



## ZADCO's VALUE ASSURANCE PROCESS

على المراقبة لضمان زادكوا شركة في المدة بعدها الطريرقة  
المكتسبة القدرة

By

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## **ABSTRACT**

The decommissioning phase in the life cycle of petroleum installations is an important part of ZADCO' asset management strategy. The company is known for its integration of the value assurance process, or "value assurance review" (VAR), in administering asset management activities geared towards development. This is critically important because the company, just like any other oil and gas company, invests a lot on development. Therefore, identification of the root causes of failure is advised at the beginning of projects before they are sanctioned. Value assurance that is executed for a project addresses the question: "Are we doing the right project?" Alternatively, the reviews around extraction time focus on the question: "Are we doing the project right?" After the sanctioning, similar reviews are conducted.

The value assurance process focuses on the non-technical aspects of projects, as the reasons for cost and schedule overruns are often found in the non-technical aspects. This leads to the integration of a technical, economic, commercial, organizational and political (TECOP) approach. It is important to note that studies have shown that more projects fail from flaws in project fundamentals than from flaws in the details.

VAR generally takes a week. It is delivered by a team of approximately five senior experienced staff members. On the first day, project team presentations are made, followed by interviews in the next two days, then synthesis and analysis of an integrated picture within the value assurance team, and then finally the delivery of insights and recommendations to the customer, that is, to the senior executives that govern the project and those responsible for delivering the project, or to ZADCO executives in our case (ZADCO HSE Manual, 2003).

In this study we examine the feasibility of this process through the work of the staff interviews and a questionnaire among the decision-makers in the organization to extract a clear picture of electrode found in developmental institution.

مرحلة التككك في دورة حياة المنشآت النفطية هو جزء مهم من استراتيجية إدارة الأصول في شركة زادكو. ومن المعروف أن الشركة لتحقيق التكامل في عملية ضمان القيمة، تماماً مثل أي شركة نفط وغاز أخرى، تستثمر الكثير في مجال التنمية. لذلك، ينصح تحديد الأسباب الجذرية للفشل في بداية المشاريع قبل أن يتم فرض عقوبات عليها. ضمان القيمة التي يتم تنفيذها لمشروع يتناول عدة استئلا منها السؤال: "هل نحن نفعل المشروع الصحيح؟" بدلاً من ذلك يجب محورة السؤال حول: "هل نحن نفعل المشروع بطريقة صحيحة؟" بعد البدء بالمشروع يعاد طرح نفس السؤال على كل مراحل المشروع.

وتتركز عملية ضمان القيمة على الجوانب غير التقنية للمشاريع، غالباً ما توجد أسباب التكلفة والجدول الزمني التجاوزات في الجوانب غير الفنية. وهذا يؤدي إلى إدماج الجانب الاقتصادي والتجاري والتنظيمي والسياسي (TECOP) النهج التقني،. من المهم أن نلاحظ أن الدراسات أظهرت أن المشاريع تفشل في المراحل الأولى بسبب ظهور العيوب في التفاصيل في أساسيات المشروع .

تأخذ عادة أسبوع في الانجاز. يتم تسليمها من قبل فريق من كبار الموظفين من ذوي الخبرة. في اليوم الأول، يتم VAR تقديم عروض فريق المشروع، تليها المقابلات في اليومين المقبلين، ثم تجميع وتحليل صورة متكاملة ضمن فريق ضمان القيمة، ثم أخيراً تقديم رؤى وتوصيات إلى مصمم المشروع، ثم إلى كبار المديرين التنفيذيين الذين يديرون المشروع والمسؤولين عن تسليم المشروع، أو المديرين التنفيذيين زادكو في حالتنا .

وفي هذه الدراسة نقوم بدراسة جدوى لهذه العملية عن طريق عمل مقابلات للموظفين واستبيان بين أصحاب القرار في المؤسسة لاستخراج صورة واضحة عن جدواها في المسار التطويري للمؤسسة.

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## **CHAPTER 1: THE OUTLINE AND BACKGROUND OF THE THESIS**

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### **1.1 Introduction**

ZADCO refers to (Zakum Development Company), which is considered a distinguished oil company in Abu Dhabi, United Arab Emirates (ZADCO, 2006). In 1977 ZADCO became productive company by the law No.9 which generated by the gaudiness of Sheikh Zayed Bin Sultan Al Nahyan to initiate the development of Zakum Field. This step allows implementing the establishment of Zakum Development Company (ZADCO) to evolve and operate the Upper Zakum field. At present, the company is handled by three major stockholders, including the Abu Dhabi National Oil Company, ExxonMobil and the Japan Oil Development Company (Al Jarwan, 2006).

At present, the Zakum Development Company (ZADCO) is embrace by three key shareholders. it include the Japan Oil Development Company, Ltd. (JODCO), with a 12% share, ExxonMobil, with a 28% share, and the Abu Dhabi National Oil Company, with a 60% share (ADNOC Website, 2012).

The company hold three main fields. The most significant of ZADCO's fields and one of the prime fulfilments in Abu Dhabi is Upper Zakum (UZ); It is located 84 kilometres north-west of the Abu Dhabi islands and covers 1,200 square kilometres of The Arabian Gulf marine areas. It is the second largest employer in the Gulf and the fourth in the world, accommodating 550 personnel (Bhatia 27–30).

ZADCO has considering expanded its exploration a continuous efforts since the early years, and as a result, In 1969 located 25 km to the north-west of Abu Dhabi Umm Al Dalkh (UA) was discovered and in 1985 the field prepared to be productive. Also not fare located 200 km north-west of Abu Dhabi Satah Fields (ST) was discovered in 1975 and starting the production was in

1987(Al Jarwan, 2006).From all above fields the crude oil is pumped via oil pipeline to Zirku Islands which consider the main industrial base for processing, storage and oil exporting and it contain the latest technology in oil and gas equipment (ZADCO website: September 2013).

ZADCO's vision is Building optimal sustainable production is ZADCO vision to ensure reaching excellence in health , safety and environment caring, people development, efficient operations, field development practices and use of resources.to reach level to be top world class company in oil field production (ZADCO website).

ZADCO achievements over the years include its merger with ADNOC in 1988, therefore strengthening the oil industry, according to some analysts.

ZADCO maintain their highly standard by using the advance technologies in developing and operation in their oil field to ensure high level of quality in health, safety and the environment level. Its core values have led it to becoming a performance-driven organization that manages its assigned business portfolio within the Supreme Petroleum Council strategy. For this reason, the company merge a VALUE ASSURANCE SYSTEM as quality check procedure in all its processes or projects (Al Jarwan, 2006).

## **.1.2 Background of the Study**

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assurance that is executed for a project addresses the question: “Are we doing the right project?”

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The process has two fundamentals: integration and independence. Integration is achieved through an experienced team leader and a team of subject matter experts, whereas independence is achieved through external company which will provide experts for this matter.

This process has resulted in many benefits, such as significant value being gained by the discipline and communication required to prepare for the integration review and a better understanding of the full range of factors affecting the project's success, therefore leading to better management of risks and opportunities and better preparation of the organization for surprises. Further, the review enhances project value through changes to concepts, alignment between project elements, and recommendations to stop, suspend or accelerate (McGowen, 2003).

ZADCO identifies three stages of the petroleum life cycle as covered by the following activities: production, operation, and maintenance. The critical elements of asset management during these phases include RESERVOIR MANAGEMENT reservoir management, production management, facility management, well integrity management, and HSE (health, safety and environment) audit and review (HSE Manual, 2003).

The company's value assurance process starts with the identification of several development concepts in order to enable management to assess a few options that could be viable for implementation. The company then selects only one possible development project from the few options and then defines it comprehensively to enable execution and operation. The company's value assurance process can be further illustrated in the following figure (as presented on the company's official website).

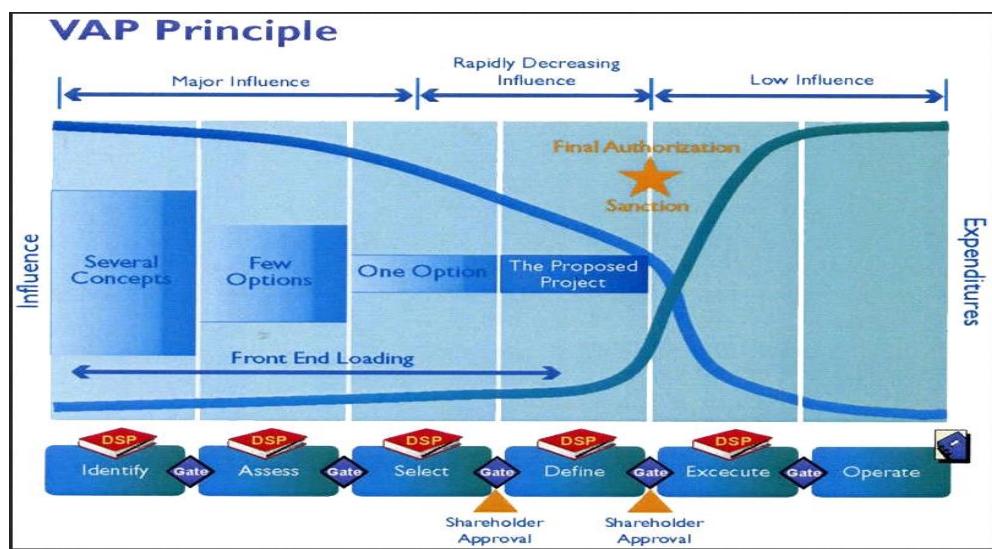


Figure 1: VAP Principles adopted by ZADCO (Source: ZADCO HSE Manual, 2010)

It is very important to note that this is just a summary of ZADCO's value assurance process. There are several other intertwining processes that are not included in the figure, including the VAR processes mentioned previously. Additionally, the decision support package (DSP) is a set of deliverables that summarizes the key project information required in supporting the decision-

making process at THE GATE (the examination stage for the collected information). The purpose of the DSP is to provide information on the project's completeness, robustness and readiness to decision makers (McGee, DeFeo, Robertson and McConnell, 2000).

Moreover, the development of management system monitors the different project phases. Generally, project phases include evaluation, concept selection, concept definition and execution. Gates are important in value assurance, since they improve the effectiveness of capital investments and ensure an appropriate level of value improvement. They set the overall objectives for each project phase, properly assess the project, and identify value drivers, risks and uncertainties prior to committing any major expenditure. At the gate, the project team presents the results obtained in the previous phase and their plans for the following phase. This information may cause five possible outcomes: proceeding, reworking, holding, changing or killing the project.

### **1.3 The Aim of the Research**

Better management and achievement of production targets is the main objective of ZADCO in integrating the value assurance process into their asset management. The company has gone through major events in its history, such as merging with other big companies. For instance, in March 2006, the American company ExxonMobil bought 28% of ADNOC's shares in the Upper Zakum field. Further, there are a lot of changes in technology that are expensive but important to the company's operations (ADNOC, 2012), as technology continues to advance and become more environmentally friendly.

For example, ZADCO is always investing in automation technologies. Modern IT has been made available to end users within ZADCO sites, as it is essential in key areas of work to achieve greater productivity in the management of various operations and technical and human resource functions. As political, economic and social environments continue to change, the company wants to ensure that the uncertainty of field development planning is better identified in a

quantified manner. The company's management is committed to thinking of better ways to manage the company so that it can stay competitive.

Additionally, the value assurance process has been identified by analysts as the most effective tool in managing projects, programmes, resources and processes in most companies. This is crucial, especially with very large companies such as ZADCO. It enhances the identification of the root causes of potential failure and provides advice before sanctioning. Value assurance is important, as it answers the questions: Are we doing the right project? Are we doing the project right? It focuses on the non-technical aspects and leads to integration of the TECOP approach; therefore, it is a very effective tool in management.

With this, the aim of this paper is to evaluate whether ZADCO's value assurance process is effective in the management of the assets of the company.

The primary concern of this research is to examine the effects of ZADCO's value assurance process and its alignment to the overall business cycle. ZADCO is noted for its use of the value assurance process in the management of its assets and has an good impact in their industry. Further, this research will focus the examination of the company's asset management to understand the industry in which the company operates and to distinguish it from other companies in the field. Note that there are a number of oil and gas companies, and they make use of same processes in oil production, processing and even exportation, meaning that they are very similar in management.

#### **1.4 Rationale of the Study**

It is well recognized that asset value management is the underlying concept behind the value assurance process. Value management is said to have evolved in the post-World War II era in the United States, when the shortage in supply compelled the manufacturing industry to search for

alternatives or substitutes. Nowadays, the management tool is continuously used in many industries and companies around the world, both public and private.

Value management can be defined as a technique of systematic adaptation of approaches in solving the general problems of a company. Other scholars have defined it as a creation of management tool designed particularly to motivating people, sharpen skills and initiate innovation, with the an important aim is fully maximize the overall performance of an organization. This idea was generated out of previous methods based on the concept of value and a functional approach. These were pioneered by Lawrence D. Miles in the 1940s and 50s. He came up with the technique of value analysis (VA) as a method to improve value in existing products. Basically, value analysis was initiated to identify and clarify unnecessary costs to be eliminated. However, it is equally effective in measuring performance and defining resources other than cost. Therefore, the application of VA has spared far away beyond products into services, projects and administrative procedures (The Institute of Value Management Report, 2006).

The main objectives of value management may vary from company to company, but the main one is to produce solutions creatively and economically by identifying unnecessary expenditures, challenging assumptions, promoting alternative ideas, optimizing resources, updating standards and ideas, saving time and energy, among others.

Value management has proved to have many other benefits that include improving communications, promoting innovations, maximizing resources, eliminating redundant items, identifying unnecessary expenditures, and updating standards, criteria and objectives, among others.

The British Standard Institution provides GUIDELINES to the steps in a value management procedure. First, information identification is done and the program or project rationale is tested from the perspective of stakeholders' positions. Secondly, functions are analysed, identified and

ranked as primary or secondary functions. Thirdly, ideas for value improvements are generated. Fourthly, evaluation, sorting and prioritizing takes place. After this, the action plan, that is, the strategies required to achieve value are identified. The final step includes analysing, reporting, describing outcomes and documenting the process.

At present, value management includes the practice of studying product orientation, standards, protocols and validation, which is referred to as value assurance (Iyer, 2006). Value management serves to gain an understanding of value assurance, which is the main concern of this paper.

In this century, major changes have occurred in political, economical, environmental, social and technological arenas, all of which affect the progress of any business with an objective of growing or expanding. Particularly in the oil industry, which is one of the main drivers of the world economy, much attention has to be placed on these changes. ZADCO, as one of the companies in this field, has proved to be a leader in terms of management of resources and development of projects over the years. Its secret has been the application of its value assurance process.

This study is expected to add to the existing field of knowledge of value management, especially in the study of value assurance. Furthermore, this study will be significant in understanding the issues and opportunities faced by companies in the oil industry and how these opportunities are maximized by meeting targets while simultaneously assuring rigorous business strategies.

ZADCO is the best of all examples and will be used as the sample of this study to espouse the challenges it has overcome in its long growth journey through the application of value assurance.

### **1.5 Research Questions**

Considering the objective of the study in analyzing the effectiveness of ZADCO's value assurance process, the following research questions are formulated to find specific answers:

- a) Question 1: What are the environmental issues that influence ZADCO's concerns in the value assurance process?

It is important to note in the first question that ZADCO is in the oil industry, which involves significant environmental issues. For example, Zirku Island is the industrial centre of ZADCO's operations. Evidence that ZADCO operates in harmony with the natural environment includes a great number of local and migrant birds, rich marine life and mangrove plantation and greenery.

- b) Question 2: What are the elements of ZADCO's value assurance process and how are they integrated in the company's investment decisions?

It is important to know the procedures taken to understand the ZADCO value assurance process and to distinguish it from its competitors. In other words, it is important to investigate the elements that make ZADCO's value assurance process unique and that have made the company stand out in the oil industry.

- c) Question 3: What are the results of the company's value assurance process in maximizing field development opportunities?

It is necessary to understand the challenges faced by ZADCO which drive the value assurance process and to evaluate them in terms of the obtained results.

## **1.6 Assumptions and Limitations**

The study scope is in the global context since oil companies such as ZADCO serve a world market.

In this study, several assumptions are considered. These include the soundness of the theoretical framework. In the research, it is assumed that the theoretical framework is clear and represents the actual activities at the grassroots. Secondly, it is assumed that all variables in the study are clear and measurable and that they will lead to results that are recommendable or representative.

Third is the validity and reliability of the research methodology. The methodology used in the research study is assumed to be accepted as reasonable and result oriented. The final assumption is that the results can be generalized. As stated before, the research's significance is to clearly examine the significance of value assurance in terms of ZADCO's management of assets (ZADCO Annual Report 2005).

However, limitations also exist, for instance, in the possibility of the theoretical framework being inaccurate to some extent. In addition, the definition of variables in this research may vary from other scholars and therefore cause some difficulty in trying to understand the actual thing being talked about. In addition, the research methodology used in this research could vary from those used by other scientists or analysts. It is hoped that this research will detect and close some loopholes that may be remaining in the company's value assurance process and therefore be of use to the company.

### **1.7 Outline of the Dissertation**

This research study has five chapters, namely introduction, literature review, methodology, analysis, results, conclusion and recommendations, in that order.

The introduction chapter subtopics are background of the study, the problem statement, purposes of the study, rationale, research questions, significance of the study, and assumptions and limitations.

In the literature review, the dissertation contains an introduction into the topic of the study, that is, value assurance. The body of the literature review will involve a detailed discussion into value assurance as it has been applied at ZADCO.

The next section after the literature review is the research methodology chapter. This generally involves the channels used in linking up theoretical assumptions in chapter one and the actual results of the study. In other words, it is how the research is carried out. It will include critical subtopics such as the research philosophy, the theoretical framework of the study, the research

design strategy, qualitative research techniques, data collection procedures, an overview of data coding, data accuracy verification, limitations of the methodology, and ethical issues that relate to this study. Chapter four is simply a description of how the data collected is analyzed.

The last chapter discusses the results of research, and this leads to making conclusions about the research, such as the relationship of the current study to prior research. Further, the chapter includes recommendations about value assurance.

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## **CHAPTER 2: LITERATURE REVIEW**

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### **2.1 Introduction**

Value assurance is a method of ensuring to the higher executive management that the expected business returns are used for maximizing opportunities and integrating them into company program strategies and large projects (Phillips, 2008). It is a process of managing assets and activities over a company's life cycle. In this literature review, it is aimed to gain an understanding of the process of value assurance based on the existing studies in the field. Furthermore, it is aimed to review the existing body of knowledge regarding the role of the practice of value assurance in achieving business goals.

Companies in the oil industry adopt technological techniques to ensure value. Some independent entities provide these types of services by formulating software, which is focused on flow assurance and reservoir optimization in order to improve production while efficiently managing resources. The drive for capital effectiveness derives from the need for companies to ensure value due to their nature of investing in projects in risky environments (Mattu and Marini, 2011).

ZADCO's reservoirs involve some of the most technologically advanced developments in the oil and gas industry, especially in its value assurance process, which has led to it becoming the leading oil company that operates in the UAE. The company's value assurance process covers three life stages, namely production, operation and maintenance. The elements in this process include reservoir management, production, operations, facility integrity, well integrity, HSE audit and HSE review (ADNOC, 2012).

In the company's value assurance process, the challenge is to meet production targets simultaneously while keeping its business process strong. A business planning process was therefore adopted to improve the field development process. Next in the process was to ensure the alignment of the business planning process with the company's value assurance process.

The company made sure of the maturity of the field development options and presented possible actions for potential uncertain consequences. The next issue presented in the case study was the identification of limitations of the business planning process. This provided the basis for the company to improve data management and workflow enhancement. The overall results were satisfying, and there was a noticed improvement in understanding the business process and greater confidence in every decision made.

In the value assurance process for oil and gas companies, capital effectiveness is the main reason that many oil and gas companies adopt development management systems. A development management system is needed for the organization to identify the actions that need to be taken, when they should be done, and the process to accomplish the needed tasks. In this system, assurance reviews are necessary so that improvement actions can be implemented. This is especially important for companies in the oil and gas industry to make sure that the value of projects and their governance are not reduced and that return of investments are guaranteed (Matti and Marini, 2012).

## **2.2 Project Value Assurance**

Value assurance technique is one of the fundamental methods used to determine the current project state in relation to projected status. Most of the key elements from the project should involve shared awareness. This will help fill any gaps in a project as defined by the multidisciplinary team which is concerned with the project assessment. This process is mainly supposed to be conducted during the planning phase of a project and needs to be in advance of the execution or operation processes or phases (Phillips, 2008).

Since project value assurance (PVA) is an internal process, it should be done by a multi-disciplinary team in an organization. The team needs to make an in-depth honest assessment and review the current realities of the project. Their plan of action will define whether the project will be able to fill in the gaps and reduce costs in the execution and operation of the project

phases. When the team is conducting its venture, it needs to define some of the assessment objectives to be completed at the end of the assessment (Metzenbaum, 2006).

The first objective is to provide a general overview regarding project status and to redefine the forward plans. Secondly, value assurance is geared towards identifying gaps in a just and transparent manner. The third objective entails allowing the management teams to prioritize and ensure the application of necessary actions that are taken. Fourth, value assurance is aimed at conducting integral stage reviews. Another objective is to determine whether the assigned project team is relevant and worthy to carry out the assessment. Finally, value assurance entails making sure that the process of quality assurance is followed precisely (Kahneman and Tversky, 1984).

It is very crucial to determine and maintain investments made in various organizations since most organizations look at achieving greater returns on investment from their assets, especially from information technology services (IT). The micro-focus assurance process should be designed in such a way that it helps in deployment, solution planning and maintenance of teams who have the ability solve problems to their best advantage, regardless of any change in the business environment or staff (Kowalewski, 1996).

### **2.3 The Dimensions of Value Assurance**

The dimensions of value assurance are very critical and can immensely damage the entire operations, since they occur in almost 90% of such projects. The quest to solve problems drives management teams to excel in these main four dimensions: project strategy, capability building, project management and technical expertise. The value assurance methodology is applied in many private and public sector clients in a range of industries. This approach combines issues regarding IT projects and the transfer of capabilities and focuses on business value activities (Lock, 2007, pp 1-10).

The use of assurance can be featured in four major dimensions: The first dimension is a managing strategy that covers a detailed analysis of the project, risk identification techniques, business strategy and mitigation. The second is good mastery of technology in the context of addressing both technical and non-technical aspects of a project, identifying proper infrastructural designs, establishing IT architecture, assuring quality, rolling out plans, and managing the project scope. Third is the ensuring that teams are built up with proper capabilities that ensure that clients are supported by proper training modules in hard and soft skills. Fourth is the delivery of proper project management practices, which include establishing a value assurance agency, resolving issues, preparing a project master plan, and instituting reporting systems and quality gateways. In order to start a value assessment project, companies need to establish some of the critical challenges, especially areas of weakness and strengths in every dimension. Good companies will always check for findings and develop the next steps by running of diagnostics either quarterly or on yearly basis (Kerzner, 2003 pp 22-35).

The simplicity of value assurance is termed as revolutionary, since it has worked for a number of decades, especially in large-scale construction and engineering efforts. The procedure can be applied in ongoing financial, strategic, compliance, and other operational areas. The parts used for the nine dimensions include areas such as enterprise and risk management (ERM).

This involves developing an integrated uniform assurance capability and support pillars, such as internal processes, transparency and capital requirements. Enterprise portfolio management (EPM) applies to the application, project and vendor. Business and IT auditing services include compliance on document retentions, internal control management, BPO management, and autonomous authentication and validations (Stellman and Greene, 2005 pp 45-69).

## **2.4 The Process of Value Assurance**

The value assurance process is very costly and involved. The process has become dominant, especially in Japan, which utilises total quality management (TQM), as applied by Deming, and

business process reengineering (BPR), as kick-started by Michael Hammer (1990). Capacity, which needs to be clearly in line with the TQM, is another part of the process.

The process of value assurance, especially in IT, gives guidelines in setting up a management process in all environments. These guidelines provide possible suggestions so that companies can master key management activities, roles and responsibilities which need to be undertaken or improved. The guidelines define the indicators of excellent performance and allow companies to compare management processes (Gido, 1999).

The roadmap to successful assurance can be summarized in three steps as follows: planning, scoping and executing. In the execution section, some of the key variables to be considered are those used in determining and understanding the assurance subject, in defining the scope and nature of operations in the management process, in testing outcomes, in documenting the impacts and control measures, in testing the effectiveness of the design processes, and in developing proficient communication, conclusions and recommendations.

The first step entails refining understanding to comprehend the environment in which the testing should be done. The assurance objectives need to be agreed upon and communicated to all the stakeholders. Included in the second step is refining the scope in terms of the testing done to ensure that evaluation and design controls are well accomplished. This helps in assessing the operational effectiveness in the control design and confirming that controls are placed in the operation. The third step entails testing the outcome to help look for direct and indirect evidence of quality outcomes. Fourthly, the design is tested to evaluate and conform to test controls and to assess the operational effectiveness of the control designs. Finally, documentation of the impact is done to help illustrate potential achievements through the use of survey results to compare the general performance with others (Uytewaal, 2000).

## **2. 5 The Process of Debottlenecking and Expansion of the Upper GTP Plant**

Bhatia and Fiaz (2006) note that the Upper Zakum is one of the biggest oil fields in the region; it was established to increase oil production within a short time frame. This project has posed great challenges, especially in terms of managing reservoirs, but also in terms of expanding offshore facilities. The gas to be produced is projected to increase because of higher oil production and the likelihood of a gas breakthrough because of continuous gas injection. The company has already launched the initial stage of its expansion plans for rebottling and expanding gas compression to export the gas to the Upper Zakum Central Complex (UZCC).

Total gas production depends entirely on gas handling, and the project strategy is set to ensure minimum interruption of the production process when the project is executed. The company follows four value assurance processes at different stages. The stages include identification, selecting, assessing, and defining and executing. The identification, assessing and selection stages are already complete as per the recent research. The selection stage, also called the feeding design, is ongoing and is scheduled to be complete by the fourth quarter of 2010. The project is likely to handle a gas capacity ranging from 125MMSCFD to 230 MMSCFD (Bhatia and Fiaz, 2006).

During the selection stage, several conceptual engineering processes were carried out with many specialized personnel. Some of the studies conducted were on: [1] computational fluid dynamics (CFD), [2] reliability, availability and maintainability (RAM), and [3] the process simulations for cooling water checkups, fuel and gas system checks, pipeline hydraulics, fare rationalization, alternative technology evaluations, construction of the QRA of the UZ GTP plant, identification of safety and environmental reviews, and the critical tie-in points. Some of the issues that could lead to collapse and loss in the production process of this project were considered during the initial stages of the project. The approach enabled the management teams to evaluate and focus on key issues during the FEED and EPC stages. Findings shown so far show that the studies

carried out have increased stakeholder's confidence in the company, hence enabling it to achieve its objectives ([subseaiq.com](http://subseaiq.com)).

The company has been operating in the upper Zakum (UZ) field for over 20 years. It has been named as one of the largest and richest offshore oil production facilities. It is segmented in four areas: north, west, south and central, where there are 62 platforms (WHPTs) which are made up of production wells, gas injection wells, gas lift wells and water wells. A highly integrated management VAP is thus required to ensure transparency for the benefit of the company's stakeholders (ZADCO Annual Report 2005).

One goal in the consideration of restructuring is finding a model that is supportive and workable to realize a payback from the VAP, especially when planning and execution times are constrained as a result of an increase in the production targets of the stakeholders. Every strategic initiative was started based on a potential incremental increase in the oil, water and gas production rates; it was agreed to focus heavily on the activities of the Zakum Field Development Department as the most crucial point for proper improvement and development by the teams. The appointed task force came up with the following conclusions in terms of the most advantageous strategic aims: developing clear roles and responsibilities, having an integrated multidisciplinary and multinational approach, and establishing a better embedded project model (ZADCO Annual Report 2006).

## **2.6 The Application of the Value Assurance system in an Oil and Gas Development Project: A Case Study**

Oil and gas companies make considerable investments in risky and complex environments. This therefore calls for the companies to improve their capital effectiveness, which leads to their application of value assurance at some stages in their project development.

Most companies' projects are divided into phases, and this involves making decisions at the end of every phase. The project team presents plans to the management team and then decisions are made by the management about continuing with the projects. However, there are independent, multidisciplinary expert teams who also take part in evaluating decisions. Their evaluation covers the methodology of the value assurance checks, different types of project reviews, techniques and practices for planning and executing reviews, and application of the project reviews (Delmas and Toffel, 2005).

Therefore, in my assessment, this case study will enable us to understand the effectiveness of value assurance after seeing its actual application in the oil industry, where all development projects begin after the discovery of a well and end when a plant is started up. A lot of investment is done in this risky environment. Therefore, for a company to ensure capital effectiveness, they have to closely monitor and control their projects, hence creating value for the company. The main reason that companies use a development management system is to determine when should something be done and how.

## **2.7 Development Management System**

Development projects occur in different phases. They are usually concluded with a review of the work done. A review is an indicator of whether extra work is still needed or whether the phase has been completed satisfactorily. Further, it can be used as a basis for the start of the next activities. In general, there are four main project phases for most companies. The first phase entails evaluation, which includes assessing the value of the existent opportunity and the orientation of business strategy, based on preliminary reservoir scenarios and development concepts. Included in the second phase is concept selection, which involves generating concepts and then selecting and optimizing the preferred concept, based on technical, economic and risk evaluations. Concept definition occupies the third phase. This means defining the selected concept and tendering and producing the project execution plan, which leads to project

sanctioning and execution. Finally, the fourth phase entails commissioning, starting up and performing tests: that is, operating and evaluating the asset to maintain performance and maximum return to shareholders (Diallo & Thuillier, 2003).



*Figure 2: Development management system* Source: Blanchard, and Fabrycky, (2006)

## 2.8 The Value Assurance Phase Review

The phase review is generally conducted at the end of a project phase at the intermediate decision point when the management decides on whether to continue with the project or to stop it. The selection process begins upon looking at the overall project, after which management approves it and commits funds and necessary resources required in that phase.

At the gate, the management team will present results obtained in the previous plans and assess the next possible outcome in the following five steps: [1] proceeding if the project has made the approval criterion, [2] reworking the project if the work performed was not enough to support the recommendations or holding if the project is viable, [3] killing the project if it cannot hold in the

future, and [4] changing the project if changing the scope is necessary (Kim and Mauborgne, 1997).

At the gate, the project team presents the results that have been obtained in the previous phase and their plan for the coming phase to the management, and this information may lead to several actions. First, the project may be approved to proceed to the next phase. Second, it may need some rework if the work done was not sufficient. Third, it may be held if the project is viable but not to be executed immediately. Finally, it may be changed as in changing the scope to make it a more viable option, or it may be terminated if the project is not viable at all.

The Gate point sets the overall objective of improving the effectiveness of capital investments as it ensures both an appropriate level of control and value improvement. It ensures that the value drivers and the risks and uncertainties are identified before committing any expenditure. It enables the identification of necessary project activities and activity results that are documented to support the decision-making process (Ajamian and Koen, 2002).

The internal decision-making process at the gates is intended to be a value-adding process through ensuring that investment decisions are made in a comprehensive and consistent manner, considering all elements of a project (technical, commercial, political and social, among others) in making the decisions, and providing uniformity and openness of decision-making criteria across the development projects.

Access to the gate is possible following the preparation of a corresponding decision support package (DSP) or the execution of a project value review (AR). Gates ensure that all the investment decisions are made and carried out in a comprehensive and consistent manner and also provide uniformity and transparency in the process of decision making in most development projects (Glass, Ensing, DeSanctis, G., 2003)

## **2.9 The Decision Support Package (DSP).**

The decision support package is a set of deliverables summarizing the key project information that is required to support the decision-making process at the gates. DSP is therefore the key to the gates and provides sufficient information to decision makers on the project's completeness, robustness and readiness.

Assurance reviews (AR) are structured, independent reviews that challenge the project team to justify the conclusions of their work, identify the weaknesses and shortcomings and make specific recommendations for possible improvements. ARs introduce outside perspectives purposely to increase potential project value and allow the project to avoid any risk of missing opportunities for business and technical solutions (Moonthanah, Poynter-Brown, and Jefferyes, 1998).

In other words, the AR takes a detailed look at different aspects of the project and challenges the project team to demonstrate that changes and improvements should be agreed upon as a result of the process. An AR is performed by independent groups of experts, project partners and representatives, among others. These groups are meant to ensure that the process of AR is well done to facilitate transparency in project teams (Power, 2002).

The review results are presented to the project team for discussion of the improvement actions. The decisional process at the gates is usually supported by recommendations which arise in the reviewing exercise by the expert, independent team. The practice is a critically useful tool to assure the value of projects and project governance (Prague, and Carlson, 1982).

Also, at the end of phase gates, there are specific cases in which intermediate decisions are required when circumstances justify such an occurrence and when the associated risk has been identified and accepted.

## **2.10 Project Review Typologies**

A project review is engaging activity to determine the appropriateness, capability and effectiveness of the situation to achieve recognized objectives.

As stated before, value assurance aims to provide the project team with assurance and assistance at critical decision points through a process of support, independent challenge and review. The process is very important, especially because development projects are capital intensive with long-term returns (Kerzner, 2003).

The company benefits both financially and in terms of strategic relevance and risk from review monitoring. Value assurance may help the project team to achieve the following: [1] identify opportunities for value creation, [2] control project performances, [3] suggest possible improvements and [4] solve technical problems.

## **2.11 The Value Management Plan**

The value management plan is a high-level document that is a guideline for the project reviews. It defines the project's commitments to assurance activities for the coming phase. It often contains the following information:

- The scope and objective of each assurance check. These are the expected outcomes and the terms of reference; competencies should also be defined well in the assurance process.
- The number, timing and duration of assurance checks for the next phase, that is, the plan's rationale.

It may also contain plans for other value management activities, for instance, value improving practices, decision making and the like.

Note that the value management plan is usually produced before the end of each project phase and added to the corresponding DSP together with the value assurance activity reports delivered during the phase (Prince2, 2002).

## **2.12 Review versus Audit**

Substantially, an audit is a systemic, self-determining and documented process meant to initiate audit evidence and to evaluate. On the other hand, a review is an act done in order to define the suitability, sufficiency and usefulness of the subject with the aim of achieving the established objectives.

This dissertation is however concerned with the review. There are several types of reviews with different objectives and durations. The following are some examples of project reviews in value assurance.

## **2.13 Assurance Reviews (ARs)**

ARs are independent reviews that examine all aspects of a project before accessing a gate, although additional ARs may be required for pre-execution investments and or major project changes.

They focus on the aspects of a project that require the most attention. They take a wider view of protecting before the gate, and they provide assurance and assistance to both the project team and decision makers. This enables the project team to be more confident in accessing the gate and to be committed to action for achieving the improvement points, and it enables decision makers and the project team to get both assurance and assistance from the AR team recommendations. It further helps in all aspects before accessing a gate, and lastly it enhances the decision making process and makes it more effective, therefore benefiting from different qualified viewpoints that focus on the recommendations and critical issues (Ireland, 2006).

In addition to that, an AR tests the project team's technical and strategic recommendations against decision makers' needs and expectations, assists in maximizing the value of opportunities, facilitates best practice transfer into the project team, captures lessons learned for

dissemination across the other projects, and helps in the provision of external challenges to the project team at each key decision stage.

The independent review team is usually composed of multidisciplinary team members that should integrate expertise from different areas, including economics, local business, HSE and quality. The concern of this committee should be to meet the stakeholders' needs before proceeding to the next phase. Broadly, the focus of this review is to stimulate feedback, creating learning opportunities and identifying possible recommendations. This review looks in detail at different project aspects and challenges the project team as to whether they have optimized and assessed the project's robustness and weakness and come up with specific recommendations and improvements.

The AR confirms that the current phase has been successfully completed in relation to the objectives and that the project is consistent with company requirements and is ready to proceed to the next phase. The AR also checks the suitability of future plans and strategies. At the end of every AR, an assurance review report is delivered and added to the corresponding DSP, together with the project team's resolutions concerning the most pressing issues addressed by the AR team. This report contains a summary of AR findings and conclusions, pointing out areas of weakness and any gaps that require further attention (Young-Hoon Kwak, 2005).

## **2.14 Progress Assurance Review**

A progress assurance review (PAR) is carried out on projects with a long execution phase. They are intended to provide confidence that the development project is meeting its objectives and that the specific recommendations will positively contribute to the project. This assurance review provides confidence to stakeholders that [1] the performance requirements are satisfactorily progressing during the implementation, [2] the project management systems are adequate and correctly applied, and [3] the key project risks are clearly identified, and mitigation plans are properly managed (Sebastian, 2007).

The PAR needs on a significant project are planned yearly between the project team and team and the PAR team leader. The PAR is usually carried out during the execution phase and involves canalization of the on-site project structure, organization, cost, timing and contract status, the identification of critical situations, and the relevant causes and possible mitigation actions for all major technical or functional areas. The PAR team performs a preliminary analysis of the project before performing the visit on site. This is based on the project documentation available and information derived from past activities. The objective of the analysis is to verify the critical areas that need attention.

A PAR is usually carried out through the analysis and verification of the technical or functional areas that have been defined by the PAR team through meetings, document review and a survey performed by the project team. The analysis should lead to the identification of the critical situations and associated causes, therefore finalizing the relevant finding (Hamilton, 2004).

A preliminary feedback report is usually issued to summarize PAR results; note that this is discussed before issuing the final feedback report with an action plan. The scope of this review usually includes [1] controlling physical progress, spending, costs and schedule [2] generating a statement of conformance to operations and maintenance requirements [3] establishing a well execution plan and measuring its interaction with reservoir performance, [4] closing out outstanding issues from ARs, and [5] implementing management systems to ensure maintenance of the integrity of the facilities during the design, execution, implantation and commissioning of the operational stage of the project.

The review team is mandated with making recommendations with an aim of improving the project performance, updating the project execution plan and validating the revised cost and schedule outlook by an examination of systems, resources, conformance to plans, tolerability of risk and the operability criteria. These types of ARs should be held either periodically or before

important project execution milestones, such as before commissioning or while being handed over to production (Melik, 2007).

#### ***2.14.1 Peer review***

Peer reviews (PR) are recommended independent reviews that examine specific project activities or work steps in order to ensure appropriate quality. PRs are defined at the pre-gate AR for the following phase, where the review group will establish their scope and timing by mutual agreement with the project team. They are usually narrower in terms of reference than ARs, and they play the role of an intermediate validation point within a phase.

#### ***2.14.2 Peer assists (PA)***

A peer assist is an activity in which experienced internal or external professionals who have appropriate levels of experience or expertise suggest improvement points and challenge and verify the work in progress. These ARs are usually requested by the project team to identify any gaps in the project. They are usually technical in nature and single disciplined, and they are usually required at the end of an interim stage of study.

### **2.15 Preparation of a Project Review**

#### ***2.15.1 The role of the project team - preparation***

A project review is called and prepared by the project team. The project schedule typically already contains the tentative dates of the next reviews, which have been planned in the value management plan presented in the previous DSP. The project team starts to prepare the DSP when the project is approaching the end. The package already clearly states and demonstrates the

results that have been obtained and describes activities performed and technical studies. In addition, it should contain objectives and requests for the next phase (Pinto and Slevin, 1998).

It should be noted that the project team presents a project to the management, stating what they are planning to do and the resources that are required, that is, the budget, manpower and time. The review team is usually independent, and they usually are not aware of the project's difficulties and what has been performed up to that moment. The DSP is a tool that lets the review team understand the nature of a project. Therefore, it is very important to prepare a clear and exhaustive DSP. After the DSP has reached a good level, the project manager contacts the review team leader in order to agree on a review date.

At this stage, a short document called the terms of reference is produced. This contains a short description of the project, the review objectives, the suggested composition of the review team, the tentative agenda and the logistics to be followed. Once the terms of reference has been created, the review team leader starts to organize the event. For instance, some deliverables may be made available to the review team before the actual session in order to enable understanding of the project background and the main review topic framing. This documentation should contain relevant deliverables, such as the project execution plan, basis design, and reports from previous reviews, among others, and therefore enables the review team to gain an understanding of the project status (Nilsson and Söderholm, 2005).

### ***2.15.2 The role of the project team - execution***

Project reviews are executed by a dedicated team, which is usually made up of a team leader and a variable number of team members. The team leader plays the key role because he or she is independent of the project. The team leader should have substantial experience with reviews, be part of the senior staff, and have a broad knowledge of and experience with typical key driver issues (technical, commercial, etc.). The team leader coordinates the team and ensures progress,

cooperates in selection of review team members, keeps the project team informed, promotes a collaborative atmosphere and collects best ideas.

The type and number of team members depend on the nature, vulnerability and size of the project phase being reviewed. The team should be external and independent to the project. The competencies and composition of the review team vary according to the focus of the review. The team should however include individuals who will review from a universal perspective with an understanding of typical key drivers. The team contributes to the execution of the review and ensures that all the views of the team members are integrated (Seymour, Hoare, and Itau, 1992).

### ***2.15.3 The Review Process***

A project review its include two steps:

- A pre-event step (that is, the preparation of the pre-reading material, review organization and logistics).
- An execution step that includes (a) information which involves aligning the review team with process and rules, carrying out presentations and interviews; (b) development that involves reviewing documentation, identifying relevant themes, priorities and interconnections, carrying out in-depth interviews, drawing conclusions for identified themes, drafting a preliminary theme report, stating the findings and recommendations, adjusting the findings, prioritizing the recommendations and then lastly producing the final report.
- A post-execution step involving the close out, presenting the final report and defining the action plan.

### **2.16 The SAVE Process**

This is a value study process in the value management SAVE body of knowledge. It is a tested and common way of proceeding, and it guarantees a correct and comprehensive development of the event.

## **2.17 The Project Review Report**

The project review report usually includes a short background of the project, a summary of the review results and details about the findings and recommendations. Note that the recommendations represent the core content of an AR report. The project review report is usually shared with the project team before being presented at the gate. At the end of the review activities, the AR team should not only state the recommendations, but also give an evaluation of them in terms of the importance (the potential impact of issue) and urgency (the urgency needed for them to be solved).

Morris (1994) explains that importance is evaluated on a three-point scale: [1] high importance (the potential to significantly impact achieving project objectives), [2] medium importance (the potential for significant values erosion through schedule, costs, reserves or revenue), and [3] low importance, which is the potential for value erosion. A 3-point scale is usually used for evaluation of the urgency as in the following.

- High urgency, which is usually before proceeding to the next phase;
- medium urgency, which is usually before the next AR;
- Low urgency, which is usually before project start-up.

## **2.18 Value Assurance and Corporate Social Responsibility**

A recent report shows that over 5000 assurance statements have been provided in the last 15 years, incorporating about 90% of the global reports on assurance. This type of report is now a part of the business mainstream. The publications provide external assurance of the designated project with the objective of shedding light on the development and identification of best practices. With corporate social responsibility (CSR), we can explain some of the approaches used in quality assurance. Quality assurance elements are used in several countries and across many sectors in organizations to carry out assurance programs. Some of the sponsors which are

dedicated to providing quality assurance networks include SGS, LRQA and KPMG (Matthew, and Moon, 2007).

The sustainable report from SGS gives more than what one would expect since it defines commitment in terms of social and environmental sustainability, impartiality and independence and commitment towards continuous improvement. SGS has made a lot of effort in advancing the CSR agenda and identifying the best practices in the field.

## **2.19 Getting More from Assurance**

Sustainability is a basic business requirement, and most stakeholders are demanding companies to be transparent, thereby increasing competition and thus demonstrating commitment in terms of corporate responsibility. Assurance ensures that reports are made more credible and thus improve customer or stakeholder confidence. When one seeks assurance, this is simply a corporate responsibility process opening up in the management system. The process also gives quality improvements through increasing system performance. The major function of value assurance is in determining the current state of a project in comparison with the required status. Its output can be measured, assessed and shared by the multidisciplinary team in case of any gaps in the areas of development and planning (Benjamin, 2008).

The process should be conducted during the planning phase through the execution and operational phases. This is to ensure that there is enough time for implementing and assessing the outputs and also for positioning the teams to realize a successful execution of results. The assessment is normally a self-assessment and does not involve an external team of experts. The multidisciplinary team works first on an honest and in-depth review to remediate the gaps in the execution and operational phases of a project. The key assessment objectives include providing an overview of status and forward plans, identifying gaps in an honest and transparent way, organizing the gaps and recognizing them, determining and recommending whether the project

teams are worthy for the project success, ensuring that the quality assurance process is followed, conducting stage-to-stage gate reviews, and allowing teams to prioritize the best actions to be taken in value assurance (Dylan and Morgan, 2010).

## **2.20 Threats to Value Assurance**

Some risks resulting from seeking assurance need to be factored in by all parties. Reporting is one thing which needs to be done to ensure that assurance is effective in organizations. It is healthy for stakeholders and other investors to have faith that assurance has been conducted with integrity, independence and impartiality and that the provider has the necessary knowledge and the right skills to carry out assurance. Reporting and assurance need resources, and companies should expect high returns in their investment activities.

Quality assurance of firms or organizations may not be accredited due to the following reasons that may result in underperformance: [1] an unacceptable quality level arises when products have defects and when service is not practical or economical; [2] companies may be unwilling to pay for quality assurance since they may not get an immediate payback; [3] few organizations are willing to produce requirements at a sufficient level of detail of quantitative measurements; and [4] many organizations may think that complicated standards are hard to implement, which might hinder them from complying to standards. According to Phillip Crosby, factors which might cause poor contributions in organizations include a lack of involvement by management and a lack of knowledge concerning quality (Ansoff, Declerk, & Hayes, 1976).

Lack of involvement by the management team, as suggested by Crosby, can be explained by the high costs associated with defects, management unwillingness to accept responsibility fully, failure in enforcing the right standards and failure to reward those who perform better in following the quality assurance processes.

Lack of success can also be attributed to the following reasons, among others: poor communication skills in organizations, lack of principles and knowledge of quality, a poor and unqualified categorization scheme, poor delivery of information at various levels within the organization or company, and poor production and services. Quality is very hard to accomplish because it requires the cooperation of executives and staff. Achieving eminence requires an obligation and of the establishment of an environment in which quality grows (Munro-Faure and Munro-Faure, 1992).

## **2.21 Diversity of Approaches**

Reports on assurance have many titles: sometimes they are called expert opinion reports, external assurance, an external audit, or an independent assessment. Each of these types of review is acceptable, but they contain specific rules and regulations which need to be determined on their own terms. The presentation of an audit of annual reports and accounts (AR&A) is regulated by practitioners and forms a statement on a legal basis. Practitioners have to agree on an assurance report, and it should be communicated; otherwise, it will lead to a bad image, which can be confusing or misleading. Each of the statements should define references, set objectives for achievement and for the nature, method and scope of operation. The stakeholders or the assurance team need to read these articles carefully and understand them.

## **2.22 Differing Approaches**

Many formats exist for assurance approaches. Some of the factors to determine are the company's experience in reporting, the scale and size of its operations, budget constraints and stakeholder demands. Conducting an internal assurance program is essential, since it provides an opportunity for accuracy and completeness of information. An internal review is less costly and needs to be balanced with the problem of assurance, which stakeholders may see as not reliable.

It might also be time consuming, since it requires the creation of an internal team with appropriate skills and knowledge which is independent from the activities being evaluated.

Another disadvantage may arise from the problem that the assurances undertaken will not meet the specifications of all the stakeholders. The view of the unrepresented stakeholders whose views are not taken into account will lead to conflicts among the stakeholders (Miller, Goss, Symons, 1998).

It is good to use an expert corporate responsibility program to provide good commentary and proper opinion reports. These reports are crucial, especially in creating and building trust among the members. However, this type of an assurance may not give accurate information on the underlying systems. It is therefore very important to give an overview of the working scope and a report on the issues presented.

In order for value assurance to have an impact, a self-regulating, impartial team is recommended, and an organization needs proper knowledge, skills and expertise to enable value assurance to be realized so that the reporting company can meet stakeholders' needs. However, proper assurance is likely to cost a lot. Some local arrangements need to be made to undertake real-time assurance with electronic reporting in which updated information can be included and assured on a regular basis.

## **2.23 Continuous Improvements**

Continuous improvements of assurance are needed in organizations. Some of the areas which need improvement are in management systems, the content of reporting, boundaries or approach, assurance scope and data collection. Assurance is applicable to each company, and it acts as a driver of corporate responsibility in performance (McNabb and Sepic, 1995).

## **2.24 Value Assurance in**

The process of value assessment helps most CIOs and other senior leaders to diagnose the challenges they face in most IT projects. Mckinsey's University of Oxford study showed that 23% of IT projects operate at a level that is more than 80% within budget. Value assessment can also help organizations to [1] identify whether IT-enabled projects are on the right track under the stated objectives, [2] determine how the IT team should work together in a more effective way, [3] discern the risks which may cause the project to fail, [4] capture the full value of an IT project, and [4] distinguish the likely techniques which should be applied to improve on the success of a project (Macdonald, 1995).

## **2.25 Working of Value Assurance 360<sup>0</sup>**

Integration of web-based surveys of IT team members can be useful in helping the value assurance team identify and clearly articulate the issues and drive the performance of an IT project. The survey assessments require slight preparation and at least a two-day intensive review of the documents. The findings are then discussed as well as the possible next steps to be taken. In the preparation stage, the activities involved include scheduling interviews, launching a web survey, and sending out data requests. Under project review, analysis of documents and interviews are carried out, while lastly, sundry discussions on the review findings are done in the workshop stage.

## **2.26 What Value Assurance 360<sup>0</sup> Delivers**

The outcome of value assurance is measured by what it delivers, especially in research. Conditional on the dimension and complexity of the project, the process might take up to two days before it proceeds. Managers should try to strike a balance between the internal and external factors both in technical and project performance. The value assurance 360<sup>0</sup> program helps organizations decide or focus on what matters, connects business and technology by integrating McKinney's top management approaches to nurture experts, [4] attains stability in terms of

vendor and project partnerships and in integrating and implementing their work (Marshall and Rossman, 1999).

The procedure for value assurance is not complicated in that it first involves assessment of the readiness of a project in terms of good sustainable values before proceeding to the next step. Secondly, it requires that the team be ready in assessing major challenges that are likely to hinder them in the next step. A cross section of a range of actives which are necessary in achieving sustainability can be represented as a lifecycle, as shown in the diagram below.

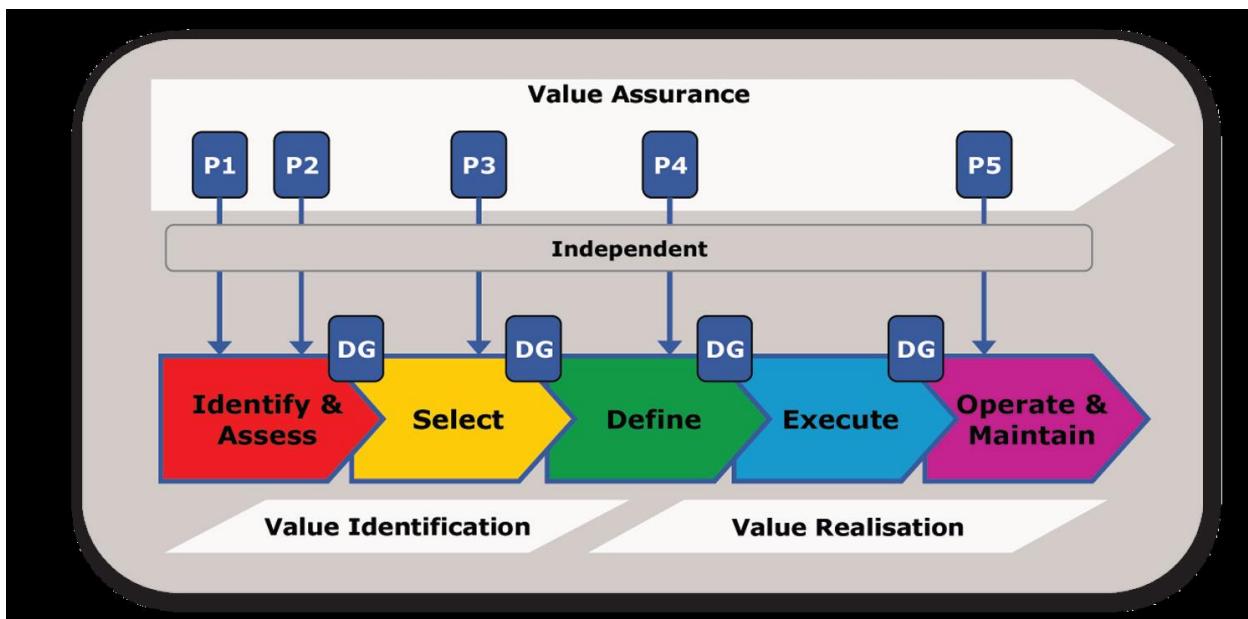


Figure 3: Value Creation Process (Source: Miller, Goss, Symons, 1998)

In the above diagram, the identification procedure is required in order to understand the starting point and the probable issues related to the project before it starts. The assessment process requires that all ranges of values be identified and considered; in the selection stage, the optimal alternatives should be identified. Then, everything needs to be defined to ensure the success of the project. In the post-implementation stage, the researcher should determine the best decisions for a better future.

The process of adding value has a number of advantages and can help a company avoid negative perceptions about a project. The process includes the following: [1] provides an external challenge at each of the decision point levels in a project lifecycle to help assess the decisions

made at various dates and identifies areas needing attention in the next stages; [2] the lessons learned from value assurance can be disseminated across other projects so as to facilitate best transfer of ideas to be used elsewhere; [3] assures management stakeholders in terms of economic, social and environmental impacts and ensures that opportunities are properly assessed; [4] well-done portfolio analysis will ensure consistency in assessing risks across businesses (Miller, Goss, Symons, 1998)

## **2.27 Value Assurance in Management Investment**

In today's world, a major challenge is establishing positive relationships with third parties, especially administrators. Effective relationships are necessary to ensure that values are being maximized. It is usually easier to use available service providers rather than seek alternative suppliers.

In outsourcing relationships, management leaders face issues regarding whether they have the right delivery locations and whether businesses they work with are aligned with the performance and strategy of the organization. There is a big need to understand cost performance that is relative to other models both within and across sectors. The KPMG's 6P model is one of the benchmarking models designed to provide routes for aligning services effectively. It is good to assess the 6P areas in service delivery, including price, performance and processes. In the performance part, it is good to ensure that there is continuous, positive performance over the life of a project. The processing part ensures a continuous change in environment, and the processes need to be updated and clearly defined so as to make sure that documentation is adhered to in order to support both corporate and good practice standards (Youssef and Zairi, 1995).

The 6p model includes planning and potential and perception stages. In the planning and potential step, there needs to be a clear understanding of the business targets, since they are crucial determinants in the success of a business. The provider of a service needs to demonstrate an ability to improve and anticipate future needs. Service providers should provide evidence of

innovation and a drive for future improvements. On the other hand, a clear understanding of perceived and actual performance is necessary and should be considered in assessing future expectations in service level agreements to ensure that contractual agreements are met.

The process of achieving optimal performance requires employment of the 6P model in analyzing outsourcing performance. To work, it requires the following strategies be laid down and enforced: [1] a strategy defining the relationship between the business and the service providers, [2] an operational strategy which includes day-to-day activities in the management of organizations, [3] projects activities should be finished within a set time frame. The 6P is split into two main domains, which are the fundamental domains and the differentiation domains. The fundamental domains include hard factors which are focused on the core and contract services, while the differentiation domains are the soft factors that mostly focus on business direction and strategies. With the fundamental domains, the price should not fluctuate beyond a given level of consumption, and the charges should be comparable to those provided in the market for any given similar services provided.

The differentiation domain is subdivided into the following subsections: planning and potential, innovation, price prediction, billing accuracy, benefits realization and reporting, resources units and value and others. The process involves communication, measurement, incentive schemes, reporting, perception and management, service levels, and service improvement strategy, and in terms of people and governance, good decision making, process documentation, a governance structure that allows adherence to the contract, continuous improvement and process adherence are required (Moreno-Luzon, 1993).

## **2.28 Responsibilities of a Value Assurance Specialist**

The responsibilities of a specialist in value assurance of a company include several roles. Among the roles which are performed by these specialists, the following are included: [1] facilitating value assurance activities such as shaping , assisting peers, performing functional reviews,

framing and doing after-action reviews; [2] identifying value adding opportunities and the processes employed in value assurance; [3] providing feedback obtained from reviews of technical, economic, commercial, operational and political (TECOP) issues (which include a range of opportunities in gas/oil projects; [4] providing support and advice to SME managers and other sponsors of E&P projects; [5] up streaming of BD&I codes of practices; [6] assisting managers following the IEPMS processing components and participating in IEPMS projects to complete the asset portfolios; [7] provision of ongoing coaching, teaching and advice in the application of IEPMS within customer opportunity projects; and [8] capital excellence, whereby individual needs and customer representations are well represented. Any candidate dealing with this field of specialization is supposed to have knowledge of E&P management systems and the gate phase processes. Specialists should be a B-Tech or hold a BS degree with some years of experience and proper project management certification credentials (Gunningham, Thornton, and Kagan, 2005)

As shown from above discussion, most companies' projects are segmented into phases, and this involves making decisions at the end of every phase. The project team presents the results to the management team and plans for the following phase, and then management makes the final decisions about continuing with projects. However, as also discussed, independent, multidisciplinary expert teams also take part in evaluating decisions. They are involved with the methodology of value assurance checks, different types of project reviews, preparation for conducting reviews, techniques and practices for planning and executing the reviews, and the application of project reviews (Cooper and Slagmulder, 1997).

## **2.29 Theoretical framework**

The concepts of value management and governance comprise the underlying framework from which this study analyses the use of value assurance systems by oil companies such as ZADCO. ZADCO belongs to complex and risky environment in which it makes risky investment decisions

(Marini, 2011). This drives the company to improve capital effectiveness and assure value of every project in every stage of development. Value management and governance assures the value of projects through incorporating technical and economic expertise.

Value management works towards ensuring that savings in resources are managed and governed to convey business value, thereby enabling optimal business strategies to be adopted. In this writing, it enables us to reconcile the varied expectations and views of stakeholders with regard to the way value is perceived and managed for initiatives involving change. Its main aim is to ensure that an enterprise has achieved its core goals and objectives. This is done by choosing and executing all investments and managing assets by the use of an affordable resource with a reasonable degree of risk so that there is overall maximization of value in the long run (Stewart, 2010).

Value management is a diverse field that comprises the following interrelated disciplines:

- Portfolio management: this involves prioritizing the top IT-enabled investments in the value assurance process.
- Benefits realization: This involves having insight into the organization and efficiently managing most changes in the business, thereby establishing benefits.
- Value governance: This largely deals with the decision-making organ of the company. Its key responsibilities are monitoring information processes and making pertinent decisions for the company.

ZADCO has proven scientific techniques that support the above named interventions. These techniques ensure that all the stakeholders in the organization are in agreement and that they are actively involved in supporting the company's course in the value assurance process. Their assistance is in terms of services delivery, for example, in the provision of training and coaching

so as to enhance the internal capability through teamwork. To facilitate these services, support offices have been established to encompass the varied needs of the organization. Examples of support offices found in the company are the portfolio management office, the process improvement office and the investment management office, among many more.

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## **CHAPTER 3: RESEARCH METHODOLOGY**

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### **3.1 Introduction**

In this research, a survey was conducted to ascertain the efficiency of ZADCO's value assurance process. A qualitative research approach was adopted to initiate a comprehensive investigation of ZADCO's value assurance process through various sources of information. To gain a contextual understanding, a quantitative and qualitative research was conducted. This enabled the researcher to establish a thorough examination of all the principles governing the company and to learn how they facilitate the effectiveness of ZADCO's activities. In addition to the qualitative research, the researcher incorporated diverse quantitative sources of information so that both empirical and objective results of the study can be well known (Kothari, 2005). This helped in reflecting reality in mathematical terms, thus enhancing the authenticity of the information given in this literature. Furthermore, quantitative data has the ability to effectively translate data into easily quantifiable statistical models, thus ensuring that the information passed is easily understood and elucidated well. Generally, this section will cover the various methodologies adopted in the analysis.

### **3.2 Research Design Strategy**

The research design serves as the plan of how the study was conducted. Here the researcher established the objective of the research together with all the identified research questions that facilitated the data gathering process so as to fulfil the objective of the study. The main objective of the study was to ascertain whether or not ZADCO's value assurance process is effective in the company's asset management. Generally, this part of the text helps the researcher in answering research questions accurately, validly, objectively and economically. It is important to note that the research design serves two critical roles (Rugg and Petre, 2007).

Its first function is to aid the identification and later the development of rational arrangements and actions required to commence a study. Secondly, the research design lays prominence on the quality (validity, objectivity and accuracy) of the procedures adopted during the study. During the process of research, it is critical to note that a research design is not the same as the methods adopted during the data collection process.

Research design can be classified into the following forms: correlational, descriptive, experimental, review, semi-experimental and meta-analytic. Furthermore, a design can be categorized into two broad methods, namely qualitative and quantitative research designs. This study will primarily settle on a descriptive design, specifically a survey (Babbie, 2010). The logic behind the choice of this design is basically based on the financial constraints. That is the major reason that I ignored other forms of design, such as experimental design, which often require substantial financial input. Moreover, unlike other forms of design, this type of design allows the researcher to use both quantitative and qualitative data in establishing answers to most research questions. This is basically because the descriptive design permits a wide variety of data to be considered during the survey process.

Broadly, the design adopted in this study has five crucial phases (see Figure 5 below). The first stage deals with identification of the problem under study. Then, the second phase actualizes a literature review process regarding the effectiveness of ZADCO's value assurance process. Afterwards, the researcher embarks on the process of collecting empirical data, methodical analysis and interpretation of the collected data and finally draws valid conclusions based on the data collected.

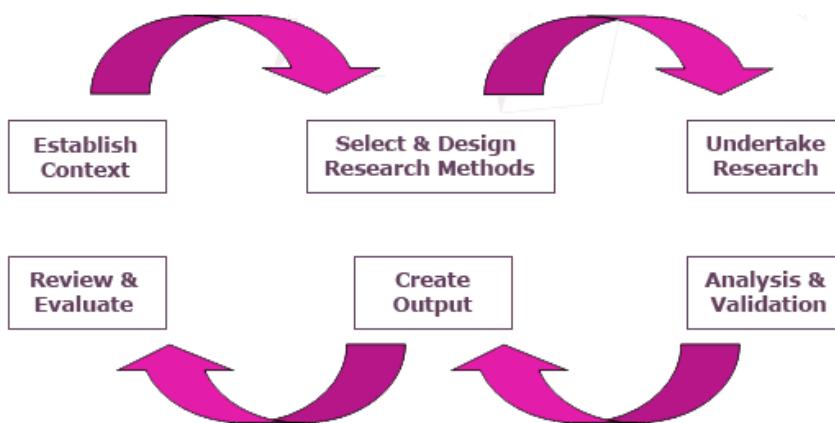


Figure 4: Research design (Babbie, 2010)

In this research design, the survey methodology ensures that a sample of individuals from the entire target population is evaluated by the use of data collection techniques such as interviews and questionnaires (Babbie, 2010). This is aimed at establishing statistical inferences about the population, which in this case is ZADCO.

In this research, the researcher conducted a single survey, which focused on the effectiveness of ZADCO's value assurance process systems. The success of the entire exercise largely depended on the wise choice of a representative population sample with regard to the target population. Despite its ease of use, the survey methodology is often coupled with a number of challenges that include making decisions on how to evaluate and test questions, supervise and train interviews, spot and select sample participants, check data files for internal consistency and

accuracy, select the approach for posturing questions and collecting responses, and adjust survey approximations to correct errors (Pett et al., 2006). In this regard, it is therefore mandatory for a researcher to use authentic means of survey, taking into consideration the difficulties one is likely to face in the course of action. This will greatly reduce survey challenges.

### **3.3 Research approach**

Qualitative data helps in providing a rich and detailed picture of different aspects of real life (Rugg and Petre, 2007). It facilitates reality by providing the most original and first-hand information, thereby enhancing the credibility of the information being gathered. Furthermore, qualitative data has the following advantages if adopted: it provides a detailed depth of information, creates openness and thus reduces bias, stimulates personal experiences during data collection and finally attempts to prevent prejudgments by enabling the researcher to have a meticulous investigation of the subject matter. Evidence is the most important aspect in research. At times, it is hard for a researcher to provide substantial proof of his or her findings. This eventually leads to doubts being cast on the researchers' work. To curb this menace, qualitative data is considered the best option for providing tangible evidence to research work. Researchers often use qualitative data in illuminating hypothesis, attitudes, motivations and even beliefs. Ideally, qualitative research is usually a first step, since it enables the researcher to simplify the words that will be incorporated in the quantitative tools.

Qualitative research works under various fundamental principles, which ensure that the data collection process is conducted without fear or favour. Researchers should always use techniques that give the respondents a substantial degree of freedom. By doing, so they ensure that they have created the right atmosphere, which enables people to speak from their hearts without bias. In this regard, researchers opt to use less rigid strategic approaches that are familiar to the respondents. Qualitative research always tries to find out a new aspect from the participants other

than what is already known. In this research, the researcher correctly used open-ended questionnaires that are less narrow and more explanatory to gain the true information about the value assurance process.

One of the major principles of qualitative research is that it often involves few respondents or participants. This is perhaps because of the methods used in data collections. For example, interviews require a small sample of the target population for valid inferences to be made. It is important to note that the small number of individuals involved in qualitative research does not make the research less scientific. The method still remains authentic and valid, regardless of the number of participants involved.

The approach employed in this paper focused on three basic areas and issues related to those fields. It emphasized the following aspects:

- Segments: What segments of ZADCO exercise the value assurance process?
- Needs: What value assurance needs are currently being met by ZADCO? Which ones are not being addressed at the moment, and which ones are not being met at all?
- Barriers and drivers: What are the common drivers of the value assurance process, and what are the barriers to the value assurance process?

These three key areas offered the outline around which the information collected was organized during survey.

### **3.4 Qualitative Research Techniques**

In this paper, the researcher adopted a historical type of case study in which a holistic approach of describing and analyzing ZADCO historically was illustrated, laying emphasis on its value

assurance process. Case studies are a form of qualitative research used to collect substantial information from a small group of people or a whole population of people. It can also be defined as an empirical analysis used in examining a real-life state. Researchers use observations, interviews, tests, performance records and writing samples to collect samples for case study. Historical case study helps the researcher in explaining complex issues, thereby strengthening what is already known by the participants. Moreover, it lays emphasis on the detailed contextual scrutiny of the narrow relationships of various parameters found during survey. The diagram below shows the process by which information is disseminated through a case study approach.

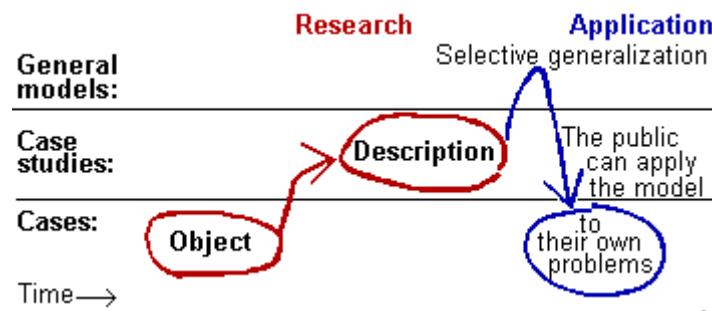


Figure 5: Qualitative data modelling (Ludwig, 1988)

As shown in the above diagram, the case study has the following targets in this paper:

- Describing the phenomena: The researcher used a case study approach in describing the actual aspects of the value assurance process at ZADCO.
- Explaining: This approach helped the researcher in explaining the reasons ZADCO's value assurance process is effective in the influence of asset management and overall capital effectiveness.
- Predicting: The researcher employed this method in anticipating the success of the company regarding its value assurance process, thereby establishing the likelihood of opportunities for future growth of the company.

- Planning improvements: A historical case study looks at the historical background of the subject matter. In that regard, the researcher was able to obtain a record of historical events surrounding ZADCO's value assurance process systems through a normative approach of analysis. The historical aspects of ZADCO Company to a great extent, allowed the researcher to deduce whether a significant probability of success exists in the company's value assurance process and whether its effectiveness will be permanent or just short lived. Below is the historical background of ZADCO Company.

ZAKUM Development Company, commonly known by the acronym ZADCO, was formally established on 15 November 1977 as per Law No. 9, which was issued by the late sheikh Bin Sultan Al-Nahyan. ZADCO's main responsibility was to develop the region of Zakum for the interest of investors and partners. At present, ZADCO has three shareholders, namely the Abu Dhabi National Oil Company, which is commonly known by the acronym ADCON, ExxonMobil and lastly the Japan Oil Development Company Ltd, which is also commonly known by the acronym JODCO. The three shareholders own shares in the ratio of 60:28:12, respectively. On 1 April 1988, ZADCO merged its operations with the Umm Al-Dalk Development Company (UDECO). The main aim of this union was to cut the operational cost of the two companies, thereby increasing profits in the long run. The first ship carrying crude oil from the region was seen on 24 May 1983. This was an achievement for ZADCO, since it had already publicized itself globally. In 2000, ZADCO reorganized itself into units of business whereby it was able to effectively undertake trade with the outside world. By the end of 2000, ZADCO had exported a total of 4000 oil shipments. This was a major achievement as far as the value assurance process is concerned. Due to its efficiency in value assurance and management, ZADCO received a major award, the ADNOC HSE Award in 2007. This was a major boost considering the fact that the company was then celebrating its 30th anniversary in the same year. It is important to note

that since then, the oil company has received two more ADNOC awards (in 2009 and 2011, respectively).

Subsequently, the company has been able to meet its objectives through its value assurance process systems. It has done this while ensuring the safety of its personnel and preserving and maintaining a clean environment. Moreover, the company has been able to achieve an outstanding record in the area of safety, which has been marked by an integrated performance in its value assurance process.

### **3.5 Data Collection Procedures**

An extensive variety of data that focuses on ZADCO's value assurance process was available. Information in this study was largely collected from primary data sources consisting of a sample of 50 respondents who were the primary stakeholders of ZADCO. The data collected has been interpreted in relation to ZADCO's value assurance process. This aspect was of great importance, since it enabled the researcher to distinguish between ZADCO's value assurance process against those of other oil and gas companies around the globe. Moreover, the evaluation measures were formulated based on the research conducted in order to determine the effectiveness of ZADCO's value assurance process and any change management needed in the company.

Despite the existence of various methods used during the collection of primary data, the primary data collection techniques in this survey consisted of questionnaires, personal interviews and observations. The researcher utilized both open- and closed-ended questions in administering questionnaires to various individuals in the company (Royse, 2008). These questionnaires were administered to various respondents via a number of ways. These included hand delivery, postal addresses and emails. Consequently, the delivery of the questionnaires was made in time to enable respondents to prepare adequately in answering the questions. In particular, the secondary

data sources utilized in this survey were mainly organizational databases, scholarly journal articles, trusted web sites, conference papers and reference books (Montello et al., 2006). Only sites relevant to the value assurance process were visited. Finally, the argument in favour of using many secondary data sources in this research was to increase the precision of the data collected, since some of the sources might have been biased.

### **3.6 Overview of Data Coding**

The organization of data in a research study is important in order that data can be monitored, tracked and retrieved for future use. A computer database is a very useful tool to achieve this. With the increasing trend of technology advancement, several statistical tools have been introduced to aid in studies. An example of this is the Computer Aided Qualitative Data Analysis Software, which enables data recording, storage and retrieval (Baxter and Jack, 2008).

In this research, the researcher used the software package for storage of credentials, such as interview transcripts and questionnaires. Subsequently, the software was used in the indexing of manuscript units and coding of research information, thereby refining and establishing categories within data contents. In general, the programme significantly reduced the time typically needed for sorting, cutting and pasting interview records (Warren and Ramakrishnan, 2006). In the long run, the researcher was able to effectively merge the data together with ease. Initially, the researcher concurrently employed the use of a detailed logbook, which allowed the tracing of both the progress made in data analysis as well as the changes encountered in the analysis of data. This allowed the researcher to exclusively focus on the methodological issues faced during research (Baxter and Jack, 2008). Finally, the researcher settled for a computer-aided coding system because it ensured the following aspects in the data collected:

- Reliability and validity: ZADCO is an important oil producing company. Its value assurance process is of great interest globally, especially to its competitors. To that effect,

it is therefore imperative to always keep the information obtained about the company confidential. Above all, the information must be kept in its original state. Therefore, the data collected was reliable and valid.

- Objectivity: The quality of research entirely depends on the researchers' ability and efforts to establish accurate data collection. In addressing this issue, coding facilitates objectivity in research, thereby providing reality in the information gathered.

A common criticism of the coding method is that it aims at converting qualitative data into empirically legitimate data containing scientific-oriented properties. The critics argue that coding drains the variety and richness from data. In this survey, the researcher responded promptly to this argument by establishing comprehensive descriptions of codes and by linking the specific codes appropriately with regard to the underlying data, thus retaining the richness of the data kept.

### **3.7 Verifying Data Accuracy**

Data accuracy is significant on all fields of study and the data collection. Dependability and truthfulness of a case study depend on the accuracy of data gathered. Data accuracy is made through choosing the best tool that appropriate and fit the study. In this study, data accuracy has been accomplished through reducing errors in each particular data item, avoidance of protocol violation and avoidance of fraud.

To assure the accuracy of the study, which also affects its validity and credibility, the researcher needed to consider a number of responsibilities. It was important to establish research questions at the start of the study. It was also necessary to establish a research design that could fit the objectives of the study. To address this issue, a systematic collection and treatment of data was heavily emphasized for proper analysis, which is a key element for obtaining credible results.

Quality is a crucial element in any work. The quality of this study has been earned with the use of qualitative research itself as opposed to quantitative research (Johnson and Christensen, 2012). Generally, evaluating any research work can be done through certain tools such as analysing validity and reliability.

### ***3.7.1 Validity***

According to Mitchell, Mark and Janina (2013), research validity can be existing in two shapes: internal and external validity. Internal validity its main interest is the point when the study have the capability to reflect its result in the realism. It tends to generate a essential relationship between the realism and the collected data as opposed to imitation relationships. However, qualitative studies must be accompanied by a considerable amount of internal validity. In this work, internal validity of the study has been achieved by carefully reviewing the information collected and recorded during the interviews. Conversely, external validity requires the scope to which the study results can be generalized.

The study results can more easily be generalized if several situations have been considered during the study and if similar results have been found (Mitchell, Mark and Janina, 2013). In this study, the external validity was achieved with a large number of respondents and a wide range of secondary data sources. The secondary sources of information largely emphasized the effectiveness of ZADCO's value assurance process. The validity of this information can be sourced from the writings used to obtain substantial information about the company's value assurance process.

### ***3.7.2 Reliability***

Reliability refers to the rate to which research can be repeated and still obtain the same study results. Since it is not practical for a qualitative study to be completed more than once, the reliability of this study has been realized by establishing trustworthiness. Since this research is

qualitative in nature, the research has been made auditable by frequently checking that the interpretations are transferable, credible, confirmable and, above all, dependable. In addition, the research has tightened the reliability of the study by providing an in-depth explanation of the underlying theories and perspectives of the study and the details regarding interviewees' selection and background. This aspect greatly helped in authenticating the information obtained about the effectiveness of ZADCO's value assurance process.

### ***3.7.3 Limitations of Methodology***

The case study shows some restriction and boundaries base on the approach that adopted in this study which may have affected the truthfulness of the result. It is important to be aware of these restrictions and limitations, so that actions may be performed to avoid such limitations. On qualitative case study the limitations was focused on missing of rigidity, unsuitable base for scientific generalization due to small or only a single number of subject's ,enormous documentation and stiffness on behavior

. It is important to drag to attention that results from this study are difficult to generalize, since the survey only focused on a single subject, which was ZADCO's value assurance process.

Regardless of the comprehensiveness of this study and the choice of the representative sample, the researcher faced various limitations in the course of action. Some of the information collected through interviews about the effectiveness of ZADCO's value assurance process had some inherent weaknesses that could affect the conclusion reached in this text in a way. Some respondents of this survey were required to base their responses on their own personal knowledge based on the records presented. Consequently, it is impossible to establish the reality and validity of the records used by the respondents to respond to the questions asked. Therefore, there is a likelihood that some of the information given was biased, thereby posing a challenge to some of the methodology used in this survey.

The impact of the lack of a homogeneous definition of the value assurance process posed a great challenge in the study. Some respondents were unable to establish the meaning of value assurance, thereby creating a need for clarity. This affected the reliability of some of the information sourced from a number of the respondents in the long run.

In the research conducted, it was evident that some questionnaires sent through the post office were not returned or were returned when it was already too late to use the information. This reduced the number of respondents so that the research did not meet the required number.

Subsequently, the researcher met a number of challenges in conducting interviews. Interviews were time consuming, and the detailed qualitative data created a challenge in analyzing and interpreting the information gathered from the respondents in most cases. This was because the researcher conducted an open form of questionnaire in some interviews, which allowed the respondents to provide additional information about ZADCO's value assurance process.

#### **3.7.4 Ethical Issues**

Data confidentiality is an important factor that is expected by the respondents in any study. This was firmly the aim of the research conducted (Krishnaswamy, 2006). The survey aimed at determining the confidence level in ZADCO's value assurance process in relation to any other oil and gas company globally. As expected, the pollster collected data from the company, and the information gathered was used for legitimate purposes. Ideally, ethics have become a major cornerstone for carrying out meaningful and effective research.

Before carrying out this study, every study participant was obligated to read and understand the provision relating to social research ethics. This helped in minimizing the violation of rights of respondents during the study. Moreover, each participant was required to sign a compulsory form declaring that they had agreed to operate within the scope of the research ethics, which

emphasized research integrity, a friendly researcher-participant relationship and, above all, non-violation of institutional rights.

Often, qualitative research captures data that is recorded in narrative form. Therefore, the researcher uses qualitative methods in observing and describing conditions apart from entirely explaining them (Yang, 2008). In this regard, the researcher used the basic qualitative principle for research, which dictated that no one was allowed to tamper with any natural settings in the study. During the study, caution needed to be taken seriously so as not to cause damage to any possessions of ZADCO Company. It is necessary to always bear in mind that the responsibility of conducting research is to gain research information and not to change the existing principles underlying the usual operation of the institution in scrutiny. Therefore, all participants were required to exhibit high levels of integrity so that the environment could be kept as it was before the survey.

Privacy is a very crucial aspect in research. To address this issue, all the participants were required to maintain exceptional levels of confidentiality and privacy in terms of any information they get access to regarding ZADCO's value assurance process. In summary, the following aspects of ethics were emphasized during the research conducted:

- Integrity in the process of study execution.
- Publishing integrity, whereby all findings were published as required by law.
- Simultaneous submission: All the publishing protocols were keenly followed to avoid plagiarism of the information gathered concerning the effectiveness of the value assurance process.
- Sanctions for violation of integrity: Any violation of the stipulated ethics guidelines resulted in substantial penalties imposed on the participant.

In review, it is the responsibility of the researcher to protect all the participants involved in the study. This involves obtaining consent, protecting privacy, and ensuring that participants are protected from harm.

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## **CHAPTER 4.0: ANALYSIS OF RESULTS**

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The survey results were presented in terms of descriptive statistics, as shall be discussed in this chapter. To gain a contextual understanding relevant to the value assurance process at ZADCO, questionnaires were administered to various employees of the company. Similarly, in order to

increase the viability of the responses given, both closed- and open-ended questionnaires were used. In general, a total of 50 questionnaires were administered to a variety of employees in the company. Owing to the sheer magnitude of the study, only representative sample results of the entire population will be discussed in this chapter. The participants involved in the study were between 21 years and 69 years old. However, in order to diversify the study responses, the participants were selected from each unit of the company. This included the Commercial Department, the Department of Corporate Planning, the Department of NFPD, and the Department of Construction and Commissioning. For the purpose of this research, findings from each department will be discussed independently in the subsequent paragraphs.

*First*, 30% (15 responses) of the entire respondents interviewed were engineers working in the Commercial Department of the company. These employees have worked in the company for a period of between four and 15 years. Of them, 10% (five respondents) came from the operation management level, 10% (five respondents) from the middle management level, and the other 10% (five respondents) came from the strategic management level.

According to 80% of the engineers working in the commercial department, VAP has been utilized by the company for a period of more than six years, and for that reason, they strongly agree with the assertion that the value assurance process at ZADCO is effectively timed. Moreover, they assert that the value assurance process is frequently applied in the company.

However, when asked about the environmental issues influencing ZADCO and the VAP, they gave varied responses, and 90% (45 respondents) of these engineers suggested environmental sensitivities, risks and regulations to be the most detrimental issues.

Pertaining to elements of ZADCO's value assurance process and the way they are integrated into the company's investment decisions, 85% responded by highlighting three elements, namely "choose right", "develop right" and "deliver right". Additionally, they claimed that the elements

are integrated by the implementation of VAP stages for appropriate decisions aligned with business objectives. With regard to the results of the company's VAP in maximizing field development, 90% of them said that the process has helped in the achievement of distinctive investments through successful development and execution of projects.

When asked about the challenges/setbacks involved in the implementation of the VAP at ZADCO, a variety of responses were obtained. However, a majority of respondents argued that cost and time posed a very high risk for project implementation. With regard to what can be done to improve the applicability and successfulness of the process at ZADCO, 75% of the engineers suggested that essential training of all related personnel regarding implementation of the VAP is needed for effective and appropriate decisions to be made. Training that results in improved decision making will help to achieve the primary desired outcomes for the VAP.

To conclude, 64% of these respondents gave additional information on the operation of the VAP at the company. For instance, one respondent department asserted that, "VAP/VARs are applied with success over time and extended to non-technical projects such as office refurbishments and IT". He then added that "the value assurance reviews are focused on a higher level to ensure that there are no flaws in project fundamentals".

*Second*, 25% of the respondents in the study came from the Department of Corporate Planning. Most of the personnel in this department have worked for more than 12 years in the company, and 15% belong to the strategic management level, 5% to the middle management level, and the other 5% came from the operation management level. According to 90% of these respondents, the VAP has been fully utilized in the company for a period of more than six years. Consequently, they agree that the introduction of the value assurance process at ZADCO was effectively timed. They also affirm that the VAP is frequently applied at the company.

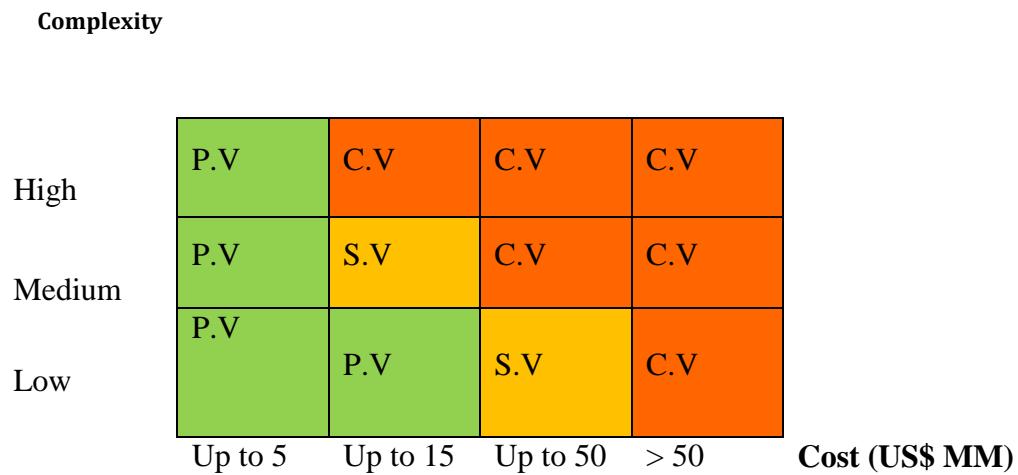
Pertaining to the environmental issues influencing ZADCO's concerns in terms of the VAP, 60% claimed that the HSE team is heavily engaged in the VAP process and in enhancing the gatekeeping process. Additionally, the team advises which HSE studies should be conducted for each project to be successful. On the subject of the elements of ZADCO's value assurance process and how they are integrated into the company's investment decisions, over 80% affirmed that ZADCO's VAP ensures that all projects are generated, selected and implemented in a way that minimizes risk by studying different options along with the cost. When asked to name some of the results of the company's value assurance process in maximizing field development opportunities, over 50% suggested the need for the early stages of VAP process development scenarios to be integrated with facilities development. Pertaining to whether there are any challenges/setbacks involved in the implementation of the value assurance process at ZADCO, 95% said "yes". Consequently, they supported their answer by giving the following responses. Some employees are ignorant about the VAP process, but ZADCO corporate planning (CP) conducts regular awareness sessions for all employees. Also, bypassing CP and getting top management approval for one of the VAP stages without approaching shareholders is an issue. Additionally, cost and time factors have been very detrimental in the implementation process. In this regard, a majority of respondents recommend that in order to increase the applicability and successfulness of the process at ZADCO, the following should be done: keep conducting VAP awareness sessions to all ZADCO employees, interlink the VAP system with the commercial system, and conduct close-out meetings with stage sponsors after each gatekeeping process.

In conclusion, over 75% these respondents gave additional information about the value assurance program at ZADCO by highlighting a variety of additional information as discussed below. The types of value assurance processes in the company are:

- Complete VAP (CV): This follows all stages of VAP, i.e. identify, assess, select, define, execute and operate.

- Short VAP (SV): Identify, assess, and select are combined under one DSP, and then a separate DSP for each define and execute stage is completed.
- Principles of VAP (PV): Identify, assess, select, and define stages are combined under one stage. A justification document is issued before the execute stage.

One of respondents in this category, however, said that VAP selection is made using a matrix based on two variables, namely project complexity and project cost. This particular interviewee offered a remarkable illustration of the two variables, as shown in the figure below.



- C.V. - Complete VAP
- S.V. - Short VAP
- P.V. - Principle of VAP

*Third*, 20% of the respondents came from the Department of NFPD. Members who were interviewed from this department have been employed in the company for a period of between eight and 14 years. Most of these employees work under the middle management level and the strategic management level. For instance, 12% came from the middle management level, while 8% came from the strategic management level. Just like other respondents, 88% of these

participants claimed that VAP has been fully utilized at ZADCO for more than six years. Similarly, 91% of them agree with the assertion that the introduction of the value assurance process at ZADCO was effectively timed. However, 11% of respondents claim that the value assurance process is moderately applied, while 89% claim that it is frequently applied. When asked to list the environmental issues that influence ZADCO's concerns in terms of the value assurance process, they gave a variety of results. However, most of the respondents listed two aspects: awareness of the value assurance process in non-project divisions and shortcuts to the VAP procedure due to urgent requirements/projects.

With regard to the elements of ZADCO's value assurance process and how they are integrated into the company's investment decisions, they responded by emphasizing the same elements listed by other respondents (i.e. asses, select, define, execute and operate). It is evident from the responses that each of the aforementioned stages is detailed to a level which defines the activities required to complete the stages and to develop decisions on whether to invest in moving the project to the next stage or not. Also, 94% of them claim that the VAP supports the company on stage-wise steps to decide on investments in projects and to ensure the successful implementation of projects. This is done by following best practices and structural methodology for each stage.

With regard to the results of the company's value assurance process in maximizing field development, survey participants gave varied responses, though most of the responses applauded the effectiveness of the process. For instance, one of the respondents said that the process gave "assurance in meeting project objectives by applying a systematic, integrated and structural approach". Consequently, when they were asked to give the challenges/setbacks involved in the implementation of the value assurance process, most of their answers were based on the change in procedures followed in the process. For example, one participant indicated that "shortcuts of

VAP procedure due to urgency and the change in management hindered the implementation of the process as change scope was not in line with project stage”.

Pertaining to what can be done to improve the applicability and successfulness of the process at ZADCO, they gave some of their recommendations as:

- Lack of awareness is hampering the VAP procedure in the non-project division.
- The MOC procedure awareness campaign to ensure the changes, impact/evaluation and change scope alignment with the project stage is understood.
- A fast track should be developed for the VAP for urgent requirements/projects.

*Fourth*, 15% of the respondents came from the Department of Project Supports/New Field Project. Most of the employees in this department have been working for the company for a period of between three and nine years, and they operate under the operation management level and middle management level. To be precise, 10% of the respondents belonged to the operation management level, while 5% accounted for employees from the middle management level.

According to 96% of these respondents, the value assurance process has been fully utilized at ZADCO for more than six years. A total of 90% of participants strongly agree with the idea that the introduction of the value assurance process at ZADCO was effectively timed. However, 5% of them only agree with that idea, while none of them disagree. Regarding how often the value assurance process is applied at ZADCO, 84% of respondents argue that the process is frequently applied in the company, while 16% claim that it is moderately applied. Conversely, concerning the environmental issues that influence ZADCO’s concerns in terms of the value assurance process, 92% of these participants argued that the changing environment was the main activating factor.

On the question on the elements of ZADCO's value assurance process and how they are integrated in the company's investment decisions, 94% overwhelmingly indicate that "choose, develop, deliver with the agreed quality, and HSE measures in addition to economics parameters" are the main elements of the process. Similarly, when asked to name the results of the company's value assurance process in maximizing field development opportunities, over 90% claimed that "the approved economics in addition to high excellence in HSE/quality" is the main result of VAP process.

With regard to the question seeking to establish whether there are any challenges/setbacks involved in the implementation of the value assurance process at ZADCO, over 84% of respondents placed blame on cost and prolonged project time. For example, one participant gave the following response on that question: "very minimal like prolonged schedule/additional cost but not comparable to the gaining".

Lastly, 70% of respondents conclude that regular and fixed training sessions, as well as the inclusion of VAP as part of new employee induction course, will help in improving the applicability and success of the process at the company. However, 28% of these individuals recommend that the VAP requires more awareness by all ZADCO employees.

*Fifth*, 10% of the respondents came from the Department of Construction and Commissioning - NFPD. Over 70% of employees in this department have been employed in the company for a period of six to 14 years. They operate within the middle management level and the strategic management level. A total of 86% assert that the value assurance process has been fully utilized at ZADCO for more than six years. Subsequently, 82% strongly agree with the idea that the process was effectively timed at the company. With regard to how often VAP is utilized in the company, 88% of them claim that the value assurance process is frequently applied.

Regarding to the question about the environmental issues influencing ZADCO's concerns in terms of the VAP, over 92% of participants alluded to the notion that the prevailing environmental factors are the main triggering factors. For instance, one respondent asserted that "environmental regulations and standards are becoming more and more complex, and based upon that rationale, ZADCO's management is committed to adhere to those disparities in full".

Pertaining to ZADCO's value assurance process, 92% of them gave responses relating to the business case, the structural approach to project selection, and execution, and full alignment with overall business objectives. Most interestingly, one of the participants claimed that "these VAP demands are integrated there, and therefore the value assurance process ultimately facilitates investment decision making in the company".

With regard to the results attained by virtue of the company's VAP in maximizing field development opportunities, 89% of these participants responded that the company has attained full project results through effective implementation of the process. One of the respondents said, "VAP helps in making sure that the projects executed by the company are properly chosen, well planned, properly sequenced and executed in order that the final outcome is successful in meeting the company's goals and objectives". Pertaining to the challenges and setbacks involved in the implementation of the value assurance process at ZADCO, 78% affirm that the time factor, a constantly changing environment, and impatience among project planners are the main challenges. An example is this response from one of the study participants: "Challenges & setbacks exist, including prolonging project durations and the constantly changing environment of projects".

Finally; in order to improve the applicability and successfulness of the process at ZADCO, one of the participants in this department recommended that there should be more awareness of the VAP. He however elaborates on this point by asserting that, "I have worked for BP before, and

they provide a lot of training and awareness to their staff on CVP (same as VAP), unlike ZADCO”. He adds that, “I have been in the company for six years and never attended training or awareness sessions/workshops”. Moreover, the respondent recommended that the process should be rigorously implemented right from the SELECT phase.

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## **CHAPTER 5.0: CONCLUSION AND RECOMMENDATIONS**

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### **5.1 Conclusion**

The current study is expected to add to prior research and to the body of knowledge regarding the issue of exploration. In this regard, the current study provides the basis for answering questions encountered in the prior research. The positive feedback from the participants clearly advocates that the process is of great economic importance to the company at large. Based upon the results obtained from the Commercial Department, the Department of Corporate Planning, the Department of NFPD, and the Department of Construction and Commissioning, there is valid evidence that the value assurance process has been fully operational for a period of more than six years. Most interestingly, over 85% of responses obtained from all units of the company indicate that the VAP is frequently applied in the company. This clearly shows that its implementation is adequately utilized in the management of the company’s assets.

As discussed in Chapter 4, it is also evident that over 89% of employees interviewed agreed with the idea that the VAP enabled the company to maximize field development opportunities. Given the overwhelming number of participants who asserted that VAP ensures that projects are executed properly, well planned, properly sequenced and executed well, it is rational to conclude that the VAP is of great significance to the company. Moreover, over 90% of responses obtained illustrate that the process facilitates approved economics in addition to high excellence in

HSE/quality. Owing to the above responses regarding the VAP at ZADCO, the study shows that the VAP is effective in the management of the company's assets.

## **5.2 Relationship of Current Study to Prior Research**

The current study is expected to fill the gap in the field of study related to the value assurance process of oil and gas companies. The investigation into the company's asset management can be a basis for studying the oil and gas industry and its influence on society. The current study is expected to be significant; since its goal is to add to the body of knowledge regarding the issue of exploration and since oil and gas are two of the most important commodities in the world and becoming scarce. In this regard, it is therefore wise to note that; the current study provides the basis for answering questions encountered in the prior research. Basically, it provides continuity to the initial research problem and seeks to identify strategies to be implemented in the system in order to check out the problem under study. Significantly, the current research relies entirely on prior research in the establishment of ZADCO's historic background, which forms a major platform in the establishment of the company's market trends over the past years. The market trends are vital in assessing the company's economic growth over time. Growth in this case gives an inference towards the effectiveness of the current systems of management and with regard to previous supervision. The researcher has noted that prior research sought to establish the significance of ZADCO's marine environment in the company's economic development success. This research was diverse and did not give account of internal mechanisms facilitating ZADCO's economic development. The current research gives an account of the internal drivers of the company's growth and development. This clearly provides an overview of the significance of ZADCO's value assurance process in terms of asset management and serves as a pillar for opportunities for future growth.

### **5.3 Implication of service**

Findings in the current study may also have implications to practice. Results can serve as a basis for any strategic modification necessary for improving the value assurance process. This can also help management make better decisions that maximize investments made on project developments, since companies aim to derive greater investment returns from their assets. This is especially important for ZADCO, since it belongs to an industry where its assets are considered waning assets. Oil keeps getting scarcer and scarcer over time. This is basically due to it being overused. Moreover, human beings have failed to employ the use of renewable sources of energy in carrying out economic activities. The results obtained in this research can be used to encourage the incorporation of value assurance processes at other oil producing companies, thereby facilitating outstanding management of this important asset that might be depleted if not properly administered. The world economy is currently facing financial challenges owing to the fact that sustainable resources are decreasing. This has forced most oil producing companies to hike the prices of their products. The end result has been an increase in the poverty level of most developing countries. In the long run, the developing countries have had to rely on the developed countries for economic empowerment. If more companies utilized a value assurance process at an earlier stage, then perhaps products could be made available at a more affordable price. The researcher advocates that major companies should test the value assurance process and its impact on asset management and its importance in attaining core goals and objectives.

### **5.4 Recommendations for Further Study**

Further research is needed to strengthen this study. This is especially important since this is a case study, which is focused on the value assurance process of only one company. It is therefore necessary to gain comprehensive knowledge of the value assurance process from a diverse

perspective. This can be achieved through a contextual study of a wide range of companies and assessing their value assurance processes. This will be helpful in the establishment of authentic data that is valid and reliable.

In review, the method adopted in this study was entirely a case study approach. It was in the form of qualitative research. Consequently, this method faced some limitations in the process of data collection. The researcher faced challenges in using this qualitative case study to establish a foundation for scientific generalization due to the small number of subjects involved in the survey. This is exclusively because the researcher conducted a single survey to infer information about ZADCO's value assurance process. In addition, massive documentation and difficulty in the data collection exercise posed a major challenge as to the accuracy of the data collected. Furthermore, it was hard for the researcher to establish the validity of the information given during interviews due to the high probability of bias associated with the method of data collection. The method employed may have influenced the credibility of the results obtained during the survey. It was difficult for the researcher to identify the reality behind all the responses obtained. Owing to the limitations of the research methodology, further research is crucial to attain a valid and reliable conclusion regarding the effectiveness of ZADCO's value assurance process.

## **5.5 Reference List**

ADNOC., 2012. "Zakum Development Company". *Abu Dhabi National Oil Company: Empowering the Nation for Generations to Come.* [Online]. Available at: <<http://www.adnoc.ae/content.aspx?newid=29&mid=29>> [Accessed 19 September 2013].

Ajamian, G. and Koen, P.A., "Technology Stage Gate: A Structured Process for Managing High Risk, New Technology Projects,"

Al Jarwan, A. 2006. Strategic-Based Project Organization of Field-Development Activities. *Abu Dhabi International Petroleum Exhibition and Conference*. Abu Dhabi, UAE: Society of Petroleum Engineers.

Ansoff, H., Declerk, R., & Hayes, R., eds. (1976). From Strategic Planning to Strategic Management. New York: John Wiley and Sons.

Babbie, E. R. (2010). *The practice of social research*. Belmont, Calif: Wadsworth Cengage.

Baxter, P and Jack, S., 2008. Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report* 13 (4), p.544-559.

Benjamin H., E. 2008. "Firm Value and Corporate Governance: Does the Former Determine the Latter?." Working Paper. UC Berkeley.

Bhatia, S and M Fiaz. Debottlenecking and Expansion of Upper Zakum GTP Plant at ZADCO. *Abu Dhabi International Petroleum Exhibition and Conference*. Abu Dhabi, UAE: Society of Petroleum Engineers.

Bhatia, Sanjay and Fiaz, Muhammed, "Debottlenecking and Expansion of Upper Zakum GTP Plant at ZADCO", Abu Dhabi International Petroleum Exhibition and Conference, 5-8 November 2006, Abu Dhabi, UAE

Blanchard, B. S., & Fabrycky, W. J.(2006) Systems engineering and analysis (4th ed.) New Jersey: Prentice Hall. p.31

C. R. Ramakrishnan, I. V. Ramakrishnan, David S. Warren, Deductive Spreadsheets using Tabled Logic Programming, International Conference on Logic Programming (ICLP), Lecture Notes in Computer Science 4079, pages 391--405, Springer, 2006

Cooper, R. and Slagmulder, R. (1997): Target Costing and Value Engineering.

Delmas M. and M. Toffel, Institutional Pressures and Environmental Strategies, Center for Responsible Business Working Paper, UC Berkeley. Paper 32 (2005)

Diallo, A., & Thuillier, D. (2003). The success dimensions of international development projects: the perceptions of African project coordinators. *International Journal of Project Management*, Pergamon.

Dylan, M., and Morgan. J., 2010. "CSR as Reputation Insurance: Primum Non Nocere." Working Paper. UC Berkeley

Gido, J. (1999), Appendix A: Project Management for Software [Afterword]. In *Successful Project Management* (p. 334). Cincinnati, OH: South-Western College Publications

Glass, J. T., Ensing, I. M. and DeSanctis, G., "Managing the Ties Between Central R&D and the Business Units," *Research Technology Management*, 46(1), 24 - 31 (2003)

Gravetter, F. J. and Lori-Ann B. F., 2012. *Research Methods for the Behavioral Sciences*. Belmont, CA: Wadsworth Cengage Learning.

Gunningham, Thornton, and R. Kagan, Motivating Management: Corporate Compliance and Environmental Protection, Law and Policy, 27, 289-316 (2005)

Hamilton. A., (2004). Handbook of Project Management Procedures. TTL Publishing, Ltd. ISBN 0-7277-3258-7

HSE Manual, Environmental Impact Assessment Module, EP 95-0370. Shell International Exploration & Production B.V., 2003

Iyer, S., 2006. *Managing for Value*. New Delhi: New Age International Limited Publishers.

Johnson, B., & Christensen, L. B. (2012). *Educational research: Quantitative, qualitative, and mixed approaches*. Thousand Oaks, Calif: SAGE Publications.

Kahneman, D., & Tversky, A. (1984), Choices, Values, and Frames. *American Psychologist*, 39(4), 341-350.

Kerzner, H. (2003). Project management, A systems approach to planning, scheduling and controlling. New York: John Wiley and Sons.

Kerzner, Harold (2003), Project Management: A Systems Approach to Planning, Scheduling, and Controlling (8th Ed. ed.). Wiley. ISBN 0-471-22577-0, pp 22-35

Kim and Mauborgne, "Value Innovation: The Strategic Logic of High Growth," Harvard Business Review, Jan 1997

Kotchen, Matthew, and Jon J. Moon. 2007. "Corporate Social Responsibility for Irresponsibility." Working Paper. UC Santa Barbara

Kothari, C. R. (2005). *Research methodology: Methods & techniques*. New Delhi: New Age International (P) Ltd.

Kowalewski, Rick (1996), "Using Outcome Information to Redirect Programs," U. S. Coast Guard Office of Marine Safety, Security, and Environmental Protection.

Krishnaswamy, K., Lyer S. and Mathirajan, M., 2006. *Management Research Methodology: Integration of Principles, Methods and Techniques*. New Delhi: Pearson Education.

Lewis R. Ireland (2006) Project Management. McGraw-Hill Professional, 2006. ISBN 0-07-147160-X. p.110.

Li, Z., Fernandes, P., and Zhu, D. 2011. Understanding the Roles of Inflow-Control Devices in Optimizing Horizontal-Well Performance. SPE Drill & Compl 26 (3): 376-385. SPE-124677-PA. <http://dx.doi.org/124677-PA>.

liveau, A Griffin and S. Sorermeyer, eds, PDMA Toolbook for New Product Development. New York: John Wiley and Sons, 267 - 295, 2002

Lock, Dennis (2007), Project Management (9th ed.) Gower Publishing, Ltd., 2007. ISBN 0-566-08772-3, pp 1-10

Ludwig, W., (1988), Philosophical investigations, [Investigaciones filosóficas, Barcelona, Crítica, 1988]

Macdonald, J. (1995), "Understanding Business Process Re-engineering", Institute of Management, Corby.

Managing for Results 2005 (pp. 277-347). Washington, DC: IBM Center for the Business of Government.

March 2013)

Marini, F., 2011. The Application of a Value Assurance System to Oil & Gas Development Projects. *SAVE International 2011 Annual Conference*. Portland, Oregon: SAVE International.

Marshall, C. and Rossman, G. (1999), Designing Qualitative Research. 3rd Edition. Sage Publications. London

Mattu, G. and Marini, F., 2012. The Application of a Value Assurance System to Oil and Gas Development Projects. [Online]. Available at: <[http://www.value-eng.org/knowledge\\_bank](http://www.value-eng.org/knowledge_bank)>

McGee, M.D., P.R. DeFoe, D.I. Robertson and J.D. McConnell, Improving Asset Performance Through application of a Structured Decision Process. Society of Petroleum Engineers, 2000 (SPE 60852).

McGowen, H.E. III, Effective Techniques for Outsourcing Engineering Projects. Society of Petroleum Engineers, 2003 (SPE 84436).

McNabb, D.E., Sepic, F.T., 1995, "Culture, climate, and total quality management: measuring readiness for change", Public Productivity & Management, 18, 4, 369-85

Melik. R.,(2007). "The Rise of the Project Workforce". Wiley: New York, NY. Retrieved October 30, 2009.

Metzenbaum, S.H. (2005), Strategies for Using State Information: Measuring and Improving Program Performance. In J.M. Kamensky & A. Morales (Eds.),

Miller, Goss, Symons. B, (1998), "Exploiting the Strategic Potential of Best Value, Office of Public Management Briefing Paper", Office of Public Management, London.

Miller, Goss, Symons. B, (1998), "Exploiting the Strategic Potential of Best Value, Office of Public Management Briefing Paper", Office of Public Management, London.

Mitchell, M. L, and Janina M. J., 2013. *Research Design Explained*. Australia: Wadsworth Cengage Learning.

Mohamed A Youssef; Mohamed Zairi (1995) "Benchmarking critical factors for TQM: part II - empirical results from different regions in the world" Benchmarking: An International Journal Volume: 2 Number: 2 Page: 3 – 19.

Montello, Daniel R, and Paul C., 2006. Sutton. *An Introduction to Scientific Research Methods in Geography*. Thousand Oaks, Calif: Sage Publications.

Moonthanah, DP, Poynter-Brown, R & Jefferyes, M 1998, 'A strategy for managing project risk in value management studies', SAVE International Conference Proceedings 1998, pp. 266-274

Moreno-Luzon, M.D. (1993), "Can total quality management make small firms competitive?", Total Quality Management, Vol. 4 No. 2, Pp. 165-81.

Morris P. W. G. (1994). The management of projects. London: Thomas Telford.

Morris, P.W.G., The management of projects. 1994, London: Thomas Telford.

Munro-Faure, L. and Munro-Faure, M. (1992). "Implementing Total Quality Management." London: Pitman Publishing.

Nilsson, A. & Söderholm, S. (2005) From blueprints to maps in project management. EURAM, Munich.

Nokes, Sebastian, (2007), The Definitive Guide to Project Management, 2nd Edition, London ,Prentice Hall, 2007, ISBN 978-0-273-71097-4

Olawoyin, R., Wang, J.Y., and Oyewole, S.A. 2013. Environmental Safety Assessment of Drilling Operations in the Marcellus-Shale Gas Development. SPE Drill & Compl 28 (2): 212-220. SPE-163095-PA. <http://dx.doi.org/10.2118/163095-PA>.

Pett, M.A, Nancy R. L. and John J., 2006. *Making Sense of Factor Analysis: The Use of Factor Analysis for Instrument Development in Health Care Research*. Thousand Oaks: Sage.

Phillips, M., 2008. *From Value Management to Value Assurance*. Hongkong: HKIVM International Conference Press.

Pinto, J. K., & Slevin, D. P. (1988). Project Success: Definitions and Measurement Techniques. Project Management Journal, 19(1), 67–72

Power, D. J. (2002). Decision support systems: concepts and resources for managers. Westport, Conn., Quorum Books.

Prince2, (2002). Managing Successful Projects with PRINCE2. Her Majesty's Treasury, The Stationery Office, Norwich.

Royse, D., 2008. *Research Methods in Social Work*. Australia: Brooks/Cole-Thomson Learning.

Rugg, G., & Petre, M. (2007). *A gentle guide to research methods*. Maidenhead [u.a.: McGraw-Hill/Open Univ. Press.

Schlumberger, T., 2007. *Integrated Business Plan Provides Assurance for Field Development Execution*. Texas: Schlumberger Limited.

Seymour, D.E., Hoare, D.J., & Itau, L. (1992). Project Management Leadership Styles: Problems of resolving the continuity-change dilemma, 11th INTERNET World Congress on Project Management, Florence: Italy.

Sprague, R. H. and E. D. Carlson (1982). Building effective decision support systems. Englewood Cliffs, N.J., Prentice-Hall. ISBN 0-13-086215-0

Stellman, A., Greene, J. (2005), Applied Software Project Management. O'Reilly Media. ISBN 978-0-596-00948-9, pp 45-69

Stewart, 2010, Value Optimization for Project and Performance Management, Wiley Publishers,

ISBN: 978-0-470-55114-1

Subseaiq

Website:

[http://www.subseaiq.com/data/Project.aspx?project\\_id=592&AspxAutoDetectCookieSupport=1](http://www.subseaiq.com/data/Project.aspx?project_id=592&AspxAutoDetectCookieSupport=1)

The Institute of Value Management Report (2006) Available at: [www.ivm.org.uk](http://www.ivm.org.uk) (Accessed: 18  
Uyttewaal, Eric (2000), Dynamic Scheduling With Microsoft(r) Project 2000: The Book By and  
For Professionals, ISBN 0-9708276-0-1

Yang, K. , and Gerald M., 2008. *Handbook of Research Methods in Public Administration*. Boca  
Raton: CRC Press.

Young-Hoon Kwak (2005). "A brief History of Project Management". In: The story of managing  
projects. Elias G. Carayannis et al. (9 eds), Greenwood Publishing Group, 2005. ISBN 1-  
56720-506-2

ZADCO., 2006. About ZADCO. *Zakum Development Company*. [Online]. Available at: <  
[www.zadco.com](http://www.zadco.com)> [Accessed 19 September 2013].

## **APPENDIX A**



### **STUDENT DISSERTATION RECEIPT**

Programme	<input type="text"/>		Submission Date	<input type="text"/>	
Student ID	<input type="text"/>		Supervisor	<input type="text"/>	
Submission purpose:	Marking	<input type="checkbox"/>	Final	<input type="checkbox"/>	
No. of copies	<input type="text"/>	Soft copy format		<input type="text"/>	
		Soft copy submitted to		<input type="text"/>	

#### **DECLARATION**

I confirm that I have read and understood the University Policy on Academic Honesty and that the work contained in the attached dissertation is my own work. Any assistance, of any type, has been acknowledged in my bibliography.

I also understand that the university may use plagiarism detection software on any submitted work, whether plagiarism is suspected or not.

**I do hereby consent/ do not consent (delete as applicable)** that my work is submitted into the plagiarism detection software to check the originality of my work.

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Signature \_\_\_\_\_

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Date \_\_\_\_\_

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#### **FOR LIBRARY USE ONLY**

### **STUDENT DISSERTATION RECEIPT**

Student ID:

Date of submission:

Received by:

Signature:

Official stamp:

## **APPENDIX B**



# **ZADCO's VALUE ASSURANCE PROCESS**

**By**

**Student ID number 110028**

Dissertation submitted in partial fulfillment of  
**MSc PROJECT MANAGEMENT**

Faculty of Business

Dissertation Supervisor  
**Professor Arun Bajracharya**

**MAY-2014**

## **APPENDIX C**

*Survey Questionnaire No:* \_\_\_\_\_

### **Survey: Value Assurance Process at ZADCO**

*Kindly respond to the following questions. The responses provided are meant for research purpose and will be highly private and confidential (Please follow the instructions given in each question carefully).*

#### **A. Demographic Information**

1. Gender\_\_\_\_\_

2. Age\_\_\_\_\_

3. Profession\_\_\_\_\_

4. Department\_\_\_\_\_

5. Number of years employed in ZADCO\_\_\_\_\_

6. Management level

Operational Level [ ] Middle Level [ ] Strategic level [ ]

#### **B. Explicit Research Information**

7. How long have value assurance process been fully utilized in ZADCO according to you?

Less than 1 year [ ] 1-3 years [ ] 4-6 years [ ] more than 6 years [ ]

8. Do you think the introduction of value assurance process in ZADCO was effectively timed?

Strongly Disagree [ ] Disagree [ ] Not Sure [ ] Agree [ ] Strongly Agree [ ]

9. How often is value assurance process applied in ZADCO?

Frequently [ ] Moderately [ ] Rarely [ ]

10. What are the environmental issues that influence ZADCO's concern on value assurance process?

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11. What are the elements of ZADCO's value assurance process and how are they integrated in the company's investment decisions?

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12. What are the results of the company's value assurance process in maximizing field development opportunities?

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13. Are there any challenges/setbacks involved in the implementation of Value assurance process in ZADCO? Please list them clearly.

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14. What do you think can be done to improve the applicability and successfulness of the process in ZADCO?

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**Additional Comments**

15. In case you have any additional information about value assurance process at ZADCO, please write it here.

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Thank Your Participating