplanned and / or unclear.
- b. Level 2: Most PM Procedures are clear, but not well followed or implemented.
- c. Level 3: Most PM Procedures are clear and continually followed or implemented.
- d. Level 4: Most PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.
- e. Level 5: Most PM Procedures are continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented.

A16. I may choose Level-4 as most the business processes in my organization are aligned and have performance measures. However, I'd like to highlight that most of the problems we faced are due to individuals' behavior and their way of implementing these procedures.

Simplified Organization Chart of Organization A



Appendix-B:
Pilot Interview - Z

Pilot Interview-Z

PMOs' Existence Questions' Set: (an organization chart may help in answering these questions)

Q1. What is the definition of the project management office (PMO) in your organization? In your opinion what should be its roles and functions in your organization?

A1. In our company there is no specific definition of the Project Management Office, only the understanding that our project managers, or any one related to projects, got from the PMBoK definition, and all of them got this understanding during studying the PMP courses only, although most of them did not have the PMP certificate exam.

But in one of our mega projects, the program: TF1, the program manager had established some sort of a project management team that supports his underneath projects' managers, but still not called a PMO. This team consists of the program manager, all his underneath projects' managers, and some technical support assistants who support them by developing the projects' forms, planning and scheduling, internal specifications and procedures, ...etc.

The project management team of Program TF1 has more flexibility in performing and developing these activities and support (than the other projects management teams in our company) as they are considered as a separate taskforce team who were recruited only for the program duration and will be all dismissed once achieve the program objectives, except some few members who were recruited from the company's engineering and project department (EP department) to support the program activities, they will return back to their original positions.

Q2. Would you please elaborate if there is any department/team (or many departments/teams) in your organization has/have a direct role in managing, controlling and coordinating single and/or multi-projects? If there are many departments/teams, please elaborate what are the main differences between them?

A2. In our organization, projects are sorted into four types; small, medium, major and mega. Most of the small, medium and major projects are initiated by the operation team's requirements, and most of the mega projects are initiated by the organization business plan. The projects' sizes are classified as the following:

- Small projects are less than US\$ 5 million,
- Medium projects are above US\$ 5 million and less than US\$ 15 million,
- Major projects are above US\$ 15 million and less than US\$ 50 million, and
- Mega projects are above US\$ 50 million.

As shown in the attached organization chart, under the CEO there are two departments who are directly involved in projects management, one is under the senior vice president for operation (SVP-O) which is Operation Support – Engineering Support department (OS-ES), and the other one is under the senior vice president for technical (SVP-T) which is the Engineering and Projects (EP).

The OS-ES is managed by the vice president – operation support, and the OS-ES manager. The OS-ES teams are managing all the small, medium and major projects' engineering after being initiated by the operation team's requirements. They develop the FEED (Front End Engineering Deliverables) scope of work based on the project concept and basic design that should be the output of the IDENTIFY, ASSESS and SELECT phases as elaborated in the attached organization Value Assurance Process matrix (VAP).

The Engineering and Projects department (EP) is managed by a vice president (VP-EP), and the EP Manager. The EP teams are directly involved in managing

different types of projects and programs. The VP-EP is managing the following teams:

- Engineering Team (EP-E): they are managing all the small, medium and major projects' engineering, just after the SELECT phase, by developing the FEED package to be executed by the EP-P team. Bearing in mind that concept and basic design should be finalized in the IDENTIFY, ASSESS and SELECT phases by the OS-ES teams as mentioned before.
- Projects' Execution Team (EP-P): who are managing the execution of all the small, medium and major projects up to the start-up and handing over to the operation teams.
- Engineering Services Team (EP-S): who are managing the organization database, projects archiving, drafting, drawings, and survey ...etc.
- Planning and Control Team (EP-PC): who are providing the planning, cost control and monitoring supports to all the organization projects.
- Mega Projects Tasks Forces (TF1, TF2, & TF3): these three task forces are separate and running three mega projects (it might be called programs) that have budgets more than US\$ 50 Million. As mentioned earlier, they are more flexible and have more freedom in recruiting and managing their own teams. Their organization, to high extent, can be considered as a PMO however they are not called PMOs yet.

Q3. How many projects are these departments/teams managing? Please specify sizes (small, medium, major and mega projects) and rough numbers of each?

A3. In our organization, there are more than 60 small to medium projects, about 20 major projects and three (3) mega projects (TF1, TF2, & TF3);

Q4. What is the average lifespan of these departments/teams? And how frequent does it change?

A4. Due to the frequent review and analysis of these department/teams' performance and their achievements of the organization's strategic objectives, most of these

departments/teams have a medium lifespan/cycle; as an average every 4 to 5 years a change to the hierarchical organization of the company may occur, and an enhancement in these departments/teams' roles, functions, and technical procedures may be introduced to allow for achieving the overall organization strategic objectives. Only the three mega projects were developed for defined durations (3- to 5 years) that required accomplishing their targets and then all the task forces dismantled and released.

Q5. Are these departments/teams directly managing each project individually or are providing help, support, project management standards, and other services to these projects' managers?

A5. As mentioned two departments/teams are directly involved in managing the projects, one is managing the execution of these projects, and two are supporting them. Plus the three task forces of the mega projects are independently managing their teams.

Q6. Are any of these departments/teams in your organization called a "Project Management Office (PMO)"? Did your organization at any time have a temporary department/team (such as a taskforce ...etc.) that plays some (or all) of these PMO roles and functions? Please give examples of these teams and its roles and functions.

A6. No, none of them is called a PMO now or at any time, but the three task forces of the mega projects are acting, to high extent, as PMOs, they are managing, coordinating and supporting several projects within the program, with the help of the EP-S and EP-PC.

Q7. What challenges your organization faced to establish or manage these departments/teams?

A7. The major challenge the organization is facing now is that most of the projects (small, medium and major) are initiated and managed to the basic design phase by

department teams (in the OS-ES) those are totally different than the detailed design and execution department teams (in EP). Once the EP teams start managing these projects, they face problems with the operation teams, who are the initiators of most of the projects and in the same time the end users or customers, as most of the projects' targets may be different than their requirements. A long and intensive meetings and discussions may be required to smooth these conflicts and proceed in the projects otherwise some projects may be suspended or even canceled due to this conflict. The organization is currently in the process of developing a new organization hierarchy that will allow for managing the projects from the begging to the end by one department to avoid such conflicts and satisfy the projects' customers (the operation teams) that leads to achieving the overall organization objectives.

Based on this new organization hierarchy, it is expected that all the other challenges of managing, monitoring and controlling the projects' teams will be solved.

PMOs' Current Status Questions' Set:

Q8. What is your role in these departments/teams?

A8. I'm the EP-P manager; I'm managing all the project execution managers on all the business units and fields. My department receives the projects execution packages for the implementation and construction. We select, follow up, support, monitor, and manage all the projects' contractors, then hand over the project's production/results, either new or modified facilities, to the end users or the customers who are in most of the cases the operation teams.

Q9. What are the organizational structures and staff numbers of these departments /teams? How do these departments/teams members report to the organization management?

A9. As elaborated in the attached simplified organization chart:

- In the EP-E and EP-P, all the projects' team members are reporting to the project managers who are reporting to the EP-E and EP-P managers.
- All the project and control teams' members are reporting to direct team leaders who are reporting the EP-PC manager.
- All the taskforce teams' members are reporting to their project managers, then to the taskforce managers.
- The EP-E manager, EP-P manager, EP-PC manager, and the three taskforce managers are reporting to the VP-EP, who in sequence reports to SVP-T who is directly reporting to the CEO.
- The OS-ES teams members are reporting to their job officers (equal to project manager), who is reporting to the OS-ES manager then to the VP-OS, SVP-O and then CEO.

Q10. What is the total number of employees in your whole organization and in these departments/teams?

A10. The total number of our organization is around 5000 employees in all fields and areas, out of them about 1500 are in all the projects departments/teams at any time; most of them were recruited for a specific project duration and should be dismissed once finish the project, but by this time other project starts and we may keep the current team for it as they already aware of the organization's procedures, technical guidelines, historical data and issues.

PMOs' Roles and Functions Questions' Set:

Q11. Which department/team in your organisation is responsible for:

- a. Practicing the projects management?
- A11. OS-ES, EP-E, EP-P, TF1, TF2, and TF3.
- b. Providing administrative support to the projects managers, projects teams and the organization upper management?
HR Department, Financial Department, Commercial Department, Legal Department, Contract Department ...etc.

c. Monitoring and controlling projects?

EP-PC for all projects except Mega Projects (TF1, TF2, and TF3) which are directly monitored and controlled by their own program management teams.

d. Training and consulting of the projects managers and teams?

For the OS-ES, EP-E, and EP-P the training department may conduct some project management courses; such as PMP, Project Risk Management, ... etc. while for the three taskforces the organization recruited high qualified and well trained staff for each team for better performance in short duration.

Also, High level of PMC and PMT were recruited to review and support these projects activities.

PMC: Project Management Consultant.

PMT: Project Management Technical Team.

e. Evaluating, analyzing, choosing, and coordinating between the simultaneously running projects?

EP-PC are responsible for evaluating, analyzing, choosing, and coordinating between the simultaneously running projects based on the projects progress, requirements, its alignment to the business plan and its objectives, and the VP-P and SVP-T recommendations.

PMOs' Contribution in the Organization Strategic Objectives Implementation

Questions' Set:

Q12. Which department/team in your organisation is responsible for monitoring the implementation of the organization's strategic objectives through projects?

A12. Corporate Planning Department is responsible for developing the organization business plan, and for monitoring the implementation of the organization's strategic objectives through projects. Each business unit, specially the projects and engineering departments (OS-ES and EP), is responsible of implementing its dedicated organization's strategic objectives.

Q13. Were the organization's strategic objectives implemented / met through these departments/teams?

A13. Yes, to high extent most of the organization's strategic objectives were met through these departments/teams, however some challenges such as the conflicts between the end users and the execution teams may suspend, or in some cases cancel, some projects. But it is expected to be overcome by applying the new empowered organization hierarchy as mentioned earlier.

Q14. What are the operational challenges these departments/teams in you organization?

A14. As mentioned, as the operation teams are considered the customer or the end users of most of the projects, conflicts between their requirements and the project execution teams may occur. When the organization investigated these conflicts, it was discovered that most of it are due the gap between the project initiation based on the operation requirements and the project execution that is depending on a different scope of work in the FEED. This difference in the scope of work came from that OS-ES teams start the projects, another teams (EP-E) develop its detailed design, while different teams (EP-P) perform and follow up the projects execution.

Q15. What is your Assessment of these departments/teams success?

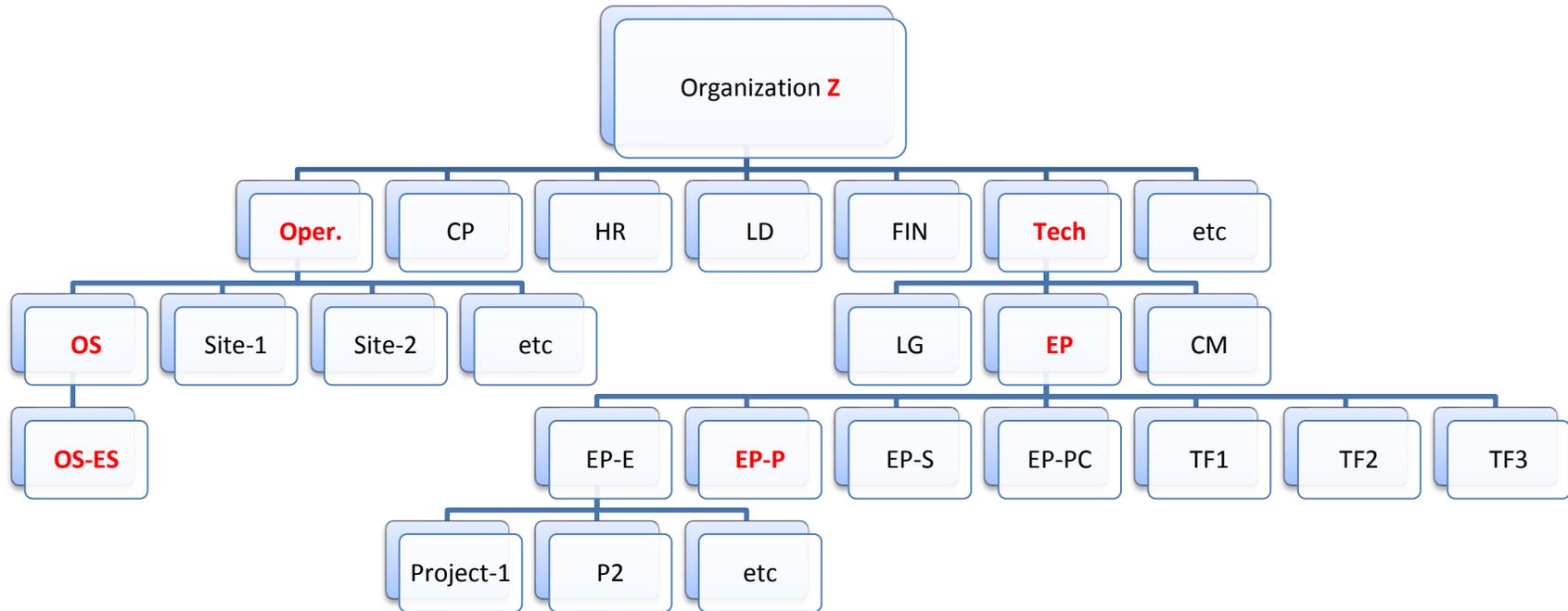
A15. In general, the overall performance of these departments/teams was satisfactory, however, based on the new organization hierarchy, and to avoid the few conflicts that mentioned before, it is expected that a noticeable enhancement in the projects departments/teams performance will occur and be sensed through all the measures of the organization.

Q16. Based on your observation, in which level of the following is PMO maturity levels are these departments/teams:

- a. Level 1: Most PM Procedures are unplanned and / or unclear.
- b. Level 2: Most PM Procedures are clear, but not well followed or implemented.
- c. Level 3: Most PM Procedures are clear and continually followed or implemented.
- d. Level 4: Most PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.
- e. Level 5: Most PM Procedures are continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented.

A16. I may choose Level-3 as most the business processes in my organization are well defined, repeatable and followed. However, in the new organization hierarchy, it is expected to be Level-4 or even Level-5 after smoothing all the problems.

Simplified Organization Chart of Organization Z



Types of PMO and their roles in the UAE Oil & Gas Production Companies

Value Assurance Process (VAP) - Stage Activities Framework							
	IDENTIFY *	ASSESS *	SELECT	DEFINE	EXECUTE	OPERATE	
Objective of the Stage	Identify Concepts to Meet Company Requirements	Study and Screen Concepts to produce a Short-List of Options	Evaluate Options and select the Proposed Option for JVPs approval	Finalise Scope, Technology, Cost, Schedule and Risks to Enable Full Budget Sanction	Produce an Operating Asset Consistent with Scope, Cost and Schedule	Operate Asset to Ensure Specified Performance and Delivery of Forecast Returns	
Inputs	<ul style="list-style-type: none"> Corporate Long Term Outlook <ul style="list-style-type: none"> Long Term Field Development Plan Long Term Facility Replacement Plan Corporate Prioritized Business Issues Field/Facility, Integrity, HSE studies and Requirements from Sites (RFC) 	See Output to Next Stage of "IDENTIFY"	See Output to Next Stage of "ASSESS"	See Output to Next Stage of "SELECT"	See Output to Next Stage of "DEFINE"	See Output to Next Stage of "EXECUTE"	
Stage Output	<i>Concepts</i>	<i>Options</i>	<i>Proposed Option for FEED</i>	<i>Proposed Project</i>	<i>Operating Asset</i>	<i>Value Delivery</i>	
Activities	Technical Studies	<ul style="list-style-type: none"> Consequence Analysis for "do nothing" Concept generation for "do something" <ul style="list-style-type: none"> Oil production profiles Corresponding gas and water profiles (grading) Need for new wells/WHTs/facilities/processes Lead times for Concepts generated 	<ul style="list-style-type: none"> Optimisation studies of existing facilities Technical Review of Feasible Concepts: <ul style="list-style-type: none"> Process engineering Facility sizing Utilities requirements Min/Max/Most Likely Scenario New technology opportunities/Bench Marking Estimates of: <ul style="list-style-type: none"> Flaring, Emissions and HC Discharges 	<ul style="list-style-type: none"> Technical Studies on "short list": <ul style="list-style-type: none"> Fluid Flow/thermodynamics Facility configurations Operability 	FEED		
	HSE Studies	<ul style="list-style-type: none"> Initial assessment of: <ul style="list-style-type: none"> Safety Flaring, Emissions and Discharges 	<ul style="list-style-type: none"> Preliminary HSE analysis and HSEIA 	<ul style="list-style-type: none"> HAZOP (design) PSHER 1 QRA Final HSEIA 	<ul style="list-style-type: none"> PSHER 2.4 HAZOP (packages) 		
	Commercial		<ul style="list-style-type: none"> Commercial strategy definition 	<ul style="list-style-type: none"> Contracting Strategy & Execution Plan Procurement of Long Lead Items Prepare EPC/PCM scope Pre-qualify bidders Final HSEIA 	Detailed Contracting Strategy	<ul style="list-style-type: none"> Defect and Warranty reporting Final Inspection 	
	Risk & Uncertainty Analysis	<ul style="list-style-type: none"> List of uncertainties & knowledge gaps 	<ul style="list-style-type: none"> Preliminary Risk Assessment Analyze uncertainties 	<ul style="list-style-type: none"> Qualitative comparative risk analysis of Short list 	<ul style="list-style-type: none"> Risk Review and Action Plan 	Manage Risk Register	
	Project Schedule and Cost	<ul style="list-style-type: none"> Order of Magnitude, parametric estimate 	<ul style="list-style-type: none"> Preliminary cost estimate 	<ul style="list-style-type: none"> Lifetime cost study 	<ul style="list-style-type: none"> Construction estimate Project Master Schedule 		
	Cost Accuracy	- 50 to +100%	±50%	±30%	±20%	±10% decreasing to Zero	
	Business Case	<ul style="list-style-type: none"> Preliminary studies to determine feasibility Contribution of New Technologies Expected timing until commissioning Expected life of the new facility 	<ul style="list-style-type: none"> Techno-economic screening study based on: <ul style="list-style-type: none"> performance costs economic indicators risk HSE comparison 	<ul style="list-style-type: none"> Option Selection Study/Full Business Case: <ul style="list-style-type: none"> Demonstrate investment need ("source of value") Techno-economic review of short list: <ul style="list-style-type: none"> Comparative performance Comparative costs Economic Indicators Operability Risk & HSE comparison Recommended Proposed option 	<ul style="list-style-type: none"> Final Business case <ul style="list-style-type: none"> Confirm source of value Update Economic Indicators 		
	Engineering Design		<ul style="list-style-type: none"> Preliminary facilities outline 	<ul style="list-style-type: none"> Scope of Work Outline for Proposed Option Statement of Requirements Conceptual Definition Report Level One Master Schedule FEED cost estimate 	<ul style="list-style-type: none"> Value Engineering & Optimization Constructability Review Basic Engineering Material Requirements Operability Review 	<ul style="list-style-type: none"> Develop packages SOW and tender/requestion Variation Control procedure-commercial & engineering Detailed Engineering Commissioning Procedure Reports and Reviews with Management 	
	Operations	<ul style="list-style-type: none"> Preliminary impact assessment 	<ul style="list-style-type: none"> Impact assessment on existing facilities Sites identify operability issues 	<ul style="list-style-type: none"> Sites review Options Short-list 	<ul style="list-style-type: none"> Operations/Maintenance Plan (agreed with Site) 	<ul style="list-style-type: none"> Commissioning Plan Operators training programme Operating procedures + service agreements 	<ul style="list-style-type: none"> Performance Testing Commissioning & Integration as per Execution Plan
	Peer Review	<ul style="list-style-type: none"> Initial hearing from other OPCOs Best Practice in other parts of the world 	<ul style="list-style-type: none"> Peer review of option generation and screening 	<ul style="list-style-type: none"> Peer Review selection decision Peer Review concept design 	<ul style="list-style-type: none"> Peer Review Project SOW, Costs and Schedule. 		
JVPs Interaction	<i>Inform JVPs of the status of the Project (which stage) via Surface Facilities Workshop and TCM & obtain approvals as per ITT process as required</i>						
Approvals	JVP Approval of the proposed Option for FEED			JVP Approval of the proposed Project & Execution Strategy			
Output to Next Stage	<ul style="list-style-type: none"> List of Feasible Technical Concepts <ul style="list-style-type: none"> Production Profiles, & Technical data High Level Plan with Time frame of entire "project" Order Of Magnitude costs Uncertainties and Assurance programme Required studies Budget for required studies in Assess stage, if any 	<ul style="list-style-type: none"> Short list of Options Preliminary Facilities Requirements Preliminary Risk/Uncertainty Assessment Listing of Operability Issues Budget for required studies in Select stage Updated High Level Plan, inc. Execution Concept 	<ul style="list-style-type: none"> Approved Project Outline: SOW, schedule, costs <ul style="list-style-type: none"> Conceptual definition Approved FEED SOW, schedule, budget Updated High Level Plan inc. Execution Concept 	<ul style="list-style-type: none"> Approved SOW, schedule and budget <ul style="list-style-type: none"> Approved FEED report Proposed Project Execution Strategy <ul style="list-style-type: none"> EPC/PCM bidders short-list HSE Action Plan Risk Response Action List Agreement with sites on <ul style="list-style-type: none"> maintenance, inspection, spare parts, storage technical support, training 	<ul style="list-style-type: none"> Detailed Engineering Dossier <ul style="list-style-type: none"> Change control forms QA/QC dossier (inc. Factory/Process Acceptance Cert.) Mechanical completion and RFC Certificates Punch-list Completion Plan Red-lined or As-built documents Operating Manuals/ Vendor Manuals First Post-project appraisal (lessons learned) Certification Manuals 	<ul style="list-style-type: none"> Final Acceptance Certificates <ul style="list-style-type: none"> Value Assurance Report (final post-project appraisal) 	

* IDENTIFY and ASSESS stages can be combined as judged appropriate by SPA and GK when IDENTIFY is considered as only the kick-off part of ASSESS stage.

Appendix-C:

Interview – A1

Interview-A1

PMOs' Existence Questions' Set: (an organization chart may help in answering these questions)

Q1. What is the definition of the project management office (PMO) in your organization? In your opinion what should be its roles and functions in your organization?

A1. We are applying the concept of the PMO by forming departments and teams that directly manage and / or support projects in our organization, and we are trying to apply in these teams what we know about the PMO from the PMBoK, but still we do not have a specific definition in our organization for the PMO and also we do not have a team called a PMO or doing all its roles which are mentioned in the PMBoK, only separate teams doing some of these roles and may support each other from time to time.

However, these PMO roles and functions are strongly applied in our mega projects' taskforces. The reason of that is these taskforces are independent from the company roles and organization which are applied on all the operation and production companies in form very near to the functional organization or weak matrix, and these taskforces are mainly strong matrix or projectized organization formed to achieve specific strategic objectives and targets.

Q2. Would you please elaborate if there is any department/team (or many departments/teams) in your organization has/have a direct role in managing, controlling and coordinating single and/or multi-projects? If there are many departments/teams, please elaborate what are the main differences between them?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization hence the company organization hierarchy is the same, so the researcher preferred to use the same phrasings.

A2. As elaborated in the simplified organization chart of our company (attached) under the CEO there is a senior vice president for projects (SVP-P) who is managing the Project Business Unit (BU-P), in this BU-P there are four (4) departments/teams who are directly involving in managing different types of projects depending on their sizes, and two (2) other departments/teams who are supporting these project management departments/teams. These departments are as the following:

- Brown Field Projects Department (BF): who are managing all the existing facilities modification projects, most of their projects are small to medium size projects.
- Pipelines and Towers Projects Department (PL&T): who are managing all the pipelines and towers projects, most of their project are major projects size.
- New Field Development Division (NFD-x and NFD-y): these divisions are taskforce teams who are managing two separate mega projects in two separate new production fields (x and y). They concern only on the green field work (new facilities engineering and construction) in their specific field and coordinate with the brown field teams who are modifying the existing facilities to accommodate the new production increment.
- Engineering Disciplines Department (EDD): this department is supporting all the above mentioned project management departments by providing the technical teams' members, in an away-team basis, who specify, review and approve all the projects technical requirements and documents during the project lifetime and return back to their discipline when the project completed. Also, they are sharing with extra high experienced members in the different projects workshops; i.e. Design Review, HAZOP, Risk Assessment ...etc.
- Project Support Department (PSD): this team is supporting all the projects by providing the projects templates, forms, standards, and recommended practices based on the organization lesson learned. They also are responsible of reporting the progress of all projects to the SVP-P.

Q3. How many projects are in your organization? Please specify its types, sizes (small, medium, major and mega projects) and rough numbers of each?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

A3. In our organization, there are about 40 to 50 small to medium projects, 10 to 15 major projects and two (2) mega projects (NFD-x and NFD-y); sizes are classified as the following:

- Small projects are less than US\$ 5 million,
- Medium projects are above US\$ 5 million and less than US\$ 15 million,
- Major projects are above US\$ 15 million and less than US\$ 50 million, and
- Mega projects are above US\$ 50 million.

Q4. What is the average lifespan of these departments/teams? And how frequent does it change?

A4. The average lifespan of these teams depends on its projects sizes. For the taskforces, it is around 5 to 7 years hence it is managing mega projects which contain many projects that running in parallel and in series, and then the taskforce may be dismantled when achieve its targets and another taskforce may be formed for another mega project.

But for the small, medium and even single major projects' teams, it might be only 3 to 5 years, but these teams may continue because of they may be involved in other project that are still running.

Q5. Are these departments/teams directly managing each project individually or are providing help, support, project management standards, and other services to these projects' managers?

A5. Yes, we have 4 departments are directly managing projects individually but using the same resources; by using same human resources (engineers, managers, assistances, ...etc), offices, PCs and software for more than a project which are totally independent. These departments / teams are BF and PL&T.

And we have also two taskforces, NFD-x and NFD-y, who are managing two independent mega projects using two separate taskforce management teams with some sub-teams for the underneath related projects. Each taskforce management team is using their resources for their underneath projects in shared basis.

Also, we have two dedicated teams (EDD and PSD) for supporting all these teams and taskforces by providing the services and supports which were mentioned in the previous question (Q2).

Q6. Are any of these departments/teams in your organization called a “Project Management Office (PMO)”? Did your organization at any time have a temporary department/team (such as a taskforce ...etc.) that plays some (or all) of these PMO roles and functions? Please give examples of these teams and its roles and functions.

A6. No, as mentioned before, we are applying the concept and most of roles and functions of the PMO on our projects’ teams as stated in the PMBoK, but without giving the name Project Management Office (PMO) on any of these teams.

Not now and never had a team called PMO, but performing almost the same.

Q7. What challenges your organization faced to establish or manage these departments/teams?

A7. We faced two major challenges in forming these teams: the first one is the resistance to change; people in the permanent project teams or departments tended to not to cooperate with the new task forces’ teams due to the idea of these new teams may take over their roles in the company. But we managed to introduce the new teams as partners in the process of achieving the company targets and not competitors or replacement to the existing teams.

While, the second one is that most of the projects’ teams were looking to the supporting teams (such as the planning and control teams in the PSD) as a monitoring authority that can punish them in case of delay or over budget, and we succeeded to explain to all parties that these supporting teams are for supporting

and monitoring to enhance the project management processes and not to punish anyone, it took a little bit long time to smooth the relationship and solve this challenge but at the end full cooperation was achieved.

PMOs' Current Status Questions' Set:

- Q8. What is your role in these departments/teams?
- A8. I'm a project manager in the BF projects departments; I'm managing more than small to medium projects, and assist in managing some major project and in the recruiting of mega project management and supporting teams.
- Q9. What are the organizational structures and staff numbers of these departments /teams? How do these departments/teams members report to the organization management?
- A9. It is a hierarchical organization structure, all team members report to their direct manager, who reports to the department manager, who, in sequence, reports to the SVP-P. (Please refer to the attached simplified organization chart).
- Q10. What is the total number of employees in your whole organization and in these departments/teams?
- A10. The total number of company manpower is about 3500 to 4000 employees. Almost 1000 employees are in projects, either in the permanent projects departments or in the temporary task forces.

PMOs' Roles and Functions Questions' Set:

- Q11. Which department/team in your organisation is responsible for:
- a. Practicing the projects management?
- A11. BF, PL&T, NFD-x, and NFD-y.
- b. Providing administrative support to the projects managers, projects teams and the organization upper management?

HR Department, Financial Department, Commercial Department, Legal Department, Contract Department, ...etc.

c. Monitoring and controlling projects?

PSD for all projects except Mega Projects (NFD-x and NFD-y) which are directly monitored and controlled by their program management teams.

d. Training and consulting of the projects managers and teams?

Generally, the training is the responsibility of the company Training Department who arrange for all the employees training, and sometimes we ask for specific training for projects' teams based on each project budget and size.

e. Evaluating, analyzing, choosing, and coordinating between the simultaneously running projects?

PSD are responsible for evaluating, analyzing, choosing, and coordinating between the simultaneously running projects based on the projects progress, requirements, its alignment to the business plan and its objectives, and the SVP-P recommendations.

PMOs' Contribution in the Organization Strategic Objectives Implementation

Questions' Set:

Q12. Which department/team in your organisation is responsible for monitoring the implementation of the organization's strategic objectives through projects?

A12. Corporate Planning Department is responsible for developing the organization business plan, and for monitoring the implementation of the organization's strategic objectives through projects.

Each business unit, specially the projects and engineering business unit (P&E BU) which is headed by the SVP-P, is responsible of implementing its dedicated organization's strategic objectives.

Q13. Were the organization's strategic objectives implemented/met through these departments/teams?

A13. Yes, most of it were met through these departments/teams. The reason of this is that all these teams and departments were originally formed to achieve well defined objectives, and accordingly all the required resources to do that were employed to them.

Q14. What are the operational challenges these departments/teams in you organization?

A14. Frequent changes in our clients' requirements (operation and production teams) are considered as the main operational challenges for the projects' teams, and that leads to some project management difficulties such as resources allocation and tasks or projects prioritization those depend on the client (operation and production) requirements and their targets.

Q15. What is your Assessment of these departments/teams success?

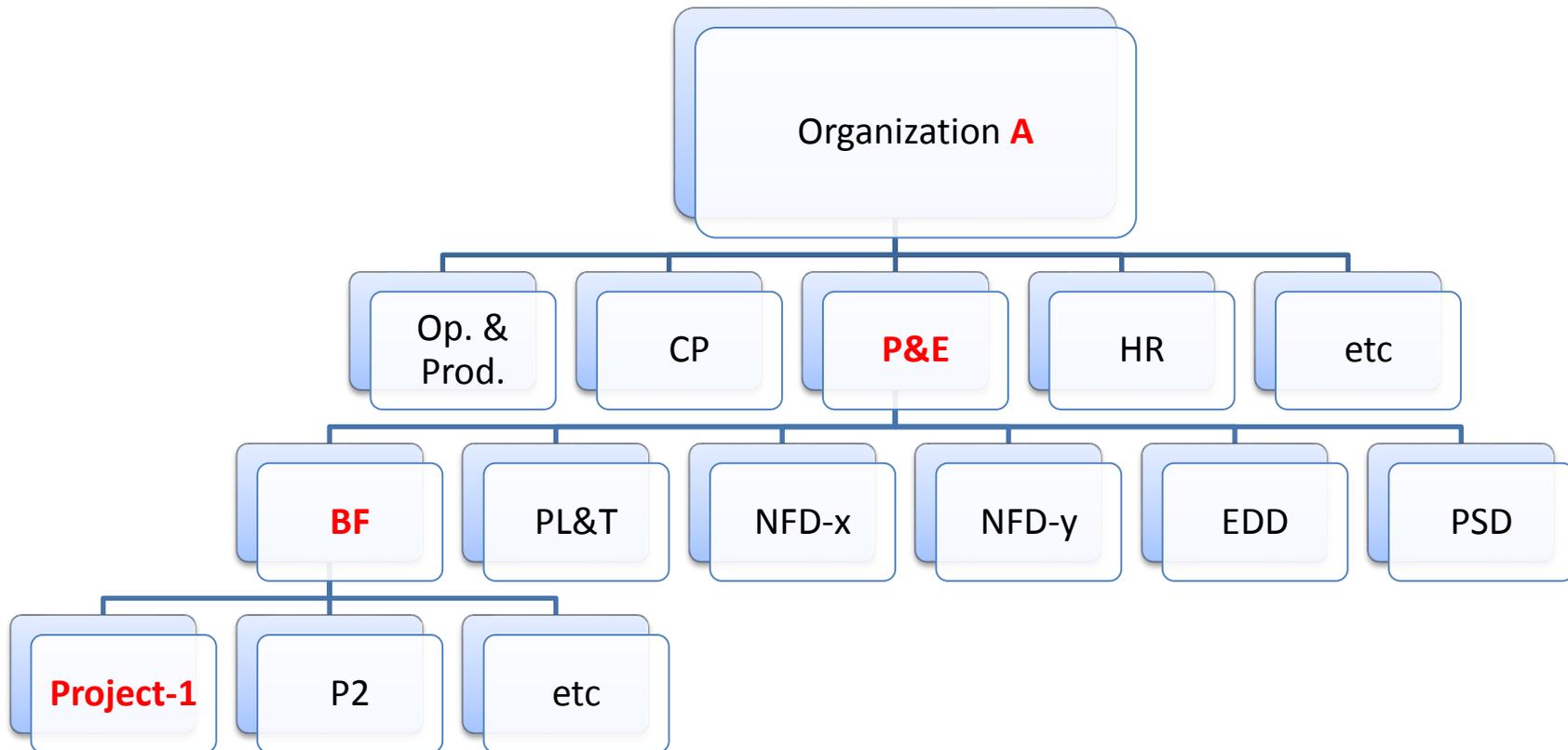
A15. I believe most of them, let me say more than 95% of these teams, succeeded in achieving their projects' targets and accomplished a high project performance and progress. I may claim that the projects management teams are in good professional shape and keen to enhance their performance.

Q16. Based on your observation, in which level of the following is PMO maturity levels are these departments/teams:

- a. Level 1: Most PM Procedures are unplanned and / or unclear.
- b. Level 2: Most PM Procedures are clear, but not well followed or implemented.
- c. Level 3: Most PM Procedures are clear and continually followed or implemented.
- d. Level 4: Most PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.
- e. Level 5: Most PM Procedures are continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented.

A16. I may choose Level-4 as most the business processes in my organization are aligned and have performance measures. However, I believe we are in our way to achieve level-5 as we are improving our projects' management processes and soon will develop an up-to-date projects' management system that will enhance the performance and increase the outputs.

Simplified Organization Chart of Organization A



Appendix-C:

Interview – A2

Interview-A2

PMOs' Existence Questions' Set: (an organization chart may help in answering these questions)

Q1. What is the definition of the project management office (PMO) in your organization? In your opinion what should be its roles and functions in your organization?

A1. There is no definition for the project management office (PMO) in our company, and I believe that PMO's roles and functions are performed in our projects' teams except some supporting services such as training and recruiting which are the responsibility of other departments in the organization (i.e. training and HR departments).

But, is there in your company a team that is doing most or all of these roles individually?

Yes, I believe mega projects' task forces may be considered as PMOs hence they are doing almost all the mentioned⁽¹⁾ roles and functions.

Note-1: the participant is referring the roles and functions table that the researcher used to show the most common roles and functions of PMOs word wide (Table 3: Project Management Office Tasks).

Q2. Would you please elaborate if there is any department/team (or many departments/teams) in your organization has/have a direct role in managing, controlling and coordinating single and/or multi-projects? If there are many departments/teams, please elaborate what are the main differences between them?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization hence the company organization hierarchy is the same, so the researcher preferred to use the same phrasings.

A2. As elaborated in the simplified organization chart of our company (attached) under the CEO there is a senior vice president for projects (SVP-P) who is managing the Project Business Unit (BU-P), in this BU-P there are four (4) departments/teams who are directly involving in managing different types of projects depending on their sizes, and two (2) other departments/teams who are

supporting these project management departments/teams. These departments are as the following:

- Brown Field Projects Department (BF): who are managing all the existing facilities modification projects, most of their projects are small to medium size projects.
- Pipelines and Towers Projects Department (PL&T): who are managing all the pipelines and towers projects, most of their project are major projects size.
- New Field Development Division (NFD-x and NFD-y): these divisions are taskforce teams who are managing two separate mega projects in two separate new production fields (x and y). They concern only on the green field work (new facilities engineering and construction) in their specific field and coordinate with the brown field teams who are modifying the existing facilities to accommodate the new production increment.
- Engineering Disciplines Department (EDD): this department is supporting all the above mentioned project management departments by providing the technical teams' members, in an away-team basis, who specify, review and approve all the projects technical requirements and documents during the project lifetime and return back to their discipline when the project completed. Also, they are sharing with extra high experienced members in the different projects workshops; i.e. Design Review, HAZOP, Risk Assessment ...etc.
- Project Support Department (PSD): this team is supporting all the projects by providing the projects templates, forms, standards, and recommended practices based on the organization lesson learned. They also are responsible of reporting the progress of all projects to the SVP-P.

Q3. How many projects are in your organization? Please specify its types, sizes (small, medium, major and mega projects) and rough numbers of each?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

- A3. In our organization, there are about 40 to 50 small to medium projects, 10 to 15 major projects and two (2) mega projects (NFD-x and NFD-y); sizes are classified as the following:
- Small projects are less than US\$ 5 million,
 - Medium projects are above US\$ 5 million and less than US\$ 15 million,
 - Major projects are above US\$ 15 million and less than US\$ 50 million, and
 - Mega projects are above US\$ 50 million.
- Q4. What is the average lifespan of these departments/teams? And how frequent does it change?
- A4. The average lifespan of these departments or teams is about 5 to 6 years for mega projects and 2 to 5 years for smaller projects such as major, medium and small projects. these teams or departments may totally changes when complete it defined duration and achieving their targets like in mega projects' task forces who totally changed every 5 to 6 years, or may continue in other projects like major, medium and small projects' teams and change the team construction and tasks according to their projects targets every 2 to 5 years as mentioned.
- Q5. Are these departments/teams directly managing each project individually or are providing help, support, project management standards, and other services to these projects' managers?
- A5. There is 4 departments who are directly managing projects individually. They are using the same resources such as human resources, offices, PCs and software for more than a project which are totally independent. These departments / teams are BF and PL&T. And there is 2 taskforces, NFD-x and NFD-y, who are managing two independent mega projects using two separate taskforce management teams with some sub-teams for the underneath related projects. Each taskforce management team is using their resources for their underneath projects in shared basis. Supporting all these teams and taskforces by providing the services and

supports which were mentioned in the previous question (Q2) is the responsibility of another two dedicated teams EDD and PSD.

Q6. Are any of these departments/teams in your organization called a “Project Management Office (PMO)”? Did your organization at any time have a temporary department/team (such as a taskforce ...etc.) that plays some (or all) of these PMO roles and functions? Please give examples of these teams and its roles and functions.

A6. No, none of them called before or now a PMO. But as mentioned they are doing most or all of the PMO’s roles and functions.

Q7. What challenges your organization faced to establish or manage these departments/teams?

A7. Establishing the new team and defining its roles and responsibility is considered as the main challenge hence most of the team members may not prefer to be involved in new teams with new responsibilities, and in the same time other teams may try to load some of the most challenging tasks to the new team. This situation requires complicated processes of recruiting the new team staff and defining their responsibilities without affecting other teams targets.

Other challenge is refusing the role of monitoring the performance by the planning and control team. Most of the projects’ teams consider these role as a restriction and not as a support to enhance this performance in case on needing support of the top management.

PMOs’ Current Status Questions’ Set:

Q8. What is your role in these departments/teams?

A8. I’m the head of the pipelines and towers projects’ department (PL&T). We are managing independent medium to major projects but using same resources as mentioned before. Our projects are varied from greenfield projects (new facilities) or brownfield projects (modifying the existing facilities).

Q9. What are the organizational structures and staff numbers of these departments /teams? How do these departments/teams members report to the organization management?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

A9. It is a hierarchical organization structure, all team members report to their direct manager, who reports to the department manager, who, in sequence, reports to the SVP-P. (Please refer to the attached simplified organization chart).

Q10. What is the total number of employees in your whole organization and in these departments/teams?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

A10. The total number of company manpower is about 3500 to 4000 employees. Almost 1000 employees are in projects, either in the permanent projects departments or in the temporary task forces.

PMOs' Roles and Functions Questions' Set:

Q11. Which department/team in your organisation is responsible for:

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

a. Practicing the projects management?

A11. BF, PL&T, NFD-x, and NFD-y.

b. Providing administrative support to the projects managers, projects teams and the organization upper management?

HR Department, Financial Department, Commercial Department, Legal Department, Contract Department, ...etc.

c. Monitoring and controlling projects?

PSD for all projects except Mega Projects (NFD-x and NFD-y) which are directly monitored and controlled by their program management teams.

- d. Training and consulting of the projects managers and teams?

Generally, the training is the responsibility of the company Training Department who arrange for all the employees training, and sometimes we ask for specific training for projects' teams based on each project budget and size.

- e. Evaluating, analyzing, choosing, and coordinating between the simultaneously running projects?

PSD are responsible for evaluating, analyzing, choosing, and coordinating between the simultaneously running projects based on the projects progress, requirements, its alignment to the business plan and its objectives, and the SVP-P recommendations.

PMOs' Contribution in the Organization Strategic Objectives Implementation Questions' Set:

- Q12. Which department/team in your organisation is responsible for monitoring the implementation of the organization's strategic objectives through projects?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

- A12. Corporate Planning Department is responsible for developing the organization business plan, and for monitoring the implementation of the organization's strategic objectives through projects.

Each business unit, specially the projects and engineering business unit (P&E BU) which is headed by the SVP-P, is responsible of implementing its dedicated organization's strategic objectives.

- Q13. Were the organization's strategic objectives implemented/met through these departments/teams?

- A13. I believe yes, most, if not all, of our company strategic objectives were met through these teams and departments. In fact, a new or existing project team is assigned to achieve any new objective either be defined by the operation and

production or by the strategic plan that is approved by our mother company and shareholders.

Q14. What are the operational challenges these departments/teams in you organization?

A14. Time and scope changing are the biggest challenges these projects' teams are facing. Due to the nature of the oil and gas field and the magnitude of the business work, most of our projects are worldwide resources dependent; most of the specialties and material used in these projects are from different sources in different countries. That makes the project duration prediction is hard and may lead in most of the projects to delays. Also, long duration projects may face in most of cases a change in the scope due to the change in market demands or technology.

Based on these challenges, projects' teams should be formed and start working in fast time, trying to avoid these changes within the available and nearby markets resources.

Q15. What is your Assessment of these departments/teams success?

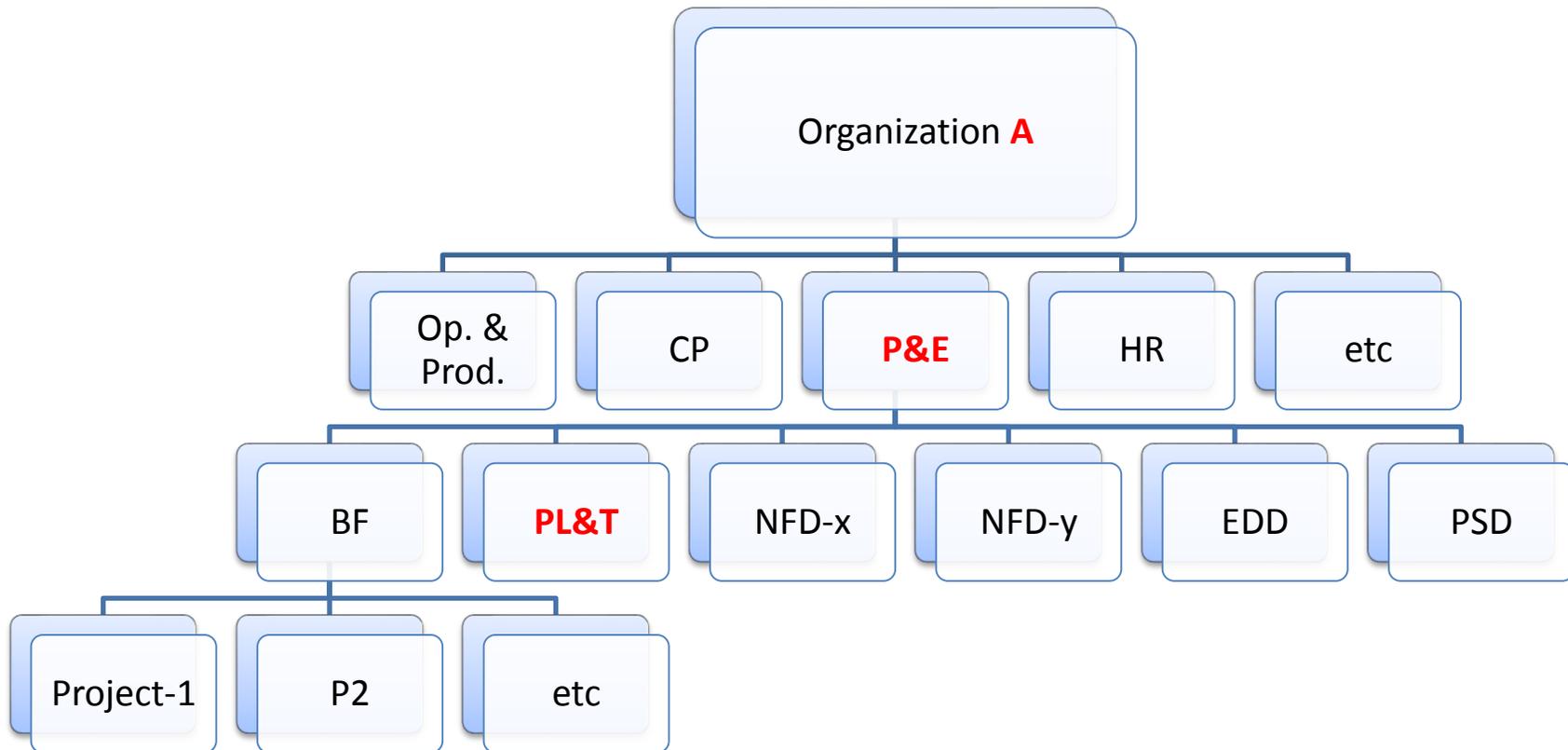
A15. I believe most of them are successful teams and achieved their targets, and our company management are supporting them by all means hence they are the only means of achieving the company objectives.

Q16. Based on your observation, in which level of the following is PMO maturity levels are these departments/teams:

- a. Level 1: Most PM Procedures are unplanned and / or unclear.
- b. Level 2: Most PM Procedures are clear, but not well followed or implemented.
- c. Level 3: Most PM Procedures are clear and continually followed or implemented.
- d. Level 4: Most PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.
- e. Level 5: Most PM Procedures are continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented.

A16. I may say Level-4 or 5 as most the business processes in my organization are aligned and have performance measures and we are improving our projects' management processes frequently to achieve the highest performance using the best capabilities and resources which are provided by our company's management.

Simplified Organization Chart of Organization A



Appendix-C:

Interview – D1

Interview-D1

PMOs' Existence Questions' Set: (an organization chart may help in answering these questions)

Q1. What is the definition of the project management office (PMO) in your organization? In your opinion what should be its roles and functions in your organization?

A1. The only definition of the PMO, that we know, in my company is the PMBoK definition, most of our project managers and a reasonable number of all the project teams' members had the PMP course (Project Management Professional) and some of them already did the test and were certified. But in spite of that there is no definition of the PMO in the company official project management documents neither the procedures nor the guides. However, most of the PMO roles and functions are widely applied in our company's mega projects. Other teams like the engineering teams and the small to medium project teams are not performing as PMOs but still applying some of the PMO roles and functions.

Q2. Would you please elaborate if there is any department/team (or many departments/teams) in your organization has/have a direct role in managing, controlling and coordinating single and/or multi-projects? If there are many departments/teams, please elaborate what are the main differences between them?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization hence the company organization hierarchy is the same, so the researcher preferred to use the same phrasings.

A2. The old organization of the company (simplified chart is attached at the end of this interview) shows that all the company projects was running by one department that was headed by the SVP-EP (Senior Vice President for Engineering and Projects) who was directly reporting to the CEO. Under the SVP-EP there were several engineering and projects teams which were grouped with respect to the company fields, i.e. group-1 is responsible for all the projects

in field-1 starting from the concept studies and up to the project execution and handing over to operation of the same field who are considered as the end users or the customers of this group.

Being under one SVP for the engineering and projects, this organization was performing as a high level PMO, even if it was not called a PMO, but was performing most of the PMO's roles and functions. That also was allowing for smooth shifting and reallocation of any project resources, if required, for other projects hence all the company's projects were managed by a superior management team that was performing as a PMO.

But unfortunately, about one year ago, a new organization was established in the company (simplified chart is attached at the end of this interview) that split these groups and put each group under their related field SVP. This splitting made each group to act as simpler PMO and lost the privilege of sharing or reallocating the resources.

Q3. How many projects are in your organization? Please specify its types, sizes (small, medium, major and mega projects) and rough numbers of each?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

A3. In our organization, there are about 60 to 70 small to major projects and eight (8) mega projects; sizes are classified as the following:

- Small projects are less than US\$ 5 million,
- Medium projects are above US\$ 5 million and less than US\$ 15 million,
- Major projects are above US\$ 15 million and less than US\$ 50 million, and
- Mega projects are above US\$ 50 million.

Q4. What is the average lifespan of these departments/teams? And how frequent does it change?

- A4. It depends on its projects sizes. For the small and medium projects, it may be 1 to 2 years, for major projects around 5 years, and for mega projects it may reach up to 7 years.
- Q5. Are these departments/teams directly managing each project individually or are providing help, support, project management standards, and other services to these projects' managers?
- A5. Yes, each group consists of smaller teams that provide all the necessary support and management for all the project of their related field including the planning & cost estimate. Projects in the same group (or field) may be managed individually or gathered into programs.
- Q6. Are any of these departments/teams in your organization called a "Project Management Office (PMO)"? Did your organization at any time have a temporary department/team (such as a taskforce ...etc.) that plays some (or all) of these PMO roles and functions? Please give examples of these teams and its roles and functions.
- A6. No, but as mentioned in the first question's answer, these groups were applying the concept and most of the PMO roles and functions (those stated in the PMBoK). Even after the splitting, they still perform as PMO but with fewer roles, they could not now share or reallocate their resources.
- Q7. What challenges your organization faced to establish or manage these departments/teams?
- A7. Resources limitation is the major challenge we are facing now specially after the company reorganization. In some cases, a group of engineering and projects' teams may be idle due to the few number of projects in their field where in another field there is a shortage in the human resources in the same specialty.

But we highlighted this problem to the top management and we expect a solution in the near future either through recruitment or by remerge the E&P groups again under one umbrella.

PMOs' Current Status Questions' Set:

- Q8. What is your role in these departments/teams?
- A8. I'm a project engineering manager in one of the company fields, I'm managing all the engineering departments in this single field.
- Q9. What are the organizational structures and staff numbers of these departments /teams? How do these departments/teams members report to the organization management?
- A9. It is a hierarchical organization structure, all team members report to their direct manager, who reports to the department manager, who, in sequence, reports to the SVP. (Please refer to the attached simplified organization charts).
- Q10. What is the total number of employees in your whole organization and in these departments/teams?
- A10. The total number of company manpower is about 7000 employees. About 1200 employees are in projects, either in the permanent departments or in the temporary teams.

PMOs' Roles and Functions Questions' Set:

- Q11. Which department/team in your organisation is responsible for:
- a. Practicing the projects management?
- A11. All the projects teams and groups are practicing the project management.
- b. Providing administrative support to the projects managers, projects teams and the organization upper management?

HR Department, Financial Department, Commercial Department, Legal Department, Contract Department, ...etc.

- c. Monitoring and controlling projects?

There is a dedicated project monitoring and control team for each project and/or program.

- d. Training and consulting of the projects managers and teams?

The training department is the only group who provide these services for all the engineering and projects teams in all fields.

- e. Evaluating, analyzing, choosing, and coordinating between the simultaneously running projects?

For each field, the E&P department management and the projects' managers are playing the roles of evaluating, analyzing, choosing, coordinating and controlling the simultaneously running projects in this field.

PMOs' Contribution in the Organization Strategic Objectives Implementation

Questions' Set:

- Q12. Which department/team in your organisation is responsible for monitoring the implementation of the organization's strategic objectives through projects?

A12. The CEO, EMT (Executive Management Team), and all the SVPs are responsible for setting and monitoring the implementation of the strategic objectives of the company.

- Q13. Were the organization's strategic objectives implemented/met through these departments/teams?

A13. Yes, because of the fact that the company's top management (CEO, EMT, and SVPs) who set the objectives, they dedicate and employee all the available resources to achieve these objectives, and the only way to achieve these objectives, most of the time, is to be implemented through the engineering and projects groups and teams.

Q14. What are the operational challenges which these departments/teams in your organization are facing?

A14. The most critical operational challenge is the frequent changing in the end user requirements and the project scope (unfrozen project scope of work) that leads to high probability of the projects failure.

Q15. What is your Assessment of these departments/teams success?

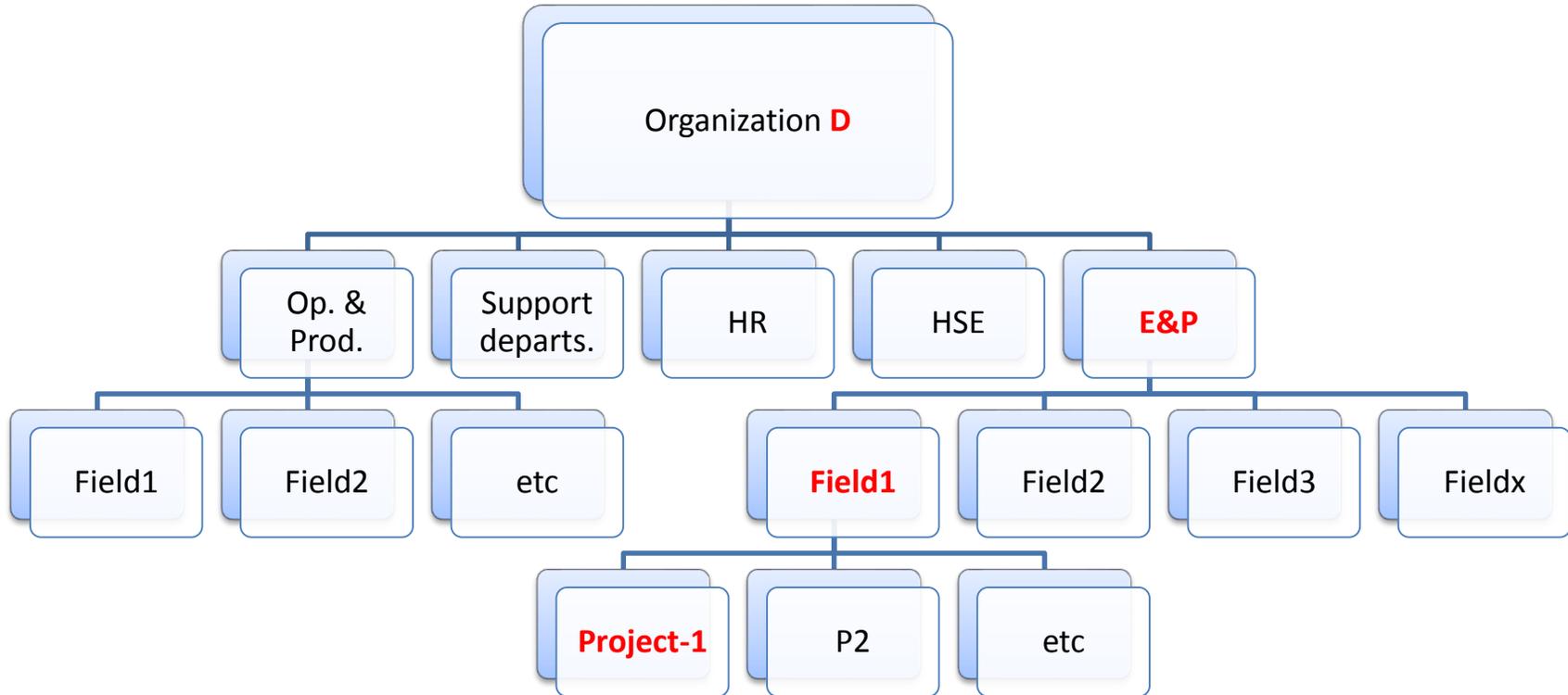
A15. The engineering and projects teams/groups were very successful in the old company organization. But now and due to the new company organization, they are suffering of the resources limitation and undefined roles and functions.

Q16. Based on your observation, in which level of the following is PMO maturity levels are these departments/teams:

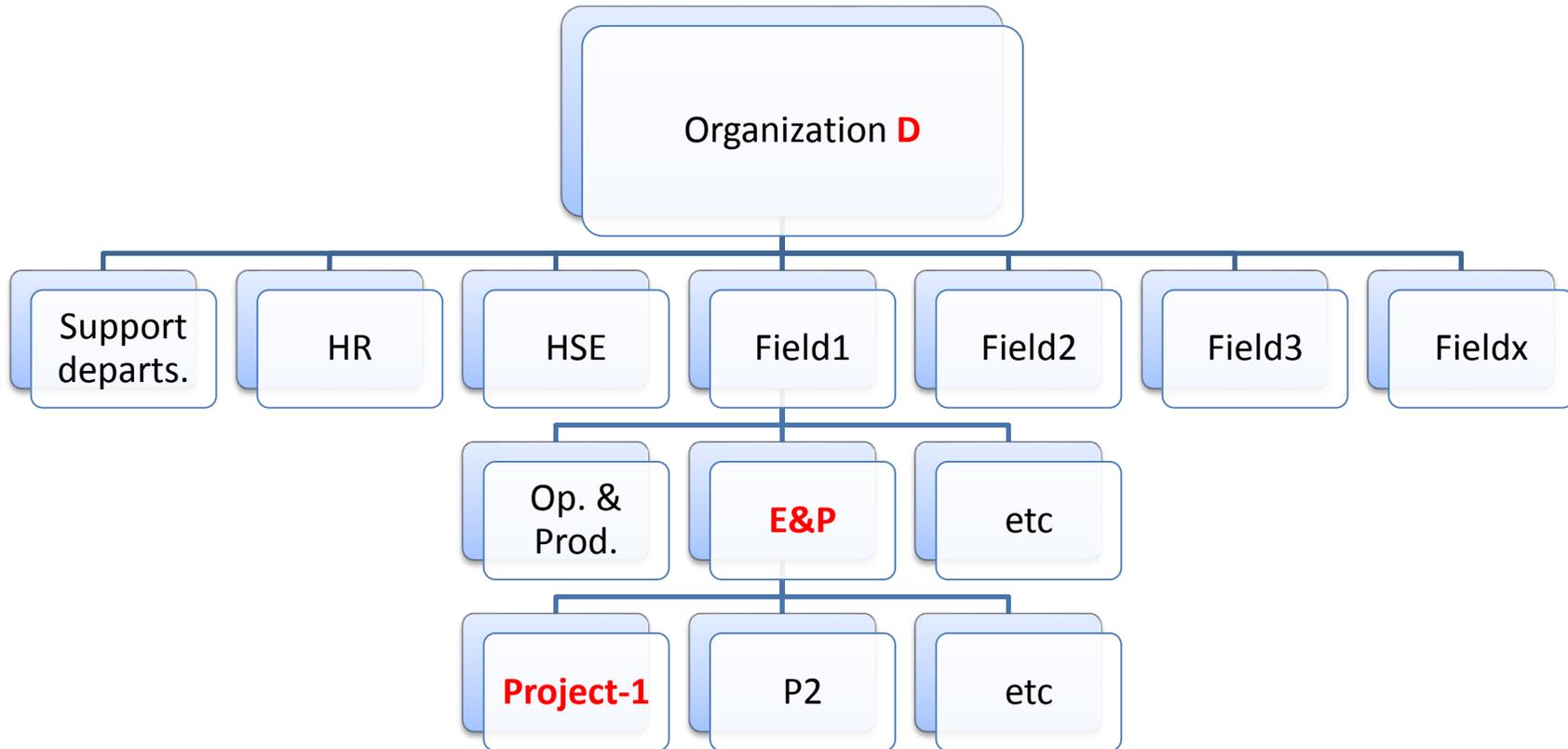
- a. Level 1: Most PM Procedures are unplanned and / or unclear.
- b. Level 2: Most PM Procedures are clear, but not well followed or implemented.
- c. Level 3: Most PM Procedures are clear and continually followed or implemented.
- d. Level 4: Most PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.
- e. Level 5: Most PM Procedures are continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented.

A16. I may choose 4 or 5 as all the project management procedures are continually followed and improved. Also the performance is monitored and controlled very closely.

Simplified Organization Chart of Company D (Old)



Simplified Organization Chart of Company D (New)



Appendix-C:

Interview – D2

Interview-D2

PMOs' Existence Questions' Set: (an organization chart may help in answering these questions)

Q1. What is the definition of the project management office (PMO) in your organization? In your opinion what should be its roles and functions in your organization?

A1. There is a definite definition of the PMO in our company because there is no department or a team in the company or even in any of the other sister companies called PMO. We only know this expression from our study of the PMBoK to get the PMP certificate. However, we have departments and teams who are playing the same role of the PMO, but not called a PMO, they are the engineering and projects departments in each field of the company. Each one of them is managing and coordinating the projects in their related field and some of them may coordinates with another field group in some projects like the interconnecting pipelines.

Q2. Would you please elaborate if there is any department/team (or many departments/teams) in your organization has/have a direct role in managing, controlling and coordinating single and/or multi-projects? If there are many departments/teams, please elaborate what are the main differences between them?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization hence the company organization hierarchy is the same, so the researcher preferred to use the same phrasings.

A2. The old organization of the company (simplified chart is attached at the end of this interview) shows that all the company projects was running by one department that was headed by the SVP-EP (Senior Vice President for Engineering and Projects) who was directly reporting to the CEO. Under the SVP-EP there were several engineering and projects teams which were grouped with respect to the company fields, i.e. group-1 is responsible for all the projects

in field-1 starting from the concept studies and up to the project execution and handing over to operation of the same field who are considered as the end users or the customers of this group.

Being under one SVP for the engineering and projects, this organization was performing as a high level PMO, even if it was not called a PMO, but was performing most of the PMO's roles and functions. That also was allowing for smooth shifting and reallocation of any project resources, if required, for other projects hence all the company's projects were managed by a superior management team that was performing as a PMO.

But unfortunately, about one year ago, a new organization was established in the company (simplified chart is attached at the end of this interview) that split these groups and put each group under their related field SVP. This splitting made each group to act as simpler PMO and lost the privilege of sharing or reallocating the resources.

Q3. How many projects are in your organization? Please specify its types, sizes (small, medium, major and mega projects) and rough numbers of each?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

A3. In our organization, there are about 60 to 70 small to major projects and eight (8) mega projects; sizes are classified as the following:

- Small projects are less than US\$ 5 million,
- Medium projects are above US\$ 5 million and less than US\$ 15 million,
- Major projects are above US\$ 15 million and less than US\$ 50 million, and
- Mega projects are above US\$ 50 million.

Q4. What is the average lifespan of these departments/teams? And how frequent does it change?

- A4. For small and medium projects, it may last for 2 years while most of them are only 1 year or less, for major projects around 5 years, and for mega projects it may reach 6 to 7 years, depends on how many phases or related work in it.
- Q5. Are these departments/teams directly managing each project individually or are providing help, support, project management standards, and other services to these projects' managers?
- A5. Off course, in each field there is a department called the engineering and projects department that is dedicated to manage and support all the project in this field, and as I mentioned earlier (in Q1 answer) that some of these projects such as the pipelines projects may be managed with the coordination of another field projects group. Each E&P department has its own independent resources that allows them to manage and support their projects or programs from the concept phase to the execution and handing over to the operation including the planning, cost estimate, monitoring and controlling these projects.
- Q6. Are any of these departments/teams in your organization called a "Project Management Office (PMO)"? Did your organization at any time have a temporary department/team (such as a taskforce ...etc.) that plays some (or all) of these PMO roles and functions? Please give examples of these teams and its roles and functions.
- A6. As I mentioned in Q1 answer that none of these departments or its teams called a PMO at any time. But they are doing some of the PMO roles and functions, in some teams who are managing the mega project or programs the almost do most of the PMO roles and functions due to their nature as an independent teams.
- Q7. What challenges your organization faced to establish or manage these departments/teams?

A7. Recently, there was a reorganization of the company departments including the engineering and projects department which was split into smaller departments in each field. Due to this reorganization, some of these new departments faced a shortage in their human resources, the reorganization did not consider the projects running in each field. They reorganized the departments based on the related field size and not on the size and number of projects in it. A recruitment campaign was done to solve this shortage, but still the new employees did not join their departments and the work progress still very slow in some areas.

PMOs' Current Status Questions' Set:

Q8. What is your role in these departments/teams?

A8. I'm a project manager in one of the company fields, I'm managing a mega project that contains several areas in our field and also contains some interconnecting pipelines that connect our plants to other field plants.

Q9. What are the organizational structures and staff numbers of these departments /teams? How do these departments/teams members report to the organization management?

A9. It is a hierarchical organization structure, all team members report to their direct manager, who reports to the engineering and projects department manager, who, in sequence, reports to the SVP of the related field. (Please refer to the attached simplified organization charts).

Q10. What is the total number of employees in your whole organization and in these departments/teams?

A10. The total number of company manpower is about 6000 to 6500 employees. About 1000 employees are in projects, either in the permanent departments or in the temporary teams.

PMOs' Roles and Functions Questions' Set:

Q11. Which department/team in your organisation is responsible for:

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

a. Practicing the projects management?

A11. All the projects teams and groups are practicing the project management.

b. Providing administrative support to the projects managers, projects teams and the organization upper management?

HR Department, Financial Department, Commercial Department, Legal Department, Contract Department, ...etc.

c. Monitoring and controlling projects?

There is a dedicated project monitoring and control team for each project and/or program.

d. Training and consulting of the projects managers and teams?

The training department is the only group who provide these services for all the engineering and projects teams in all fields.

e. Evaluating, analyzing, choosing, and coordinating between the simultaneously running projects?

For each field, the E&P department management and the projects' managers are playing the roles of evaluating, analyzing, choosing, coordinating and controlling the simultaneously running projects in this field.

PMOs' Contribution in the Organization Strategic Objectives Implementation Questions' Set:

Q12. Which department/team in your organisation is responsible for monitoring the implementation of the organization's strategic objectives through projects?

A12. The company's top management, i.e. the EMT (Executive Management Team) and all the SVPs, are responsible for setting and monitoring the implementation of the strategic objectives of the company.

Q13. Were the organization's strategic objectives implemented/met through these departments/teams?

A13. Yes, to high extent all the company's strategic objectives were met as it was originally set by the top management who should put all these objectives in the company's business plan. This business plan is annually reviewed to evaluate the progress and to include new objectives that may emerge due to the business needs. The implementation of this business plan objectives is done, in most of cases, through projects.

Q14. What are the operational challenges which these departments/teams in you organization are facing?

A14. The scope creep and the resources limitations are the most critical operational challenges that these groups and teams may face in our company.

Q15. What is your Assessment of these departments/teams success?

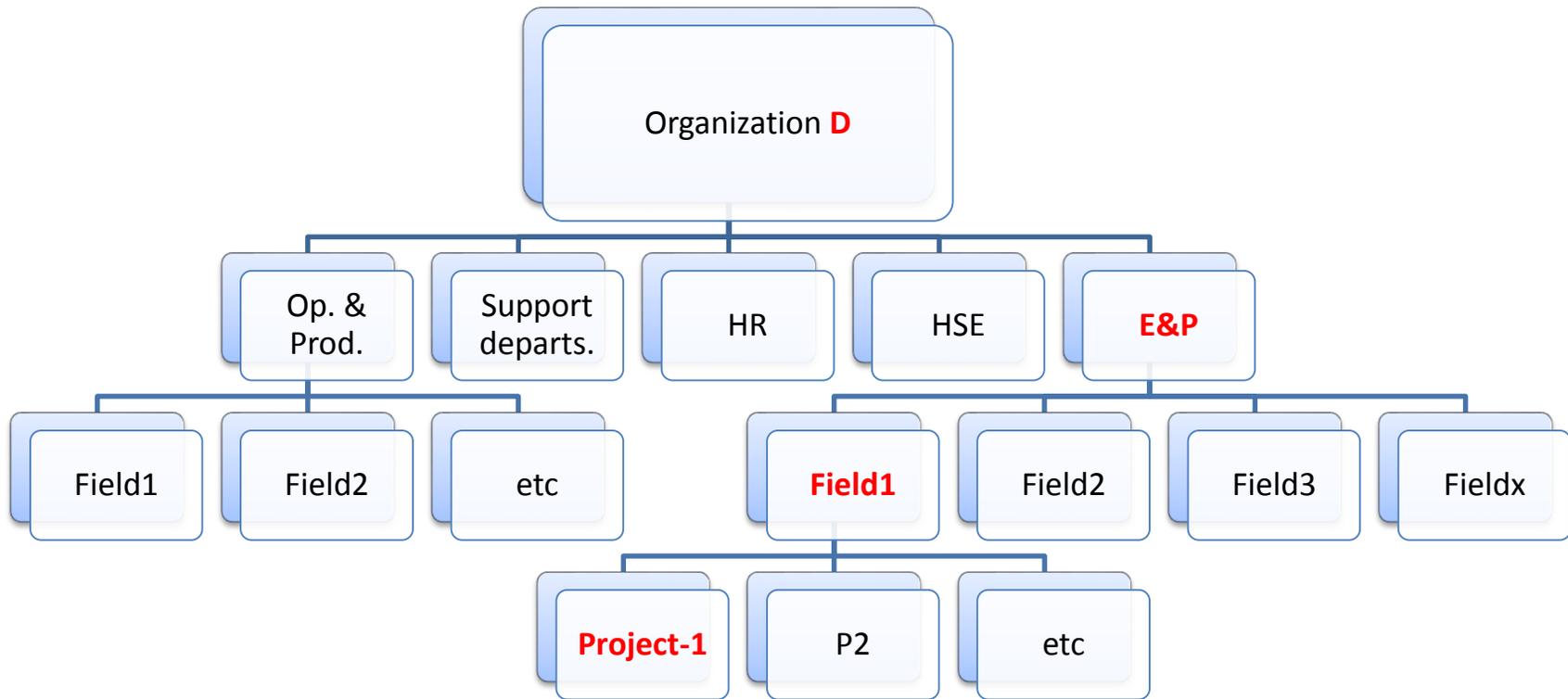
A15. They are successful teams although they have shortage in their resources. They are loyal to their job and they have high experiences in our plants and fields.

Q16. Based on your observation, in which level of the following is PMO maturity levels are these departments/teams:

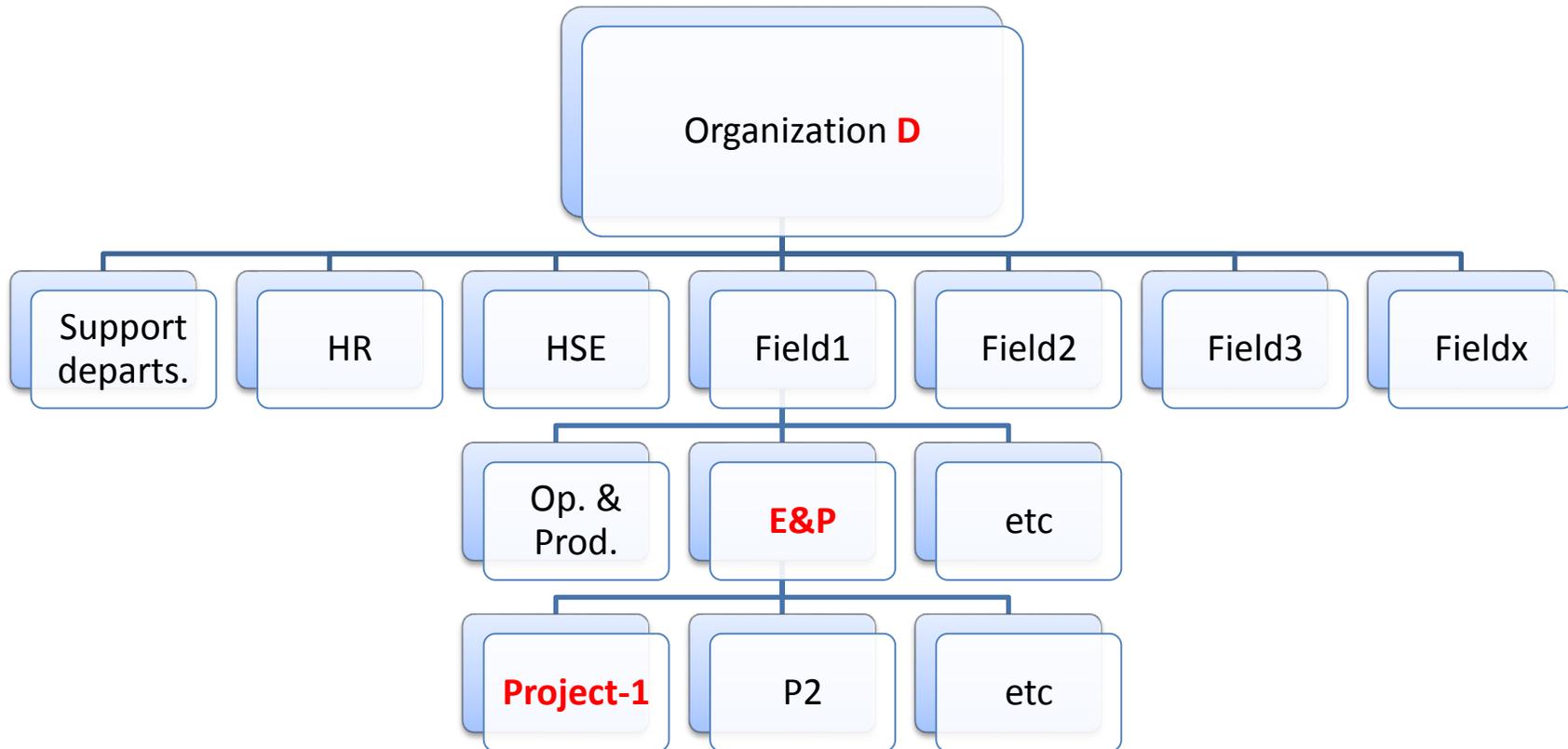
- a. Level 1: Most PM Procedures are unplanned and / or unclear.
- b. Level 2: Most PM Procedures are clear, but not well followed or implemented.
- c. Level 3: Most PM Procedures are clear and continually followed or implemented.
- d. Level 4: Most PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.
- e. Level 5: Most PM Procedures are continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented.

A16. I believe it is level 4, as most of the PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.

Simplified Organization Chart of Company D (Old)



Simplified Organization Chart of Company D (New)



Appendix-C:

Interview – Z1

Interview-Z1

PMOs' Existence Questions' Set: (an organization chart may help in answering these questions)

Q1. What is the definition of the project management office (PMO) in your organization? In your opinion what should be its roles and functions in your organization?

A1. In our company, most of us know only the PMBoK definition of the PMO. But there is no official definition belongs to our organization of it and also there is no team clearly called PMO. We knew the PMBoK definition during the PMP courses which are regularly conducted in the company but not a mandatory training for our projects' staff or managers. Nevertheless, most of the project managers who got the PMP course did not have the PMP exam certificate. In my opinion, this is the reason of that the PMO in general is not well defined in our company.

However, the head of our mega project TF1 had created a high qualified project management team that supports his underneath projects' managers, but yet not called a PMO. This team consists of the taskforce manager or head, besides all his underneath projects' managers, and some technical support assistants who support them by developing the projects' forms, planning and scheduling, internal specifications and procedures, ...etc. they are more flexible in performing and developing these activities and support than the other projects management teams in our company, as they are considered as a separate team who were recruited only for the project duration and will be all dismissed once achieve the project objectives.

Q2. How many projects are in your organization? Please specify its types, sizes (small, medium, major and mega projects) and rough numbers of each?

A2. In our company, projects are sorted into four types; small, medium, major and mega. Most of the small, medium and major projects are initiated by the operation

team's requirements, and most of the mega projects are initiated by the organization business plan. The projects' sizes are classified as the following:

- Small projects are less than US\$ 5 million,
- Medium projects are above US\$ 5 million and less than US\$ 15 million,
- Major projects are above US\$ 15 million and less than US\$ 50 million, and
- Mega projects are above US\$ 50 million.

In our organization, there are more than 50 to 55 small to medium projects, about 18 to 20 major projects and three (3) mega projects (TF1, TF2, & TF3).

Q3. Would you please elaborate if there is any department/team (or many departments/teams) in your organization has/have a direct role in managing, controlling and coordinating single and/or multi-projects? If there are many departments/teams, please elaborate what are the main differences between them?

A3. In our old organization hierarchy, there were two departments who were directly involved in projects management, one was under the senior vice president for operation (SVP-O) which was Operation Support – Engineering Support department (OS-ES), and the other one was under the senior vice president for technical (SVP-T) which was the Engineering and Projects (EP).

The OS-ES teams were managing all the small, medium and major projects' engineering after being initiated by the operation teams requirements. They used to develop the FEED (Front End Engineering Deliverables) scope of work based on the project concept and basic design that should be the output of the IDENTIFY, ASSESS and SELECT phases. Then the EP team used to handle these project starting from the detailed design to the execution and operation commissioning phases as in the last stages in the VAP (DEFINE, EXECUTE, and OPERATE). The EP team also used to support all the running projects for the engineering, planning and control through their teams of EP-S and EP-PC. All the taskforces were running under the EP department as well.

But in our new organization hierarchy, the Engineering and Projects department (EP) became engineering only, so its role in projects reduced to the conceptual studies only and all the other phases of all projects starting from basic design to execution and handing over to operation, whatever its size, are under the new projects department organization along with the projects planning and control teams. By this organization, and to high extent, the projects department can be considered as a PMO however they are not called PMOs.

Please refer to the attached simplified diagram for the new projects department organization in our company.

OS-ES will only be concerned with minor modifications such as like-to-like replacements.

Q4. What is the average lifespan of these departments/teams? And how frequent does it change?

A4. The average lifespan of these departments varies based on the company strategic plan, which is 5-years plan and annually updated, and depends on the performance of these teams or departments in projects.

For example, the mega projects' teams may last for 5 to 6 years which is the project lifespan itself, and may be dismantled when finish the project hence most of them are recruited only for the project taskforce. However, for small, medium and major projects' teams, their lives span may vary from 1 to 4 years depends on the project size, but they may continue for another period as a new project phase extension or similar project team. A clear example of that in our company is a project of replacing and updating all the control and monitoring devices in all of our plans, the team continue for about 15 years in more than 5 different phases of the project as each phase was ending with a recommendation of replacing another plant system that required to utilize the experience of the same team.

Q5. Are these departments/teams directly managing each project individually or are providing help, support, project management standards, and other services to these projects' managers?

A5. In the new projects department organization, there are project management teams who are managing their dedicated projects directly, and there are other teams who are providing support to the projects management teams in terms of providing planning, commercial, risk, information & database, and staffing & development management supports.

Q6. Are any of these departments/teams in your organization called a "Project Management Office (PMO)"? Did your organization at any time have a temporary department/team (such as a taskforce ...etc.) that plays some (or all) of these PMO roles and functions? Please give examples of these teams and its roles and functions.

A6. No, none of them is called a PMO now or at any time, but the new projects department teams are acting, to high extent, as PMOs, they are managing, coordinating and supporting all projects within our company.

Q7. What challenges your organization faced to establish or manage these departments / teams?

A7. We faced a challenge of projects scope creep due to different teams who started the project up to the basic design phase than other teams who continue the projects up to the execution and handing over to operation; because of these different teams and their way of managing the company projects, most of the projects' scopes became vague and did not satisfy our clients' (site operation teams) requirements and expectations. Another challenge was that the continues change of the clients' requirements.

By the new projects department, we hope that these challenges will be smoothed and solved hence all the projects' phases will be done by one department and that will control all the scope changes and / or creep that occur previously.

PMOs' Current Status Questions' Set:

- Q8. What is your role in these departments/teams?
- A8. I'm the senior vice president for projects; in the new organization I'm responsible for all projects managements starting from basic design (just after the conceptual studies) and up to execution and handing over to our clients (the operation).
- Q9. What are the organizational structures and staff numbers of these departments /teams? How do these departments/teams members report to the organization management?
- A9. As elaborated in the attached simplified organization chart, all the projects staff are reporting to their project managers who are reporting to their senior managers or program managers, the latters are reporting directly to me (SVP-P).
- Q10. What is the total number of employees in your whole organization and in these departments/teams?
- A10. The total number of our organization is around 5000 employees in all fields and areas, out of them about 1500 are in all the projects departments/teams at any time; most of them were recruited for a specific project duration and should be dismissed once finish the project, but by this time other project starts and we may keep the current team for it as they already aware of the organization's procedures, technical guidelines, historical data and issues.
- Is it the same as in the old departments organization?
- Yes, we only re-organized the departments without affecting the human resources by increasing or decreasing their numbers. You may consider this reorganization

as reassigning the same people to more smooth and reliable posts and responsibilities.

PMOs' Roles and Functions Questions' Set:

Q11. In the new organization, which department/team in your organisation is responsible for:

a. Practicing the projects management?

A11. Each project team in the EPC teams; please refer to the attached simplified organization chart.

b. Providing administrative support to the projects managers, projects teams and the organization upper management?

The staffing & development support team under the project support & commercial senior manager.

c. Monitoring and controlling projects?

The planning & control support team under the project support & commercial senior manager.

d. Training and consulting of the projects managers and teams?

The staffing & development support team under the project support & commercial senior manager.

e. Evaluating, analyzing, choosing, and coordinating between the simultaneously running projects?

The SVP-P office that consists of the SVP-P and all the projects' managers and support teams' managers.

PMOs' Contribution in the Organization Strategic Objectives Implementation Questions' Set:

Q12. Which department/team in your organisation is responsible for monitoring the implementation of the organization's strategic objectives through projects?

A12. Corporate Planning Department is responsible for developing the organization business plan, and for monitoring the implementation of the organization's strategic objectives through projects. But the projects department is responsible for managing all the projects and the implementation of the organizational strategic objectives through these projects.

Q13. Were the organization's strategic objectives implemented/met through these departments/teams?

A13. In the old departments organization we faced some challenges as mentioned before, but it is expected to be overcome in the new department organization.

Q14. What are the operational challenges these departments/teams in you organization?

A14. This question was answered in question number 7 above.

Q15. What is your Assessment of the projects management departments/teams success?

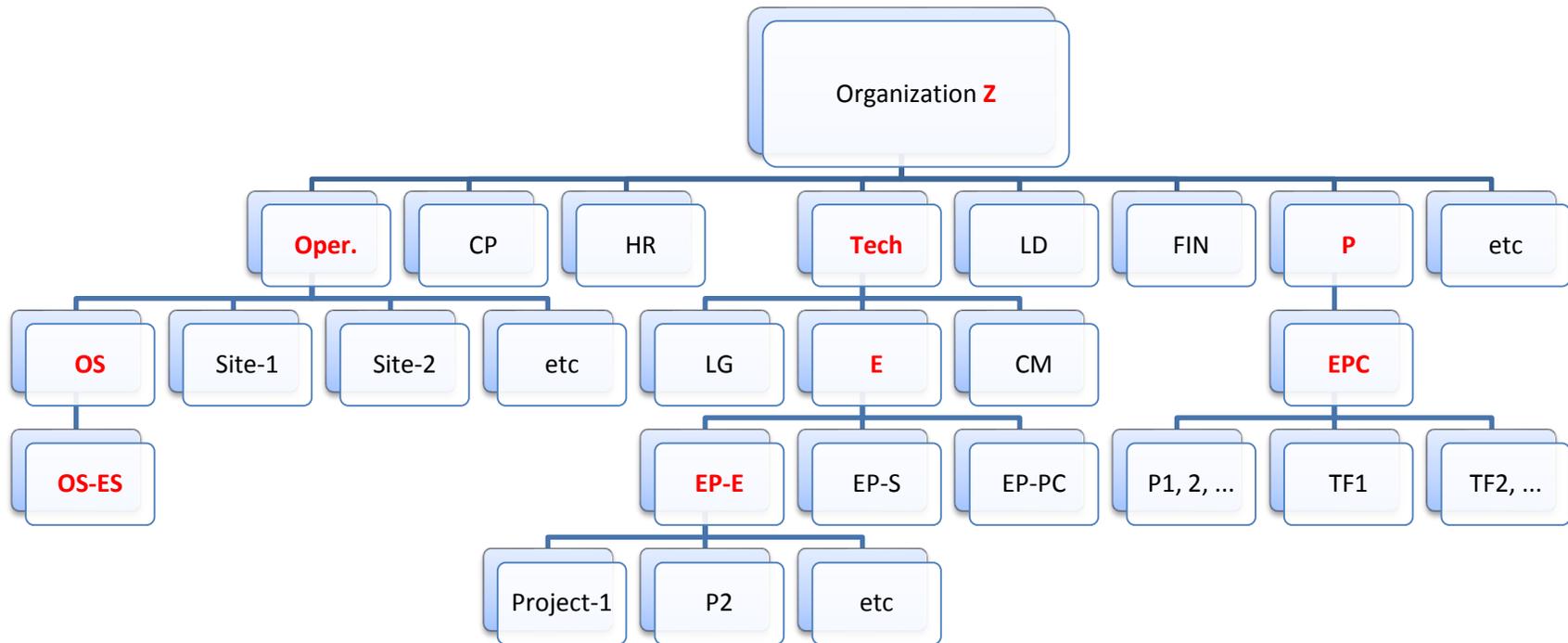
A15. In general, the overall performance of these departments/teams was satisfactory, however, based on the new organization hierarchy, and to avoid the few conflicts that mentioned before, it is expected that a noticeable enhancement in the projects departments/teams performance will occur and be sensed through all the measures of the organization.

Q16. Based on your observation, in which level of the following is PMO maturity levels are these departments/teams:

- a. Level 1: Most project management procedures and processes are unplanned and / or unclear.
- b. Level 2: Most PM Procedures are clear, but not well followed or implemented.
- c. Level 3: Most PM Procedures are clear and continually followed or implemented.
- d. Level 4: Most PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.
- e. Level 5: Most PM Procedures are continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented.

A16. In the new projects department organization, I may say that it is in level 4 to 5 as we are following and implementing all the project management procedures and processes which are totally compatible with our strategic objectives. And of course, we have a reliable performance monitoring and measuring system that allows us to continually improve it.

Simplified Organization Chart of Organization Z



Appendix-C:

Interview – Z2

Interview-Z2

PMOs' Existence Questions' Set: (an organization chart may help in answering these questions)

Q1. What is the definition of the project management office (PMO) in your organization? In your opinion what should be its roles and functions in your organization?

A1. It is the team of the senior vice president for projects (SVP-P team) who manage, coordinate, support and monitor all the running projects in our company.

This team consists of the senior vice president himself and all his underneath managers and senior managers, and projects' managers. We only do not call it PMO, but we are performing most of its roles which are mentioned in the PMBoK. But again not officially, or not clearly defined as PMO, it called the project management team.

Q2. How many projects are in your organization? Please specify its types, sizes (small, medium, major and mega projects) and rough numbers of each?

P.S: The following is a typical answer that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

A2. In our company, projects are sorted into four types; small, medium, major and mega. Most of the small, medium and major projects are initiated by the operation team's requirements, and most of the mega projects are initiated by the organization business plan. The projects' sizes are classified as the following:

- Small projects are less than US\$ 5 million,
- Medium projects are above US\$ 5 million and less than US\$ 15 million,
- Major projects are above US\$ 15 million and less than US\$ 50 million, and
- Mega projects are above US\$ 50 million.

In our organization, there are more than 50 to 55 small to medium projects, about 18 to 20 major projects and three (3) mega projects (TF1, TF2, & TF3).

Q3. Would you please elaborate if there is any department/team (or many departments/teams) in your organization has/have a direct role in managing, controlling and coordinating single and/or multi-projects? If there are many departments/teams, please elaborate what are the main differences between them?

A3. According to the new projects department organization hierarchy, the projects department is responsible for all the projects' phases starting from basic design to execution and handing over to operation, whatever the projects sizes. Besides being responsible the projects planning, monitoring and control. This new projects department can be considered as a PMO however they are not called PMOs.

The Engineering and Projects department (EP) scope reduced to only the projects conceptual studies. Please refer to the attached simplified diagram for the new projects department organization in our company.

OS-ES will only be concerned with minor modifications such as like-to-like replacements.

Q4. What is the average lifespan of these departments/teams? And how frequent does it change?

A4. The new department that manage all the projects consists of long term teams, that means they are managing all the projects till completed and handed over to the operation teams, while they continue in other projects.

However the taskforces teams have 4 to 5 years lifespan and will be dismantled because they were recruited only for these taskforces.

Q5. Are these departments/teams directly managing each project individually or are providing help, support, project management standards, and other services to these projects' managers?

A5. In the new projects department organization, there are project management teams who are managing their dedicated projects directly, and there are other teams who are providing support to the projects management teams in terms of providing

planning, commercial, risk, information & database, and staffing & development management supports.

Q6. Are any of these departments/teams in your organization called a “Project Management Office (PMO)”? Did your organization at any time have a temporary department/team (such as a taskforce ...etc.) that plays some (or all) of these PMO roles and functions? Please give examples of these teams and its roles and functions.

A6. No, none of them is called a PMO now or at any time, but the new projects department teams are acting, to high extent, as PMOs, they are managing, coordinating and supporting all projects within our company.

Q7. What challenges your organization faced to establish or manage these departments / teams?

A7. Generally, we face frequent scope changes and conflicts between the projects resources allocation either being allocated areas and equipment or being staffing and prioritization of the projects in the project engineering review and execution. Each team claim that his project(s) is (are) more important than the others and need dedicated or more resources for it, while in our remote plants these resources may be limited and may cause serious problems such as execution delay that may cause in some cases production reduction and of course the latter is translated to money. Due to these conflicts, shareholders may interfere by terminating or freeze some projects that may cause these delay or by reorganizing the projects’ teams to facilitate and smooth these projects’ execution.

PMOs’ Current Status Questions’ Set:

Q8. What is your role in these departments/teams?

A8. I'm a senior program manager in the projects department; in the new organization I'm responsible for all projects managements in our remote island except the taskforces which are standalone teams under the SVP-P.

P.S: The following answers for Q9 to Q14 are typical answers that the researcher got from all the interviewees in this organization, so the researcher preferred to use the same phrasings.

Q9. What are the organizational structures and staff numbers of these departments /teams? How do these departments/teams members report to the organization management?

A9. As elaborated in the attached simplified organization chart, all the projects staff are reporting to their project managers who are reporting to their senior managers or program managers, the latters are reporting directly to the SVP-P.

Q10. What is the total number of employees in your whole organization and in these departments/teams?

A10. The total number of our organization is around 5000 employees in all fields and areas, out of them about 1500 are in all the projects departments/teams at any time; most of them were recruited for a specific project duration and should be dismissed once finish the project, but by this time other project starts and we may keep the current team for it as they already aware of the organization's procedures, technical guidelines, historical data and issues.

Is it the same as in the old departments organization?

Yes, we only re-organized the departments without affecting the human resources by increasing or decreasing their numbers. You may consider this reorganization as reassigning the same people to more smooth and reliable posts and responsibilities.

PMOs' Roles and Functions Questions' Set:

Q11. In the new organization, which department/team in your organisation is responsible for:

a. Practicing the projects management?

A11. Each project team in the EPC teams; please refer to the attached simplified organization chart.

b. Providing administrative support to the projects managers, projects teams and the organization upper management?

The staffing & development support team under the project support & commercial senior manager.

c. Monitoring and controlling projects?

The planning & control support team under the project support & commercial senior manager.

d. Training and consulting of the projects managers and teams?

The staffing & development support team under the project support & commercial senior manager.

e. Evaluating, analyzing, choosing, and coordinating between the simultaneously running projects?

The SVP-P office that consists of the SVP-P and all the projects' managers and support teams' managers.

PMOs' Contribution in the Organization Strategic Objectives Implementation

Questions' Set:

Q12. Which department/team in your organisation is responsible for monitoring the implementation of the organization's strategic objectives through projects?

A12. Corporate Planning Department is responsible for developing the organization business plan, and for monitoring the implementation of the organization's strategic objectives through projects. But the projects department is responsible for managing all the projects and the implementation of the organizational strategic objectives through these projects.

Q13. Were the organization's strategic objectives implemented/met through these departments/teams?

A13. In the old departments organization we faced some challenges as mentioned before, but it is expected to be overcome in the new department organization.

Q14. What are the operational challenges these departments/teams in your organization?

A14. This question was answered in question number 7 above.

Q15. What is your Assessment of the projects management departments/teams success?

A15. In my opinion, it is a very successful departments or teams as they to high extent delivered the required projects deliverables and achieved their targets with minimum conflicts or delay which are in all cases were well justified. And I believe there will be more enhancement in these targets achievements due to the new projects department teams' reorganization.

Q16. Based on your observation, in which level of the following is PMO maturity levels are these departments/teams:

- a. Level 1: Most project management procedures and processes are unplanned and / or unclear.
- b. Level 2: Most PM Procedures are clear, but not well followed or implemented.
- c. Level 3: Most PM Procedures are clear and continually followed or implemented.

- d. Level 4: Most PM Procedures are compatible with the business objectives, have performance measures and continually followed or implemented.
- e. Level 5: Most PM Procedures are continually improved, compatible with the strategic objectives, have performance measures and continually followed or implemented.

A16. We may be between 4 to 5, if we are not already in 5 by applying the new reorganization. This is because we are following and implementing all the project management procedures and processes which are totally compatible with our strategic objectives. And of course, we have a reliable performance monitoring and measuring system that allows us to continually improve it.

Simplified Organization Chart of Organization Z

