University of Stavanger

**Faculty of Science and Technology**

# MASTER'S THESIS

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## *Summery*

The maintenance and modification business is expanding on the Norwegian continental shelf. This means high activity for the service providers operating there. Aker Solutions is providing these services and was awarded a new contract by Statoil in 2010. This was a new type of contract that is compensated by self-cost rates and where profit is based on performance. Statoil demands better quality at a lower cost delivered on time. Profit is based on a set of criteria's that are defined in the contract.

The aim of this thesis is to analyze the effect of introducing a database that can handle the profit criteria's. The objectives where to see if there are criteria that can be used as KPI's to better monitor the projects, does focus on profit lead to more profit, is the Project Execution Model (PEM) good enough to be able to deliver a good result and can benchmarking be used to increase the results.

The main method used was qualitative interviews of 11 task mangers in the Statoil M&M contract. Information was gathered from Aker Solutions internal documentation and published books found on the subject. Relevant theory was, project management, key performance indicators, benchmarking, Aker Solutions project execution model and contractual terms of the Statoil M&M contract. The findings from the interviews have been discussed in the light of relevant theoretical framework. Due to the timeframe of this thesis I have not been able to back up the findings with data. The findings are purely based on the information collected in the interviews and the knowledge collected in the published books.

A profit database was created in Microsoft Access 2010 to be able to handle the profit criteria's. The major findings show that there is a potential to use a few of the profit criteria's as KPI's. This would give the modification managers and task mangers better control over the tasks that make up their portfolio. More focus on profit will lead to more profit. Awareness is important. If the people are aware that their actions have an effect on the profit then they are most likely to deliver a better result. The operating system that is used in Aker Solutions is a good tool that will do the job. There are areas of improvement within especially cost and follow-up. Benchmarking has a huge potential to boost the results in the contract. This is an area that I suggest that Aker Solutions prioritizes. I think that Aker Solutions has a lot to learn from it and can dramatically improve their results.

I believe that there are a lot of opportunities to make money in this contract. People need to think more commercially and more concerned if the contract is delivering a good financial result or not. It is important that everybody daily thinks about what they can do to improve the result. The database is a step in the right direction.

## *Preface*

This thesis marks the end of my 4 years of Master of Science studies in Industrial Economics at the University of Stavanger. During this time period I have been working full time. Studying and working at the same time has been both challenging and rewarding. The scope and goals of this thesis was developed together with the company Aker Solutions. I have learned a lot about the subjects contained in the thesis but also a lot about myself as an individual. It has given me valuable information about project management as a field and it fits well with the curriculum that I have studied at UiS.

I would like to thank Aker Solutions for providing me with the resources I needed to write this thesis. A special thanks to Ingrid Frøyland for being the contact person in Akers Solutions. Ingrid has helped out a lot with the development of the scope and goal of the thesis and has also given me comments and feedback along the way. This has been of great importance. I would also like to say thank you to the 11 task managers that has taken their time in their busy days to complete the interviews. They are the backbone of information in this thesis and I could not have completed it without them.

Big thanks to Professor Frank Asche at the University of Stavanger for his support and academic guidance during the process. He came with very good feedback and was always willing to have a meeting to discuss matter that concerned the thesis. It has been very helpful.

At last I want to thank my family for support and for letting me use the time to achieve my goals. It has been many lonely night up at the loft.

Stavanger, June 2012

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Carl Anders Olof Kjörling

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# 1 Introduction

## 1.1 Background

Increase in oil prices and a boom in exploration has pumped new life into the Norwegian oil sector. New reserves are found that lead to more new build projects and the aging platforms on the Norwegian continental shelf are in need of maintenance and modification work. This means more work and golden opportunities for the oil service companies that operate in the modification and maintenance market in Norway.

The largest operator, Statoil, is focusing on increased oil recovery and is extending the life expectancy of existing platforms. To be able to realize their big portfolio their strategy is to create a competitive market and stimulate the service providers to deliver projects with higher quality at a lower costs. This was evident in the summer of 2010 when they awarded their new maintenance and modification contracts for their installations on the Norwegian continental shelf. Four companies were awarded contracts and Aker Solutions was one of them. The new maintenance and modifications contracts that were given were standardized. All of the service providers received the same type of contract based on the same governing rules. Compensation is in the form of self-cost rates with a fixed markup for administration. Profit is based on performance. If you manage to deliver on time at agreed cost and quality you have an opportunity to succeed. Failure on any of these three areas will decrease your profit down to zero or even turn it into a loss.

This is a new type of contract that is more focused on performance and deliverables then the maintenance and modification business of Aker Solutions has seen before. Maintenance and modification contracts are made up of many tasks that run in parallel. Each task can generate a profit, or a loss, and all of the tasks combined will make up the financial result of the contract. As of today one has only been able to report the total earnings for the whole contract without being able to tell the contribution of the individual task. This is something that Aker Solutions want to change. The competition for the contracts was fierce leading to lower margins. The bidders have tried to win the contracts based on price. Steps have to be taken to try to maximize the profitability in the contract. As a first step, Aker Solutions wanted to develop a database that could handle the job of processing and reporting the forecasted profit of each individual task. This could then be summed up to give the forecasted profit for the whole contract. The task of developing this database was given to me. Aker Solutions wanted a database that could report the forecasted profit and to see what effect and potential this tool would have on the task managers and their relation to profit. The effect that Aker Solutions is hoping to is that more focus on profit will lead to more profit. As I was given the assignment I saw a good opportunity to use this tool as a source for this thesis.

## 1.1 Aker Solutions

The information in this section is taken from the Aker Solutions website and Aker Solutions Intranet.

Aker Solutions provides oilfield products, systems and services for customers in the oil and gas industry world-wide. The company's knowledge and technologies span from reservoir to production and through the life of a field. It has nine business areas, Drilling Technologies, Subsea, Engineering, MMO (Maintenance, modifications and operations), Oilfield Services and Marine Assets, Mooring and Loading Systems, Umbilical's, Process Systems and Well Intervention Services. Aggregated annual revenue for 2011 was approximately NOK 36,5 billion.

The Maintenance, modification and operations (MMO) business area is made up of the subsidiaries Aker Solutions MMO, Aker Offshore Partner UK, Aker Egersund AS and Performance Technology Centre.

Aker Solutions MMO is a turnkey contractor for the oil and gas industry. The company is engaged in front end studies, field development with new platforms and modifications to existing platforms, maintenance, modifications and operations contracts, field decommissioning and removal.

Aker Solutions MMO covers all engineering disciplines, procurement, material administration and project management. The company has some 2,200 employees, including region offices in Bergen, Kristiansund and Trondheim. The head office is located in Stavanger, Norway. The database that this thesis deals with will be used in the Statoil V&M project that is part of Aker Solutions MMO portfolio.

Aker Solutions MMO has been involved in maintenance and modification contracts for a long time. The contract type that this thesis is based on is a EPCI (Engineering, Procurement, Construction and Installation). This type of contracts can be very complex due to their size. There are many tasks that run in parallel and they are manned with people from the same pool of resources. Many things are going on at the same time and one person can be involved in as many as 5-8 projects at the same time. Control and follow up is thus important and the database can help the task managers be better at this.

## 1.2 Objectives

This thesis will focus on the following:

Analyze what effect reporting the forecasted profit per task has on the task manager's way of working:

- Does the tool create more focus on profit?
- Does more focus on profit lead to more profit?
- Does the tool motivate the task managers to do better?
- Is Aker Solutions Project Execution Model (PEM) a good supporting tool to achieve the criteria's?

Analyze if the compensation criteria's can be used as key performance indicators. Key topics:

- Profit criteria's in the Statoil M&M contract.
- Can the criteria's in the compensation format be used as KPIs?
- Does the focus on the criteria's create tunnel vision that will cause less focus on other things that might be important?

Discuss the potential to use the output from this tool to form the basis for a benchmarking project with the aim of investigating why some task managers score higher than others. Key topics:

- Are task managers positive towards a benchmarking project based on the reported profit form the database?
- Do they think that they will learn from such a project?

As a prerequisite for this thesis the tool for collecting, handling and reporting the profit based on the compensation format stated in the Statoil M&M contract for study and execution tasks had to be developed The development of this tool is not of great importance thus only one short chapter, chapter 4.2, has been dedicated to this.

With these objectives in mind the thesis has been given the following title:

*"An analysis of the effect of introducing a profit database in a maintenance and modification contract."*

## 1.3 Reason for choosing the objectives and delimitation of the thesis

The reason for choosing these objectives is a mix between the needs of Aker Solutions and areas of interest from the author. Aker Solutions was in need of a database that could process and calculate the profit. Creating this database was a prerequisite for this thesis since it is dependent on the results that come from it.

I will look at if the profit criteria's in the contract can be used as key performance indicators. The reason is that I want to see if you can find criteria's that qualify as KPIs. These can, if they exist, be monitored by the modification managers to get better control and overview of the tasks in their portfolio. I will not determine if the modification managers will find this information as useful or how you would do the monitoring.

Through interviews I will try to determine if more focus on profit, by the implementation of this database, will lead to more profit. The time frame for this thesis is too short to be able to collect enough data to confirm what is said in the interviews. The conclusion will thus be based on the information that comes from the interviews.

PEM is the operating system for project execution in Aker Solutions. I will look at if PEM is a good enough foundation for delivering results in this contract. The different modules in PEM will be investigated to see if they are adapted to meet the demands of this contract. I will point out if there are areas of improvement but I will not come up with solutions.

I want to look at if there is potential to use the data in the database as a foundation for a benchmarking project with the goal of finding out why some task managers are scoring higher than others. The potential will be discussed but the framework for a specific benchmarking project will not be presented.

## 1.4 Scope of work

I have chosen to divide the thesis in three parts.

Part 1 consist of chapters 2, 3 and 4. In these chapters I will present the theory needed to understand the problems that I am trying to assess, chapter 2. In chapter 3 I will explain what method that was used. The mechanisms of the contract are explained in chapter 4.

Part 2 consist of chapter 5. In chapter 5 the results from the qualitative analysis will be presented.

Part 3 consist of chapters 6 and 7. Chapter 6 contains an in depth discussion of the theory and the qualitative analysis. The results and unanswered questions are presented in chapter 7, conclusions.

# 2 Theory

## 2.1 Introduction: Choice of theory

In this chapter I want to present relevant theory that will form the foundation for the discussion. Theory has been chosen to be able to have a discussion around the objectives and the information that is gathered from the interviews. Project management is the backbone of the thesis and will thus have a central role. My intension is to provide relevant theory found in literature and compare it to Aker Solutions operating system and also link it to how the task managers really work. Based on this the following areas have been chosen as relevant theory for this thesis:

- Project management
- Key Performance Indicators in projects
- Benchmarking

## 2.2 Project Management

Andersen et al. (2004) writes that the characteristic of a project is recognized as:

1. It is a one-time task
2. It should lead to a predefined result
3. It demands different types of resources
4. It has a time limit

This is a definition that can be found in many other books. It is a definition that fits very well with the tasks that are being run in a maintenance and modification contract.

### 2.2.1 Different types of projects

Hetland (1998) differentiates between three types of projects:

- Delivery projects
- Development projects
- Investment projects

Delivery projects key characteristics are that they are predefined products that are to be delivered. There is no uncertainty connected to if it is possible to build or sell the product. It is a prerequisite that there exist a signed deal at the startup of the project i.e. there exist a customer that is willing to pay. Typical projects are buildings, ships etc.

Development projects are more complex than delivery projects because there are a lot more uncertainties connected to them. You don't know at the start of the project if you are able to reach your defined objective. This is a type of project that demands close collaboration between the customer and the supplier because the chosen path changes often and that have an effect on your goal.

Investment projects are characterized by uncertainties connected to the costs of the project and to the expected earnings at a sale or the product is put into use. This is the type of project that is typically used in a maintenance and modification contract.

An investment project is, most often, carried out in sequential phases. The two basic phases are:

- Planning
- Execution

The first phase, planning, covers the description of the projects objectives. It often leads to a decision to go ahead with the execution or to stop the project. This phase can be split into smaller steps:

- Investigations
- Possibility studies
- Concept development
- Project definition

The execution phase can in a similar way be split into:

- Projecting
- Fabrication
- Installation
- Preparation for operation
- Operation
- Discontinuation of operation

This split is very similar to the breakdown of the different phases of the project execution model (PEM) that Aker Solutions uses. It has similarities with the four phases of a project that Karlsen and Gottschalk (2005) writes about. The four phases are startup, planning, execution and close out.

1. In the startup phase it is important to decide what the goal of the project will be, requirements, tasks and responsibility.
2. During the planning phase you need to plan, define a budget, get a hold of resources, man up the project and start managing risk.
3. The next phase is the execution phase. Status reporting, change management, quality and forecasting are key elements in this phase.
4. The last phase is the close-out phase. Delivering of documentation, training of the client, transfer of experience and workforce reductions are done in this phase.

During the lifetime of a project the workload is often lower in the startup and close out then it is in the planning and execution phase. The intensity level normally peaks during the execution phase. Running a project can be compared to building a house. If you plan out and do a good job with the

foundation then it is more likely that you will be able to build a good house that will last a long time. If the foundation is bad then it is very likely that the result will be bad and there is a risk that you need to start over or re-build a few years later.

### 2.2.2 Project Organization and control

There are basically three ways of organizing your company to run projects according to Jessen (2005).

The project can be organized to imply no changes to the main organization. This is defined as limited authority, figure 1. This organization is suitable if the projects are small and they can be organized by discipline. The project can be run within a department and you don't have to change the organization.

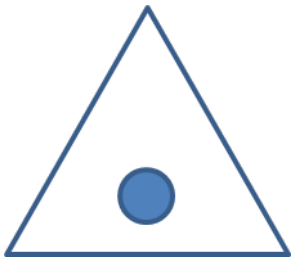

Figure 1 Limited authority

Another way of organizing the project is in a matrix organization. This is defined as divided authority, figure 2. In this organizational form the basis organization assigns personnel into a project for a limited time. The employee will have two superiors, one in the project and one in the basis organization. This form fits best with organizations that have a large number of smaller projects. Aker Solutions is using this type of project organization.

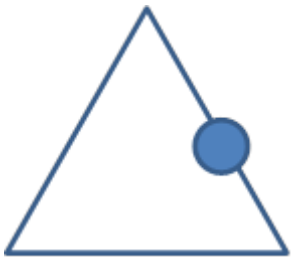

Figure 2 Divided authority

The last form separates the project completely from the basis organization. This is defined as full authority, figure 3. In this the resources get 100% assigned to the project. It is suitable for companies that have a small number of larger projects.

Figure 3 Full authority

Aker Solutions uses the matrix format. Statoil M&M is organized with one project director and 4 project managers. One project manager per filed offshore, Snorre , Gullfaks, Visund and Åsgard. Each project manager has one or more modification managers that reports directly to them. The task managers are organized and grouped under the modification managers according to business stream. This is the level that this thesis will focus on. Each task manager has a core team consisting of a planner, estimator, procurer and LCI coordinator. Each task has a group of engineers assigned to it. They differ from task to task. It is in this arena of people from your core team and engineers that the task managers need to manage and control such that he or she can deliver a good result. The roles and responsibilities between the different members are documented in PEM. These documents will also set the rules for the communication lines.

The success of a project is highly dependent on how good control of the task the task manger has. After the scope of work has been decided, the plan is agreed upon and resources has been assigned the project has moved into the execution phase. In this phase control is very important. According to Karlsen and Gottschalk (2005) there are a number of factors that need focus are:

- Cost (resources)
- Time
- Quality
- Scope
- Uncertainty
- Relationship to project owners
- Contract
- Organization

Profit is also an area were the task managers need to have focus and control. They need to be aware of how the mechanisms in the contract work to be able to maximize the profit in the task. There is always room for negotiations and to use the grey areas in the contract to your advantage. Maximize profit and minimize costs is key.

Most of the areas above affect each other in one way or another. Thus you cannot focus on one of these areas, focus needs to be on all. The operating system that the company uses will have to have control mechanisms built inn that will help the task manager to carry out the checks that are necessary. An overrun or a deficit in especially the areas of cost, time and quality will have a negative impact on the client. Accordingly it is important to have control over changes in the task. The changes can be external or internal.  External changes can be that the client wants something in addition to what he has already ordered or that he wants a change in the scope or shorten the time of delivery. Internal changes can be a too optimistic plan or the resources that you need are not

available at the time that you need them. In the case of the contract that are being analyzed many of the profit criteria's are tied down too how good control you have over these things. Deliver what you promised, at the right cost, the right time and with the right quality and you will be awarded.

## 2.3 Key Performance Indicators (KPI)

Metrics and Key Performance Indicators is a tool to measure the condition that a project is in. Metrics is a term used for all measurable quantities in a project that show anything about the status. KPIs are a few specific metrics. Kerzner (2011) writes:

*"KPIs serve as early warning signs that, if an unfavorable condition exists and is not addressed, the results could be poor"*.

You can also state the opposite that the KPI let you know if you are doing the right things.

Parameter (2010) argues that many companies do not really monitor their true KPIs. This is mainly due to lack of knowledge what a KPI really is. There are four types of performance measures:

- Key Result Indicators (KRI's) tell you how you have done in a perspective or critical success factor.
- Result Indicators (RI's) tell you what you have done.
- Performance Indicators (PIs) tell you what to do.
- KPIs tell you what to do to increase performance dramatically.

Many companies use a mix of these which is unfortunate according to Parameter (2010). He uses an onion analogy to describe the relationship between these 4 measurements. This is represented in figure 4.

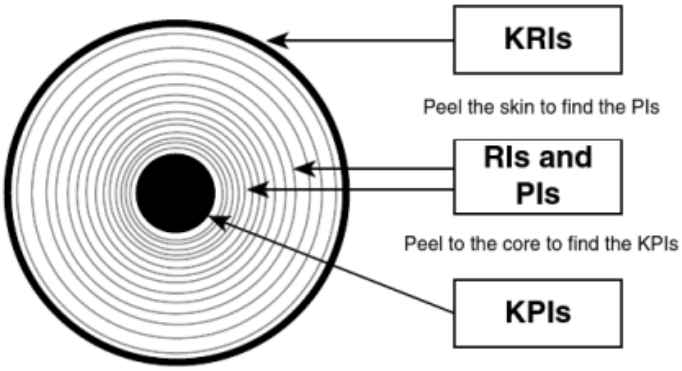


Figure 4 The four types of performance measure

KRI's shows the end result of many actions. They give a clear picture of if you are going in the right direction or not. However, they don't tell you what you need to do to get better or improve the results. This makes the information that comes out of a KRI suitable for upper management and not

for the people that are involved in the day to day work. KRI's are typically reported monthly/quarterly.

Performance and result indicators lie between the KRI's and the KPI's. The performance indicators are not key to business but still important. The PI's are nonfinancial and help the team to align themselves with their company's strategy. The result indicators will summarize the result of all of your activities. All financial performance measures are result indicators.

KPI's is in the core of the onion in figure 4. Parameter (2010) writes that:

*"KPIs represent a set of measures focusing on those aspects of organizational performance that are the most critical for the current and future success of the organization"*.

Need to be nonfinancial measures that are measured frequently, daily or weekly. They are acted on by upper management and staff clearly knows what to do to fix the problem. A clear connection between the KPI and a team that is responsible for it need to be in place. The KPI must have significant impact on business and must encourage appropriate action. It needs to be tested to ensure that it has a positive impact and does not impose dysfunctional behavior in the organization.

The KPI's must to be agreed upon by the client or stakeholder. It must be decided beforehand on what KPI's you want to use in the project. This is due to the fact that projects often have a relatively short life span. The KPI's must be controllable. There is no point in measuring something that the users does not have control over. Kerzner (2011) writes:

*"What gets measured gets done!"*.

If the user cannot do anything about the result of a KPI then this KPI will just be an element of frustration. It is important to make sure that subcontractors are delivering data that fits well with the KPI that you are measuring. Even though KPI's should reflect factors that are controllable it is important to point out that all situations that are unfavorable might not be correctable. All parties need to be informed about this. Even if you achieve a good score on the KPI's it is not a guarantee that the project will be a success.

Kerzner (2011) argues that there are three high-level purposes of KPIs:

- Measurements that leads to motivation of the team
- Measurements that leads to compliance with the use of organizational process assets and alignment to business objectives
- Measurements that lead to performance improvements and the capturing of lessons learned and best practices

To be able to qualify a metric as a KPI Kerzner (2011) argues that if we dissect the meaning of KPI we get the following:

- **KEY** = a major contributor to the success or failure of the project. A KPI metric is therefore only "key" when it can make or break the project.
- **PERFORMANCE** = a metric that can be measured, quantified, adjusted and controlled. The metric must be controllable to improve performance.
- **INDICATOR** = reasonable representation of present and future performance.

Number of KPI's can vary from project to project. The most important attribute of a KPI is that it is actionable. If the trend shows that the result of the KPI is unfavorable then the user should know what to do to correct the trend. Without this option the KPI is not fit for its purpose. The data also need to be updated often enough for the user to see that the action that they are taking has an effect. A number of companies have adopted the SMART rule when selecting KPI's. S-M-A-R-T stands for; **S**pecific, **M**easurable, **A**ttainable, **R**elevant and **T**ime-Based. Basically the KPI is focused on performance, can be expressed quantitatively, are reasonable and achievable, is relevant to the project and can be measured within a time period.

There are several pitfalls that one needs to avoid when working with KPI's according to Kerzner (2011):

- The company identifies too many KPI's to the point where it becomes confusing for the people doing the measurements.
- Measurement of KPI's does not provide enough meaning or data to make them useful.
- Actions needed to correct bad results on KPI's take too long.
- Actions needed to correct bad results are beyond or even not part of the job of the employees doing the monitoring.
- The rate of change of the KPI's is too slow, thus making them unsuitable for managing the daily work of the employees.

These are all elements that one must carefully take into consideration when deciding what metrics to use as KPI's. Without being able to sell the KPI's to the organization it will only be a disturbance to the people that will be working with the KPI's. If your organization does not understand why they are measured then they will not make an effort to try to get better.

## 2.4 Benchmarking

Andersen and Pettersen (1995) define benchmarking as:

*"Benchmarking is the art of being humble enough to admit that someone is better than you and at the same time be wise enough to learn how to be just as good or better".*

Benchmarking is a tool for improvement. It is not the key for solving all of the company's problems but can be good at solving some. From the word itself you could suggest that benchmarking is just a method of evaluating something up against a predefined reference. This is only one part of benchmarking. The other part is that you must use the information that you find to get better. Accordingly it is important that you have your mind set on improvement before you start the process of benchmarking. Otherwise, it can be quite useless.

### 2.4.1 The history of Benchmarking

According to (Benchmarking - å lære av andre 1992) the company Xerox gets a lot of the honor for being the first company to develop and use benchmarking as a tool for improvement. It all started in the end of the nineteen seventies and the beginning of the eighties when Xerox lost market shares to Japanese and other American companies. The cost of producing and manufacturing the products was too high compared to what the quality of the end result was. They decided that something needed to change to regain market shares. The resources needed to be used differently.

In the beginning they compared an analyzed the products they had to their competitors. Simply put, they bought a printer from a competitor and took it apart to see how it was made. One of the things that they found was that the printers contained fewer parts. What they learned was that:

- Fewer parts means less failure and more uptime for the customers
- It is cheaper and easier to manufacture products with fewer parts.

This was the first benchmarking project they did.

### 2.4.2 Different types of benchmarking and assumptions to succeed

Andersen and Pettersen (1995) write that there are a few different types of benchmarking. The different types can be defined by from *what* to compare and to *who* to compare with.

Compare *what*?

- Performance benchmarking
- Process benchmarking
- Strategic benchmarking

*Who* to compare with?

- Internal benchmarking
- Competitor benchmarking
- Functional benchmarking
- Generic benchmarking

Performance benchmarking is about comparing key figures with the goal of finding how good one is compared to others. You often compare economic figures but you can also compare figures that tell you something about time or quality. Process benchmarking compares methods and practices in execution of business processes. The goal is to learn from the best to get better. Strategic benchmarking is to compare the strategic choices other companies do to collect information for once one strategic planning.

Internal benchmarking is to compare between different departments, plants or subsidiaries within the company or organization. Competitor benchmarking is to compare your own results with the

best competitors that are selling the same products or services as you do. Functional benchmarking is to compare processes or functions with non-competitors in your business area. Generic benchmarking is to compare one's own processes to the best processes out there, no matter business area.

According to Andersen and Pettersen (1995) there are a few combinations that are better than others. Figure 5 shows the different combinations.

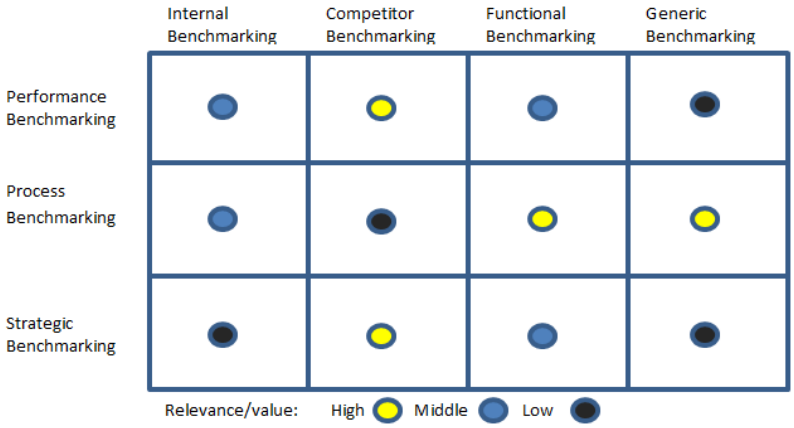


Figure 5 Different combinations of benchmarking

To be able to succeed with benchmarking, benchmarking needs to be seen together with all of the other improvement projects that are ongoing in the company. Benchmarking can't be a standalone activity. Benchmarking needs to be aligned with the strategy that the business has.

Strategy and benchmarking affect each other. The strategy will influence what areas you want to benchmark, what partners you want to compare yourself with and what changes you want to implement. Benchmarking does also affect the strategy. Other companies' way of working is discovered that can be applied to yours. This might indicate that you need to change your own strategy.

Benchmarking is part of the improvement toolbox. It is not a standalone activity and it must be seen in the light of the other activities that are ongoing. All of the tools are either integrated or complementary to each other. Benchmarking is often an activity that demands that the other quality improvement projects are in place and on-going. It is an activity that comes on top of all the others. A consequence of this is that that the company needs to have a certain maturity and attitude towards quality improvement.

Benchmarking can give you big leaps in quality improvement but it demands a lot of hard work and resources. The company needs to fulfill some structural and cultural aspects to be able to be successful. Resources, competence, time and development potential need to be ready available. This is an activity that is carried out during normal operating conditions. It can't be performed in a company that is about to go bankrupt, it has to be done in companies where the activity can be carried out without any impact on any other critical activities. Cultural aspects, such as willingness to change, have to be present in the company. Management has a lot of influence on this. If management are not in support of the project then it is very likely that the other people in the organization will be unsporting as well. This will make the project fail.

### 2.4.3 The Benchmarking process

Both Andersen and Pettersen (1995) and Karlöf and Östblom (1993) presents a process consisting of five steps. The five steps are presented in figure 6 that is taken from Karlöf and Östblom (1993)


Figure 6 Five steps of benchmarking

Step one of the process is to decide on what should be benchmarked. What are the organizational needs? All different aspects of the company or organization can me benchmarked. It is important to establish what you want to benchmark and the criteria for determining success.

In step two you find out who you want to benchmark against, internally or externally. Independent of who you choose you have to establish who represents the best method and the results. A good benchmarking partner should not only be outstanding they should also be highly comparable our company.

The information is then gathered in step 3. It is not only data that is collected in this phase. One must also identify and document work processes that explain the achievement in the organization. The phase demand meticulousness and a systematic approach to produce a good result.

In the analyze phase, step 4, you will analyze the data that you have collected. Not only to identify similarities and differences, you must also identify and understand the connection between them and the how the work has been carried out. It is implicit that the work that has been analyzed has been carried out based on some underlying procedure or method. You must identify circumstances that you can't affect or circumstances that are not comparable. These will have an impact on the results.

The final step, step 5, is the step where you need to take action on the improvement potential that you found in steps 1-4. You did not only find the gap between you and who you compare yourself with but you also have set out on a journey to develop your organization to be more focused on performance. From the results you need to set up a set of realistic goals. The goals will have to be split up and delegated out to those that are affected by it. There needs to be a plan for implementing the changes. A benchmarking project is not a success until all of the improvement points are implemented.

## 2.5 Project Execution Model (PEM)

Aker Solutions MMO has a well-defined operation system. The operation system is built up as shown in figure 7.


Figure 7 Aker Solutions operating system

Values, vision and governing documents form the roof that covers all other business. Underneath the "roof" all of the processes are collected. Strategy process describes the vision, goals, business strategy and other strategies that are necessary to meet the desired goals. The people process purpose is to strengthen business performance and reinforce a culture based on the Aker Solutions values. Under operations the Project Execution Model (PEM) can be found. This is where the main focus of this thesis will be.

As seen in figure 7 there are three different PEMs. They all started out as one but since the project portfolio of Aker Solutions MMO is quite wide and complex it was necessary to develop PEM into three models that can be used dependent on the type of project. We have PEM MOD which is used for larger modifications, PEM R&D which is used for removal and disposal projects and PEM M&M which is used for maintenance and modifications contracts. A closer look at PEM M&M will follow.

### 2.5.1 PEM M&M

PEM M&M is used for maintenance and modifications contracts. This is a contract that is made up of many smaller modification tasks (study or execution) and maintenance tasks (assistance or preventive maintenance). The PEM M&M is shown in figure 8.

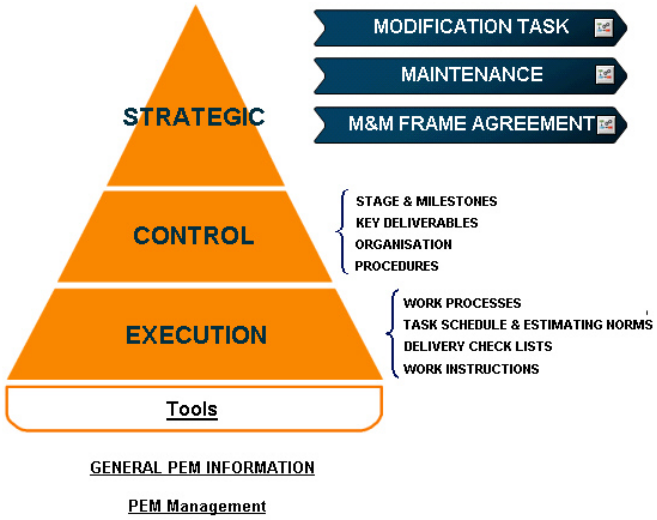


Figure 8 PEM M&M

The PEM model describes the different steps that need to be carried out from the beginning to the end of a project. The PEM model describes all of the knowledge and experience that has been collected in the company over many years. As can be seen in figure 8 PEM is illustrated as a pyramid. On top we have the strategic part, in the middle the control part and on the bottom the execution part. The strategic level is for the high-level control of the project/contract. The control level focuses on multidiscipline co-ordination. It will ensure alignment between the participating disciplines throughout the task. This is the level that is very important to the task managers. The execution level is the discipline level in the model. This level focuses on standard discipline execution schedules and detailed control object checklists. The tools level in the "basement" of the model describes the tools that are used in the projects i.e. computer programs etc. There is a short description to the right of the control and execution level, these shows the main components of each level.

Going further into the modification task by clicking on it in Aker Solutions e-net (this is most relevant for this thesis) you will get see the following displayed in figure 9.

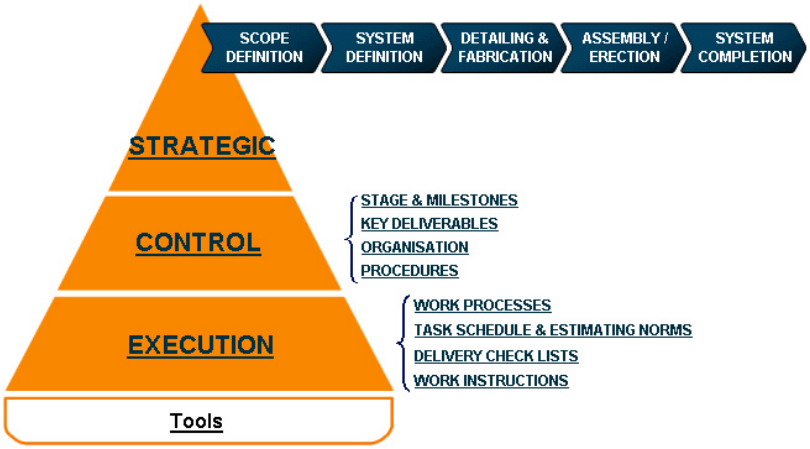


Figure 9 PEM M&M Modification task

In addition to what was displayed in figure 9 this figure also displays the sequence that will take the project from scope definition to system completion. The stages are:

1. Scope Definition, this is the study phase.
2. System Definition, this is the start of the execution phase.
3. Detailing & Fabrication.
4. Assembly/Erection.
5. System Completion, this is the end of the execution phase.

As a help for managing the task, the control level is split up into two key deliverable schedules with defined milestones. The two levels are Management Key Deliverables shown in figure 10 and Execution Key Deliverables shown in figure 11. The management level is intended for the task manager and the execution level is mainly intended for the executing disciplines.

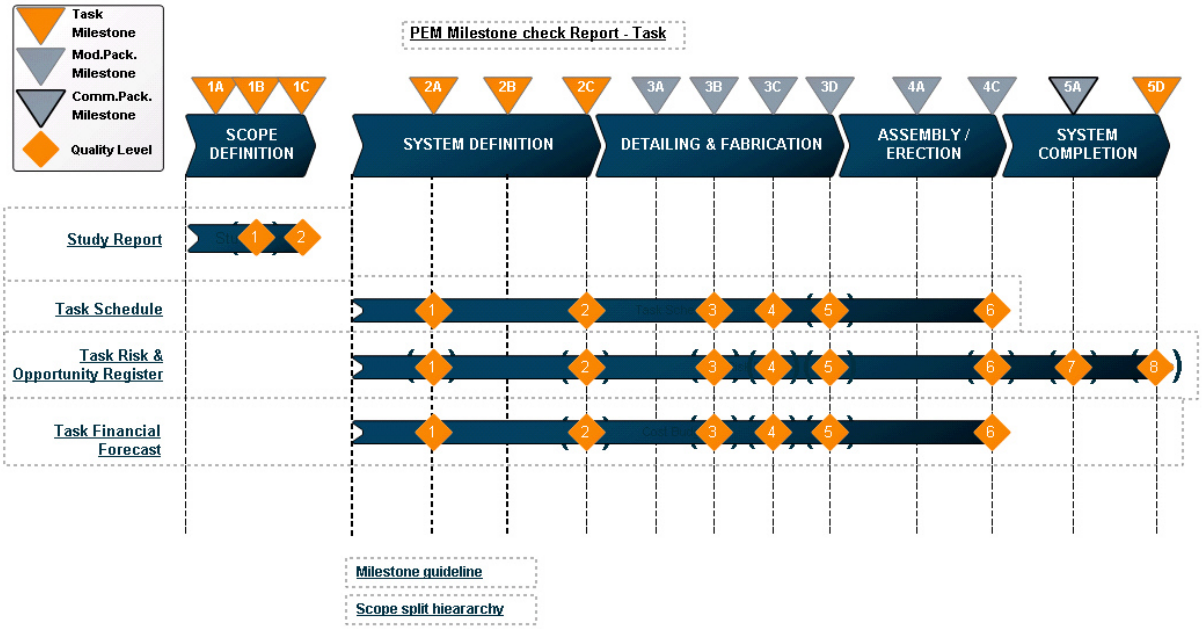


Figure 10 Management Key Deliverables

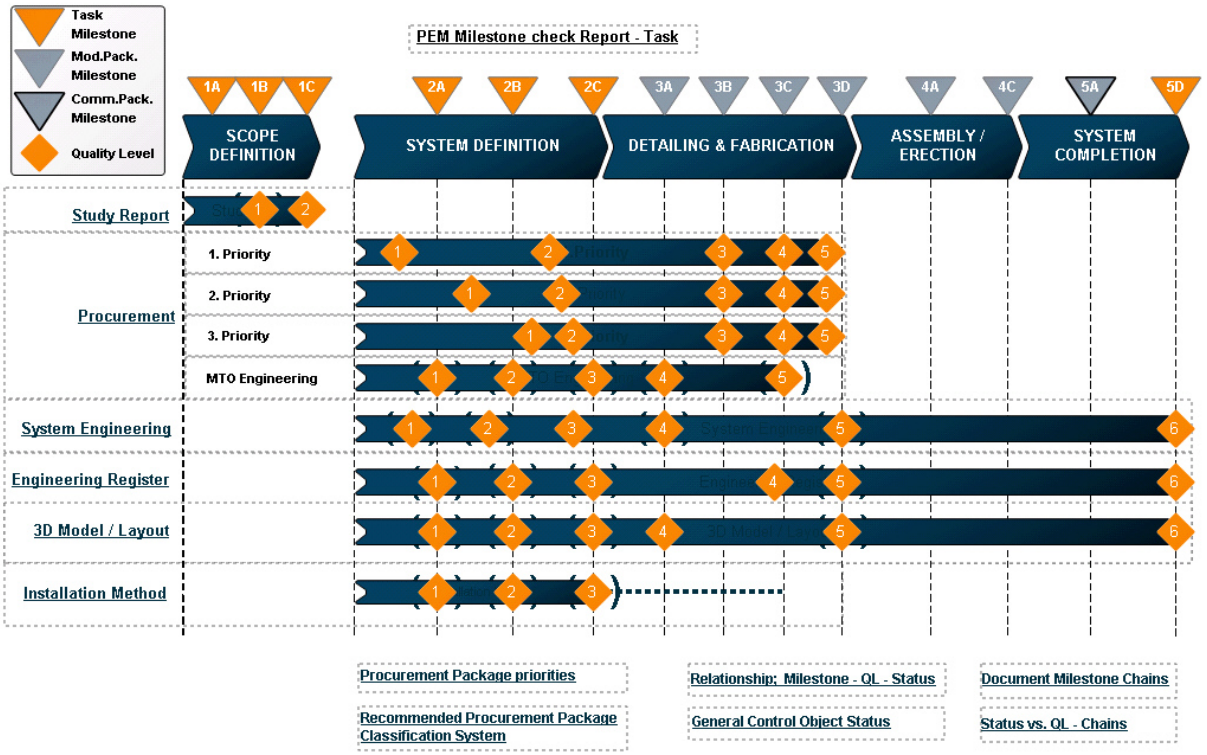


Figure 11 Execution Key Deliverables

The milestones are shown on top in each of the figures and are ranging from 1A to 5D. The number is related to the phase and the letter is indicating the sequence within the phase. As described in the upper left corner in each figure there are three different types of milestones, task, Mod.Pack (Modification Package) and Comm.Pack (Commissioning Package). The task milestones are connected to the engineering, the Mod.Pack is connected to Pre-fabrication and installation. The Comm.Pack milestone is connected to the offshore commissioning and handover of the task. Most of the milestones have an associated quality level indicator. This level indicates what quality level that the deliverable needs to be at that milestone. The deliverables are different for management and execution. These are defined on the left hand side in both figures. Clicking on these in Aker Solutions MMO e-net will guide you to an excel sheet that will inform you about the details on the quality levels that you need to achieve. What is expected of you to reach the wanted quality levels 1-8.

Management Key deliverables in figure10 is composed of 4 parts with one quality chain connected to each. The parts are:

- Study Report
- Task Schedule
- Task Risk & Opportunity Register
- Task Financial Forecast

The study report quality level description list explains what is expected from each discipline, including the task manager. It is primarily a list of engineering deliverables and deliverables needed to be able to create an execution schedule. The task schedule quality level description list describes

what need to be achieved to achieve the milestones that are presented in the task schedule. As shown in figure X this is only relevant when the task is in the execution phase. The task Risk & Opportunity Register quality level description list tells you that risks need to be defined with actions, have a responsible person and a deadline. It is basically the same requirement in all of the quality levels. The last quality level description list is about task financial forecast. As of today this is a weak part of PEM because it is on HOLD. There is nothing written in it. Levels 1-6 are associated with a milestone but there are no requirements to the quality level.

This is basically the essence of PEM. It is consisted of a number of checklists and quality level descriptions that are connected together in a sequence that will help guide the task manager and the other members of the task to deliver the task.

# 3 Methodology

Methodology will help you reach your goals. This chapter will present a brief explanation on the general use of methodology and a presentation of the analysis method that was used in this thesis. The method chosen shall secure that the findings are relevant, valid and are correctly sorted and analyzed.

## 3.1 Method - a small introduction

The method is in itself not the goal of this thesis. The method and analysis is a tool to be able to collect and gather the information needed. According to Holme and Solvang (1996) method is a necessity that has to be achieved when one is to carry out serious investigation and research work. Methodology gives us a better roadmap on how to answer the "what, why, who and how" that we often try to find the answer to in our research work. Methodology in itself does not answer our questions but it is necessity that needs to be in place to be able to do so.

## 3.2 Different approaches

There are two main approaches within methodology, qualitative and quantitative. There isn't an exact dividing line between the two methods. They are said to be opposite of the same scale. According to Holme and Solvang the main difference between the two is the use of numbers. Quantitative method is based on the application of statistical methods to come up with numbers. In qualitative method it is the researchers understanding and interpretation of the data that is the foundation. This means that qualitative research should not be quantified. Both of the methods have their strengths and weaknesses.

Based on this acknowledgment and the problem definition the selection of method should be made. The Methods do not cancel each other out. According to Troost (2005) in some studies one need to use a methodology that is called triangulation. The terminology comes from the old sailors that used this method to navigate out at sea. In this respect triangulation in terms of methodology simply means the use of more than one method to collect data.

A third popular approach to find data is literature search. This can be carried out at a library, in databases or on the internet. The purpose of this is to find literature and theory that are relevant to the defined problem. The references that are found are systematically processed and need to be sited correctly in the thesis.

## 3.3 The qualitative interview

The qualitative interview was chosen as the main strategy to collect data for this thesis. The nature of the problem fits very well with the qualitative interview. Since project management in a maintenance and modification contract largely has to do with managing people the best way to gather data was to interview these people.

According to Kvale and Brinkmann (2009) the qualitative interview has an open structure and there are no standard procedures or rules to follow. This is an advantage and a disadvantage. There are a few things that you need to do to carry out successful interviews. Seven steps that will help the researcher to be successful:

1. Topicalization – You need to decide what the goals with the interviews are. Before you can move on you need to answer the why and what questions.
2. Planning – Plan according to the seven steps before you go on with the interviews. Plan on how you want to gather the information that you need and how you are going to deal with any moral or ethical dilemmas.
3. Interviewing – Carry out the interviews with the help from an interview guide.
4. Transcription – Transcribe the material to be able to perform an analysis.
5. Analyzing – Analyze the material based on what you are trying to find and according to your goals.
6. Verifying – Verify your material. Check if your findings can be generalized, check reliability and validity. Reliability refers to how reliable your data is and validity will tell you if you have investigated what you intended to investigate.
7. Reporting – The findings and the method used are reported in a way that complies with scientific criteria and results in a readable product.

Holme and Solvang (1996) write that the strengths of the qualitative interview lie in that the interview resembles daily communication. This implies that this research method gives very little possibility for the researcher to steer the thought process of the person that gets interviewed. It is a good thing because that is what you want. The informants need to be in control of the development of the interview. The researcher will have to control the framework of the conversation. It is done by the use of an interview guide. This fits well with the seven steps that are described by Kvale and Brinkmann (2009).

During the interview it is important that the interview object is in a comfortable and safe environment. The person needs to be able to relax and feel that they can express what they really feel about the subjects that are being discussed. The researcher needs to be able to connect with the interview object to be able to understand its situation that it is in and try to understand why it is answering the way it is. It will make them feel that they are being heard and seen. This will build a relationship on trust that will help both parties. Holme and Solvang (1996).

## 3.4 The methodical use in this thesis

Literature search and qualitative interviews are the two main methods that are used in this thesis. The theory section of the thesis was taken from books that the author used during his studies or found in the library at the university. The main part of the findings in this thesis comes from the interviews.

# 4 Context: Circumstances that are of importance for the understanding of this thesis

This chapter will present circumstances that are important for the understanding of this thesis. The structure of the contract has a central role and will be the framework for the creation of the database and the discussions.

## 4.1 The new Statoil Maintenance and Modifications contract

### 4.1.1 Overview of the Contract

Aker Solutions was awarded the new Statoil Maintenance and Modifications (Statoil M&M) contract in June 2010. The fields that were awarded to Aker Solutions were Snorre A/B, Gullfaks A/B/C, Visund and Åsgard A/B. Aker Solutions was one of five service companies that received a contract. Økland (2010) writes that Statoil's strategy when awarding the contract was to increase the number of players in the market, increase the competitiveness and flexibility. The reason is to better utilize the flexibility and capacity in the market. With strengthened competition and the possibility to give assignments to many different companies Statoil thinks that they will receive better quality oo the performed work and at the right level of costs.

The new Statoil M&M contract is standardized. All of the five service providers got basically the same contract. This means that the profit mechanisms in the contract are the same and all of the providers can be compared to each other. The main reason why Statoil has standardized the contract is to give Statoil the opportunity to shuffle the work around. They can shuffle it between the five service companies and still use the same contract. If one company is fully booked on one of the assigned platforms then Statoil can go to another company and ask them perform work on that platform that originally was awarded to the other provider. This gives them flexibility and the power to utilize all available capacity.

The service providers are compensated hourly by full cost rate with a fixed markup for administration. There are three ways of earning profit in the contract:

1. A compensation format for each type of task that can be performed (Study, Execution, Maintenance or Assistance)
2. Quarterly productivity compensation
3. Cumulative performance, quarterly Key Performance Indicators (KPI)

This thesis will focus on number 1 but a brief description of 2 and 3 will follow here.

Quarterly productivity compensation is carried out as the name implies once a quarter. One criterion that has to be met is that five execution tasks have to be completed. If this is not the case then the

tasks that were completed in the quarter will be carried over to the next quarter. Tasks completed on any of the platforms that are included in the contract will count. The productivity calculations are carried out by the use of the norms that are agreed upon in the contract. A norm is a conversion factor that converts physical quantities (weights, lengths, number of connections, etc.) into hours. Weights and quantities that are handled in the tasks are multiplied by the norms in the contract to come up with the total estimated hours. This calculated hourly number is divided by the hours that were really used in the task.

$$Productivity\ value = \frac{Hours\ really\ used}{Hours\ calculated\ from\ the\ norms}$$

All of the productivity values for all of the completed tasks are then added up and an average is calculated. This calculated average is then compared with a table in the contract which indicates what profit it will give. There is a negative and positive outcome.

The cumulative performance consists of 2 parts. The first part is a set of Key Performance Indicators (KPI) that Statoil presents each year. These are not bound by the contract and can be reevaluated if Statoil desires. Statoil will have final say in if the score achieved on the KPI's will conclude in profit or not. First they evaluate the numbers reported and adjust them if they feel it's necessary. Statoil also conducts a customer satisfaction rating. This rating is combined with the KPI score and will produce the final score that will determine the profit. The customer satisfaction rating can only reduce the score on the KPIs, there is no upside on the customer rating. There is no negative outcome on the KPI's.

### 4.1.2 Individual task compensation format

For studies there are 8 criteria's that make up the compensation format:

1. Task specific CTR (cost, time and resources) catalogue was available at startup meeting.
2. Detailed plan with activities on discipline level was presented at startup meeting.
3. Study team defined on startup meeting with names of people that will register hours on the task.
4. Approximately 70% of the study team was held intact during the task.
5. Predictable final cost (consecutive quality in cost forecast).
6. Approved study was delivered according to agreed milestone on startup meeting.
7. The study contained deliveries (descriptions and documents) according to the task agreement and the Company's governing documents.
8. The Company did not have any comments on the quality of the delivery (proposed solutions are independent of shutdown and the use of resources on the platform are optimized)

The total score on these eight criteria can either be negative or positive. There is a bigger upside then downside.

For execution tasks there are 9 criteria's that make up the compensation format:

1. Schedule for execution (work schedule/detailed schedule) was presented at the startup meeting with task specific project activities for relevant disciplines.
2. Execution team defined on startup meeting (names of people that will register hours on the task). It does not include people at the workshop or offshore.
3. Project management declared at startup meeting and kept intact during the project.
4. Risks identified, registered and managed for safe work.
5. Hour estimates not overrun.
6. Predictable final cost (quality in monthly cost reporting).
7. The project was delivered (RFOC signed) at agreed milestone.
8. The task has not caused any unforeseen equipment or system shutdown and has not caused any production loss.
9. Planned hours vs. used hours offshore (PH vs. UH), +/- 10%.

The total score on these nine criteria can either be negative or positive. There is a bigger upside then downside.

These are all of the profit elements that make up the total profit in a study and/or an execution task. Since there are so many different elements that has a contributing factor the best way to keep track on these is to implement these in a database. By doing this one could summarize the total expected profit or calculate an average percent that one think one will earn on the total portfolio.

Corrective maintenance tasks also have a defined profit model in the contract. These tasks are not implemented in the database since these are evaluated monthly by the client. The score is sent to us once a month which gives us good control over the profit on these tasks.

## 4.2 Creation and implementation of profit database

The idea behind the database that was created came from the business manager in the project. There was a need for a tool that could collect information about profit from all of the tasks. By having the data of the tasks in a database you also have the possibility to do a number of different analyses. Providing the task managers with an actual number on the profit that they generate would hopefully motivate them and make them become even better.

### 4.2.1 Access 2010 Database

Access 2010 is a program in the Microsoft Office 2010 package and this program can create and manage a database that can fit this purpose. Access is relatively user friendly and has many good features. To be able to manage the type of data analysis that was need 4 tables was created in Access. One table linked the WBS (Work Breakdown Structure) to task manager, one table contained all of the payment certificate data and the other two tables contain the percentages for study and

execution tasks, one table for each. To be able to perform the needed task 3 queries had to be developed. One query summed up the billed amount for the hours used per WBS, another query combined the percent profit forecasted lists into one list (we have one for study and one for execution). The last query fetched all of the WBS's that was linked to a task manger and linked it together with the total percent profit, total billed amount for the hours used and calculates the profit for each WBS. A report was then created to be able to display the results in a nice way.

### 4.2.2 Implementation of the new tool

To get the database up and running for Statoil M&M Snorre the task managers needed to report in the estimated profit to the project financial controller. This was done by an Excel input sheet that was prepared by the controller. The Excel sheet was sent out by e-mail together with and explanation on why and instructions on how to fill in the sheet. It took approximately one month to collect the data from the 19 task managers. There were only positive feedback from the task mangers on this process and they were really looking forward to see the results.

The collected data was then fed into the database and the first report was sent out to the task managers and upper management in the project. So far no resistance to change has been reported so it seems that the task managers have understood the reason for having this report. The feedback that was received form upper management was that this tool also needs to be implemented on the other projects that make up the Statoil M&M contract. This will be done, but will not be part of this thesis. Another feedback that came up was that there was a need to create a project internal best work practice (BWP) on how we are going to update and use the database. A first draft of this was created and sent out on inter discipline check (IDC). This can be found in Appendix X.

# 5 Results – summery of the interviews

The results in this section are a summery from the data collected in the 11 interviews that were carried out. The interviews were recorded on an IPhone and transcribed in a word file. The results in chapters 5.3 – 5.6 are summarized and presented thematically according to the interview guide. The titles used in the interview guide are used here as titles for sections 5.3-5.6.

## 5.1 Interviews with 11 Task Managers

Eleven interviews were carried out with task managers in the Statoil M&M Snorre project. All of the interviews were carried out in a meeting room at Aker Solutions headquarters at Strømsteinen in Stavanger. During the interview the informant and the author were the only ones present in the room. The interview was, with the informant consent, recoded on an IPhone. The informants were informed that the report would be written without any reference to names or any other information that would make it possible for someone to trace the answers. All of the task managers were asked the same type of questions according to the same interview guide. The interview guide contained 39 questions grouped together according to the following themes:

- Personal information, education and experience.
- Working as a task manager
- Profit and the new database
- Key Performance Indicators
- Project Execution Model (PEM)
- Benchmarking

The interview guide can be found in appendix X. it is written in Norwegian because the interviews were carried out in Norwegian.

All of the 11 informants are treated as one group in this thesis. The informants were informed beforehand by e-mail on what subjects that were going to be discussed but they were not introduced to the interview guide.

## 5.2 The sample group

The sample group was made up of 10 men and 1 woman. The average age of the group was 44 years with a range from 32 to 58 years. Eight of the informants have bachelor degrees in engineering, 2 have master degrees in engineering and 1 had a degree in economics. The average experience in the company was 10 years and the range was from 1.5 to 32 years. Nine of them have held different engineering positions in the company. The other two has held positions as leaders in an oil company and an electronic equipment company. This shows that there is a lot of experience from working in Aker Solutions in this sample group.

The average work experience as task managers is 3 years and it ranges from 1 to 10 years. The range is skewed because there is one that has 10 years of experience as task manager. If that person is excluded the average experience is dropped to 2 years. Motivation for being a task manager comes from working in multidiscipline teams, get the feeling of "producing" something, motivate others to deliver, decision making, complexity of the role, and earning project management experience.

The job is perceived by the task managers to be demanding. It is demanding because you are dealing with a client and with people that are part of your team. You need to be able to defend your product and the company you work for and at the next instance you need to motivate the team to deliver as promised. The task manager role is quite complex. You need to find a balance in what they are doing. A task manager about the challenge of getting people to deliver:

*"It is hard to find the balance between pushing and supporting."*

In the tasks it is important to push the team members to deliver and at the same time support them when needed.

To be able to be a successful task manager you have to have certain qualities. The qualities that you must have are: motivation, stubbornness, willpower to succeed, good communication skills, good at inter human relationships, trustworthy , have patience, good listener, have resoluteness, must be well structured, problem solver, good at promoting teamwork, experience is a plus and work very systematically.

## 5.3 Profit and the new database

Profit is something everybody in a company that is listed on the stock exchange has some kind of relationship to. The task managers think daily about profit. A few of the informants expressed that they felt they were concerned about profit but did not feel that they had much influence over it. The profit ended up as something no matter what they did. Some of this attitude comes from the fact that there has not been a system before that could report the profit they made on the tasks. This is not something that is widespread. It was only mentioned by a few. Task managers with old tasks that were compensated with a fixed percentage were not that concerned about profit since they already knew what they were making.

The new database was something that was received with a positive attitude even if there were different opinions about the use of it or what it could do for them. Frustration was expressed over the fact that it has not been possible to report profit on the tasks before. The new tool helps a lot with motivation. It is very motivating to see what kind of results you are delivering. Among most task managers it awakens an inner competitive drive to compete with oneself and try to beat your own goals. It is also helpful to see how the others are doing. This motivates them to get better. One task manager expressed that he wants to be measured and compared more to his colleagues. This is something that he is used to and it motivates him. Age was a factor, the younger part of the group likes the competition that it creates and the older did not like to be compared with others. It can be

somewhat unfair to be measured and compared in this way. Tasks can be so different. Focus could also change from delivering projects to who was the best, profit wise, in the group.

More focus on profit will definitely create more profit. It is important that things are put in place for the task managers to be able to deliver a good result. They can't decide who they want to have on their team. Then it is important that all of the people that are working on the contract have equal competency. The use of consultants will have to go down and the number of hours delivered from the Mumbai office will have to go up. These are all factors that have an effect on the profit.

## 5.4 Key Performance Indicators in the tasks

The profit model in the contract is based on a number of criteria that we are measured on. All of the task managers agree that these criteria's can be used as KPIs. It was a general understanding that a KPI was something that was measured but it was not really clear to them why it was measured or what valuable information you really got from it. The criteria's are chosen from a customer perspective but it fits well with their perspective. A criterion that is measuring the flexibility and the willingness to meet the customer demand is something that is missing. There are many changes in the task portfolio in the contract that has an effect on the individual tasks. The idea behind the criteria's is that the customer wants to measure the things that they think will determine the success in a task. Criteria's are valid for Aker Solutions since they are covering nearly all aspects of the job. To manage the task on a daily/weekly basis the plan is the tool that is used. The criteria's are something that they need to keep in mind when they are making decisions but it is the plan, that is updated once week, that they use to see if they are on track or not. If you were to manage by the criteria's there is a chance that you get tunnel vision and forget about other important deliveries. The criteria's that are easy to control did receive more focus then the ones that you had little or no control over.

Tasks that have a high focus from the client are perceived as easier to get a higher profit on. The reason is that the success in the task is so dependent on good cooperation with the client. Examples of such are tasks that will have an effect on the production or tasks that will improve the safety onboard. These are task that the customer has a high interest in. There are tasks in the portfolio where neither the task manager in the client organization or the organization offshore knows why they are carried out. They fail to see the importance or purpose of the task. These tasks are harder to deliver on time. Higher focus from the client will shorten down the time they use on making decisions. It will also shorten the time it takes for documents to get checked and approved and you get full focus on your project from the people that are working offshore. The background of the task manager also plays a role in if some tasks are perceived as easier to score higher on then others. If the main discipline in the task is the same as the degree that the task managers possesses then they are more comfortable with the technical aspect of the task and thus perceive it as easier to manage.

The scores on the criteria's are determined by the task manager in the clients' organization. It is based on the task manager's subjective point of view. This means that the chemistry between the

two task managers is very important and will have an effect on the final score. It is important to have a good working relationship with the client and to be honest about everything. They need to come up with a justification on why they have given the score that they have but in some cases it can be very hard to prove that the score is not fair. It is the responsibility of the task manager in Aker Solutions to make sure that the relationship with the client is good. To sell the task to the client is important for success and if the customer is difficult to work with then you must find ways to make it better.

The estimates of the profit criteria's are fed into the database. These estimates are based on what the task mangers think that they will achieve in the tasks. To get better estimates you need to agree with the client task manager what the score on each individual criteria is once a month. In this way you will have a better understanding on what the client's opinion is on how well you are delivering. It is the client that in the end of the task will give the final score, the earlier they are involved the better.

## 5.5 Project Execution Model

The knowledge about PEM among the task managers is ranging from good to very good. Use of PEM is different among the task managers. Some of them use it systematically and some use it as a dictionary when they are stuck or need help. It is varying according the experience level. Those who have been working as task managers for a longer time use it as a dictionary and the ones that are fairly new use it more systematically. The knowledge among the disciplines is also ranging but the perception among the task managers is that it ranges from bad to good. The turnover of engineering personnel probably has a lot to do with this. As one task manager said:

*"Sometimes I feel that the person knows enough about PEM in the end of the task that I expected him to know in when we began the task."*

Since PEM contains a lot of information and has many stages some stages are more useful than others. PEM is used a lot when you are estimating new tasks. Checklists and input sheets are used to create the backbone of the task schedule. It is still the knowledge of the task manger and the planner that will put the finishing touches on the plan. Another area that is also used a lot is the checklist for milestone checkouts.

Using PEM will help you deliver good results but it will not secure you of receiving 100% of the possible profit you can earn in the task. A few areas in PEM are weak or missing completely when they are examined in the light of the profit criteria's. Resource management is not part of PEM but it one of the profit criteria. This means that the task manager has no control over if the resources that you got in the beginning of the task will stay for the duration of the task or if they will be moved to a different task or even project. PEM is also weak or difficult to understand on the areas of estimation and cost control & follow up. These are two areas that have an effect on the profit. To be able to come up with a good estimate of a job all of the members of the task team will have to know exactly what work their discipline are supposed to carry out and how long it will take. The task managers are

not confident that the disciplines have had the correct training in PEM to be able to do this. You need some experience when estimating which the new people, for obvious reasons, are lacking. The PEM input sheets for estimating are complicated so it takes time to learn. Cost control & follow up are areas that are identified in PEM but the checklist are empty and they are put on hold. It has been like this for a long time.

Change management is an area that has become really important in this new contract. PEM is not really covering this and the web based program CCS (Change Control System) is used for handling all types of changes. The project is getting better at managing change but there is still a long way to go. The understanding of why change is important is getting better and more change requests are being established. The change process should be better defined in PEM and more training is necessary.

## 5.6 Benchmarking

The word benchmarking is a word that all the informants had heard before. Even though the word is familiar very few of them knew the meaning of it or what it is used for. The informants are split on the subject of using the result in the profit database as a foundation for a benchmarking project.

Some think that the tasks are to complex and different to be able to use the profit as a measuring stick. Complexity and the many different types of tasks have an effect on the profit. Some tasks are very complicated and difficult to get a high score. One can do a really good job in a task that ends up with a small profit.

Others think that it is a god idea to use profit as a foundation for benchmarking. This type of benchmarking project is a good way of learning and transferring knowledge but you need to be careful on how you manage the project. Upper management needs to be involved and you need to be careful on how you compare people. People tend to take a defensive position when they are compared to others. They take their performance on the job very serious and personal. It is however understood by both groups why the Aker Solutions would like to run a project like this.

Learning and sharing of knowledge and experience is mostly done by asking questions to other colleagues. The group of task managers is very knowledgeable and there is good communication between them. A downside of this is that you could get a number of different answers depending on whom and how many task managers you asked. Even with PEM there are a number of different ways of getting things done. The processes used in the project are also influenced by the processes and demands enforced by the customer. Tasks have to be performed according to the governing documents and processes of the client as well as the ones from Aker Solutions. You have to know the internal operating system and also the operating system that the client uses. This can lead to confusion and lead to creativity when adapting to both systems. There used to be a meeting once a week where the purpose of the meeting was to learn and teach the task managers how to do certain things or discuss a specific problem. This meeting helped to standardize the way the task managers are working. This meeting is greatly missed.

# 6 Analysis and Discussion

In this section I will analyze and discuss the objectives in the light of what was said in the interview and the associated theory. Since PEM is the operating system for Aker Solutions it will be a central part of the discussions.

## 6.1 Can the profit criteria's be used as Key Performance Indicators?

The term KPI is an expression that is tossed around in the project without people really know what it really entails. One part of the compensation format in the contract concerns the cumulative quarterly performance KPI's. It seems that the task managers are mixing these KPI's with the profit criteria's in the task. KPI's is an expression that is used about both the quarterly KPI's and the profit criteria's. I think that the task mangers believe that the criteria's are KPI's without really knowing what the rules are for calling a metric a KPI. This is in itself not really a problem if you are not actively using it as a KPI. You can call it whatever you want but if you are supposed to act on it or do something with it it's important that everybody has the same understanding of what you are talking about.

The profit criteria's are a mix of different metrics according to the definition given by Parameter (2010) in chapter 2.3. To develop this further we need to look at all of the criteria's that are listed in chapter 4.1.2. To start we go through the criteria's for the study.

1. **Task specific CTR (cost, time and resources) catalogue was available at startup meeting.**

This criterion can't be defined as a KPI. It will not be a catastrophe for the task if you don't have a CTR catalogue ready at startup meeting. You will lose some percentage of your profit but you will not be able to tell if the task will deliver the expected results or not. This is a KRI because it is a result of many actions and it does not tell you if you are heading in the right direction or not.

2. **Detailed plan with activities on discipline level was presented at startup meeting.**

This has basically the same argumentation as for the first criterion. There could be reasons that there was not enough time to prepare the plan before the startup meeting but the plan was finished the day after. This might cause a small delay in the project but will not tell what the final outcome of the task will be. This is a KRI.

3. **Study team defined on startup meeting with names of people that will register hours on the task.**

This is also a KRI with the same motivation as given under the 2$^{nd}$ criterion. There might be certain positions in the team that is not critical for the success of the task and can be assigned to the task at a later time.

4. **Approximately 70% of the study team was held intact during the task.**

This can be used as a KPI. Keeping the team intact can be critical for the success of the project. If you start shifting out team members it is really easy that something will be forgotten in a handover that can have serious consequences for the task. This can be measured daily and is a nonfinancial metric. It can also be acted upon by the organization to try to prevent it from happening.

5. **Predictable final cost (consecutive quality in cost forecast).**

This is a RI since it is a financial measure and summarizes the result of all of your activities.

6. **Approved study was delivered according to agreed milestone on startup meeting.**

This criterion can be used as a KPI. The schedule is important and it will be the measuring stick that will tell you if you are going to make it or not. It is important to measure the daily activities and make sure you take necessary action if you fall behind schedule. This is a nonfinancial metric that is controllable and one can take corrective action if necessary.

7. **The study contained deliveries (descriptions and documents) according to the task agreement and the Company's governing documents.**

This is a KRI as it is a result of many actions and it is not something that you will be able to measure daily or weekly.

8. **The Company did not have any comments on the quality of the delivery (proposed solutions are independent on shutdown and the use of resources on the platform are optimized)**

This is a KRI for the same reason as number 7.

The result of this analysis shows that of the 8 criteria's, 2 can be classified as KPIs, 1 as a PI and 5 as KRIs. If the modification manager for the study business stream were to monitor the tasks he or she would want to look at these two KPI's. This would show the status of the portfolio and he or she could take appropriate action needed at an early stage.

Next we need to look at the execution criteria's.

The criteria's for execution was also presented in chapter 4.1.2.

1. **Schedule for execution (work schedule/detailed schedule) was presented at the startup meeting with task specific project activities for relevant disciplines.**

This is a KRI since it summarizes the results of many actions but it will not say anything about the end result of the task. The plan could be finished the day after the meeting and it would probably not have any effect on the end result.

2. **Execution team defined on startup meeting (names of people that will register hours on the task). Does not include people at the workshop or offshore on the platform.**

This is a KRI based on the same argumentation as for criterion 3 for study tasks.

3. **Project management declared at startup meeting and kept intact during the project.**

This can be used as a KPI since it can be measured daily and can have a big impact on the outcome of the task. It is also something that is manageable for the organization. You can prevent people from shifting to other projects and try to get them to stay in the company.

4. **Risks identified, registered and managed for safe work.**

This criterion can be used as a KPI. The reason is that this is critical for the current and future success for the organization. It can be measured daily since risk can be identified and registered daily. If something unforeseen would happen it can be devastating for the task and the company. This is controllable and therefore suitable as a KPI.

5. **Hour estimates not overrun.**

This can be used as a KPI if you look at the individual activities. If activities are overrun that means that the estimates will be overrun. This will affect the organizational performance since it will cause delays in other tasks. If one person is using too much of his time on one task it means that he will not have time to work on the other tasks. This is something that can be controlled and measured daily, therefore it is a KPI.

6. **Predictable final cost (quality in monthly cost reporting).**

This is a RI since it is a financial measure and the frequency of measure is too low. It is only measured once a month.

7. **The project was delivered (RFOC signed) at agreed milestone.**

This is a onetime event that can't be used as a KPI and is a RI. This criterion will tell you how well you have done in the project beforehand and can only be measured once the event has passed. It is not the final milestone in the task thus it is different form criteria 6 in the study which I claim is a KPI.

8. **The task has not caused any unforeseen equipment or system shutdown and has not caused any production loss.**

This is a KRI since it is a result of previous actions. This is a criterion that is measured in the installation phase and thus not valid for the whole duration of the task. It does however have a major impact on the organization as whole since this event will be regarded as very negative form the customer.

9. **Planned hours vs. used hours offshore (PH vs. UH), +/- 10%.**

This can be measured frequently and it will tell you if you are on budget or not. This can be used as a KPI.

The result of this analysis for the execution task criteria's shows that of the 9 criteria's, 4 can be classified as KPIs, 2 as a RI and 3 as KRIs. The modification manager has 4 KPI's for execution tasks that to monitor the portfolio. There are more criteria's for execution tasks that can qualify as KPIs then for studies. I think that this is a good thing because there are more things that can go wrong in an execution task. The impact can be high for both the customer and the supplier. Having KPIs that can tell you if you are on the right track is thus a good thing. If the study that the execution was based on wasn't up to standard you often have to make up for it in the execution phase. Solutions

presented in the study that hasn't been verified properly will have an impact on the schedule. You will have to use more hours to correct this. If this is the case then you will be able to see this early in the project and will be able to take proper action to bring the project back on track.

The database will report monthly what the profit percentage every task manager on the project estimate they will achieve per task and summarized for the complete portfolio. The big question is if this estimated percentage can be regarded as a KPI? The answer to this question would be no. The main reason is that the update frequency for this is to slow. The database gets updated once a month when the new payment certificates are received and after the task managers have updated their Excel input sheets. The summarized results of the profit are made up of 3 types of metrics in terms of when they are assessed by the customer. There are a few of them that get assessed in the beginning of the project, a few that gets assessed during the whole lifespan and then a few that gets assessed in the end. This can fool the manager that is monitoring the results. If a task manager does a poor result in the beginning of the task and does not manage to get any of the criteria's that can be obtained at the startup meeting his total score on the task will go down. If a monitoring manager sees this and wants the task manager to take action it is already too late. This breaks with the essence of KPIs. To quote Kerzner (2011) *"KPIs serve as early warning signs that, if an unfavorable condition exists and is not addressed, the results could be poor"*. If you notice it too late it will not function as an early warning sign, thus it is not a good KPI.

## 6.2 Does more focus on profit create more profit?

Aker Solutions is a company that is listed on the Oslo stock exchange and the stockholders are concerned that the company is making money. Akers Solutions is making money if the projects are delivering good results. For the Statoil M&M contract to deliver good results the task managers need to be concerned and focused on maximizing profit in their tasks. When asked in the interviews all of the task managers said they were concerned about profit. They all agreed that more focus on making profit would lead to more profit. The new database was a step in the right direction for this to happen. Before the implementation of the database there was nothing that could tell them if they were making money on an ongoing task. You had to wait until final closeout to be able to tell what the result would be.

To be able to see complete economic picture you will have to take all of the aspects of income and cost into consideration. When we decided to create a database all of the business managers in the contract were involved in the process. It was concluded that the first step that we need to take is to create a database that can calculate the profit based on the criteria's. The costs were left out due to it is difficult to get all of the costs from our own SAP and Statoil SAP. Some costs are only registered in Statoil SAP and some are registered in our SAP. No system contains all of the costs thus it is difficult to get the complete cost. This is a technical barrier that one is unable to solve at the moment. When the database is put to full use it will be re-evaluated if one will try to solve these technical issues and incorporate the costs.

If cost were included another aspect need to be considered. Do the task managers have the correct economic training to actually use the information for something productive? Task managers would

have to understand the complete economic picture. Have an understanding of the revenue and an understanding of all of the costs. This can be too much information to handle for some since they don't have the right training. The task managers have a limited or no control over some of the cost elements. Costs where they have no control are for example rent for the office that the project is using or IT costs. However, there are costs that they don't have a direct influence over but can have an indirect. They are not entitled to choose who they want to work with in the task and can't choose how many consultants that will be part of the task team. We get paid a self-cost rate that is calculated by a formula in the contract based on numbers from Statistics Norway's index of wages. The job market is hot right now and there are a lot of people, especially consultants, that have a higher hourly cost rate than the rate that the contract will give you. These people are minimizing the profit. If you have a lot of them in the task you might even have to achieve a certain percent of the profit to break even. This fact can frustrate the task managers and force them to be creative. They will highlight this problem and bring it up in meetings with the modification and project managers. More people that are concerned about this will put pressure on the basis organization to reduce the number of consultants in the company. This can eventually lead to better margins in the contract.

The best outcome for the project, at this point, is that the task managers focus on the profit. This is the area where they have the most influence and can focus on maximizing it. They all agreed that more focus on profit will create more profit. Awareness, about what you are doing right now, will affect the profit and make you go the extra mile to achieve a better result.

## 6.3 Is PEM sufficient to be able to deliver results?

PEM is the Aker Solutions operating system. The tool that all of the task team members uses to deliver the project at the agreed time, cost and quality. The types of projects that are carried out in this contract are investment projects as described by Hetland (1998) in chapter 2.2.1. The planning phase is what we call the study phase and then follows the execution phase. The study phase is covered by milestone chain M1A to M1C in PEM and the execution phase ranges from M2A to M5D. The four phases of a project, as described by Karlsen and Gottschalk (2005) in chapter 2.2.1, fits well into the processes in PEM. The two first phases are covered by the study phase in PEM. Here you decide on the concept and requirements which will be the foundation for building a plan and deciding upon a budget. The last to phases in their list is covered by the execution phase. Here focus will be more on control and informing the client about the status in the task. The control factors that are important are:

- Cost (resources)
- Time
- Quality
- Scope
- Uncertainty
- Relationship to project owners
- Contract

- Organization

Overall PEM covers most of these factors or they are covered by courses and meetings that are held in the contract. I do find that theory matches reality in that there is a clear relationship between PEM and the areas discussed here.

Is PEM good enough to handle the profit criteria's in the contract? From the knowledge that I have of PEM I can tell that some of the criteria's are so specific that they are not directly covered in PEM. From the 8 criteria's that are defined for a study 4 of them are covered by PEM. That is, deliver a schedule at startup meeting, approved study was delivered on time and the last two criteria's covering quality. The criterion covering predictable final cost is poorly covered since the checklists in PEM that should cover this is put on HOLD. The other three criteria's are not covered in PEM. In the Statoil M&M contract we have created an Excel file that is used as a CTR. How you use it has been presented in meetings but it has not been written down in a procedure. If there are new people coming to the project then they need to be trained in how to use the CTR catalogue. This has to be done by the modification manager or a colleague. The criterion, study team defined at startup meeting, is also not covered in PEM and is something that the task manager needs to remember to do before the startup meeting. The last criterion, hold 70% of the study team intact during the task, is the one that the task manager has no control over. Even the managers in the project/contract have little control over this since it is the resource managers in the basis organization that decides if someone is transferring to another project. This was also something that the task managers in the interviews commented. They have no control regarding who gets picked to the team and if they are moved to another project.

For execution tasks you get a similar result. Out of the 9 criteria's 5 are directly covered in PEM, 2 are covered badly and 2 are not covered at all. The two that are covered badly are the ones about risk identified and predictable final cost. The predictable final cost is badly covered due to the same reasons mentioned for the study criteria, the checklists are put on HOLD. The identify risk, register and manage criterion is covered by a checklist but the text in the checklist is not very good. It only states that you must have updated you top-ten risks list at each quality level. This is not much help to the task manager since the risk should at all-time be updated and reduced. It would be better if there was a procedure in PEM that could help the task managers and the team to identify all of the risks. It is built in activities for HAZOP and HAZID in PEM but there are other risks, such as commercial risk, that is not covered by these sessions. The 2 criteria's that are not covered at all is criteria 2 and 3 in the list in chapter 4.1.2. They are about defining your team at startup meeting and holding the management team intact during the task.

I do think that PEM is good and sufficient tool to be able to deliver good results in this contract. It is perceived among the task mangers to be a good tool to use as a backbone of you daily activities. It has guidelines and checklist for almost everything that you need but there is still room for improvement and adaptation to the contract. There is room for creativity when needed but this can also lead to confusion as expressed by the task managers with less experience in the interviews. Since a lot of learning goes on by asking your colleague you might get 5 different ways of doing things if you ask 5 different task managers. This is to some a strength that you have this freedom but it can also be a weakness to newly hired people or people that are dependent on having everything

described by procedures. It comes down to what kind of person you are. Following PEM will not guarantee you of receiving 100% of the possible profit but it will help you deliver a good result.

## 6.4 Can Benchmarking boost the results?

The knowledge about benchmarking among the task managers was, with a few exceptions, fairly limited. They knew that benchmarking involved some measurement but was not aware that the most important part of the benchmarking process came afterward when one should find out why the measurements are what they are. Benchmarking can be a good way of finding out why some task managers are delivering higher profit then others.

If we decided to create a benchmarking project it would be of the internal type since I think that this is the easiest type to start with. It would be a good idea to start with performance benchmarking since we can use the results in the profit database. Some of the task managers expressed that it would be unfair to compare them on just the achieved profit since there are so many variables that will affect it. Things that were mentioned were team members leaving for other projects, team members not experienced enough to handle the job, they can't choose who they want to work with and that the scopes of the tasks are so different that you can't compare them. Some of them believe that you can do a very good job as a task manager but still receive a poor result and vice versa. I do not agree on this. I do agree that the task managers have no control over who they get in their tasks, how good they are and if team members get moved to other projects. I do, however, believe that you should be able to deliver a good result on all of the tasks. The technical content of the task or the different combinations of disciplines should not affect you leadership style. You can lead any type of project to a good result if you are a good leader. At least this is the theory. If all of your disciplines know what to do technically then you should be able to use PEM and all other help you have in the organization to deliver the project and receive a good result.

To be able to succeed in a benchmarking project one must follow the steps outlined in figure X. The first step is to find out what you want to benchmark. If we use the data that is available in the profit database you need to decide on a couple of things. First you need to treat studies and executions as 2 separate things. The reason is that one can achieve a higher percentage on studies then on execution tasks. If you don't take this into consideration then task managers with many studies would have an advantage since it would seem that they achieve a higher profit. You also need to decide if you should exclude the profit criteria's that the task manager has no control over. For example exclude criterion 4 for studies that say that you keep 70% of the team assigned at the task startup meeting. The next step is to decide on who you want to benchmark against. In this case you need to divide the tasks into study and execution tasks. One task manager can be in both since they can have both types of tasks.

Once you have decided what to benchmark and to who you want to benchmark against you need to start the third step which is the most important one. This is where you gather the data. The numbers are taken form the profit database but most of the data that needs to be gathered are about the

processes that led up to the result. You need to analyze a lot of things that you need to decide on beforehand. I will mention a few things here but there are many more. It is important to see how much the team members influenced the result. Did they have enough experience? Did they have the right attitude and did they follow the operating system that we use? You must analyze the task manager in regards to experience, personal skills and how well they use the operating system. It is also important to see if the client is behaving differently on different tasks. Is the task agreement well defined? How much does the customer get involved in the task? I have stated these questions to try to illustrate the complexity of such a benchmarking project. I think that this phase might cause problems for the organization due to this is hard work and will demand a lot from the organization. The level of activity is quite high and people need to have time to spend on this since a lot of the data collection needs to be collected by interviews.

After the data has been collected you need to analyze the data to find similarities, differences and how the different aspects affect each other. Since this thesis is concerned about the task manager role it is from this starting point the analysis need to be. It is important in this phase that you identify circumstances that you can't affect as task manager or things that are not comparable. The last phase is also important. This is where you look at your findings and come up with actions that will improve the way you work. The time you have spent gathering and analyzing data gets transformed into something positive that will help you improve your results. Hopefully you have made the people, that have been involved, more focused on performance. You have come up with improvements on the operating system or the way we educate people on how to perform their job. The goals that you set up in this phase must be realistic. Otherwise the project will end up as a failure. An implementation schedule needs to be developed with actions tied to people in the organization. The benchmarking project is not finished until all of the improvements have been implemented.

Figure X shows how relevant the different combinations of benchmarking projects are. An internal performance benchmarking project gets a middle relevance/value score in this figure. One could possibly expand the project to include the task managers that are located in Bergen and Trondheim that work on the same contract to improve the results. A better way of improving the relevance is to aim for a competitor performance benchmarking project. This type receives a high relevance/value score. Since there are 4 other suppliers that have received the same standard contract you could cooperate with the best of them on a benchmarking project. This would demand resources and commitment from the management in the project and off course the willingness from your competitor to participate.

Performing an internal process benchmarking project is also a possibility. This project would look at how the operating system and processes are used and what the result would be from using them this way. This is sort of a reverse performance benchmarking where we start from the result and work backwards, this project would start at the process and have a look at what the result would be if you follow and use it the way it is written/explained today.

Whatever benchmarking project that would be chosen there are a few things that needs to be put in place for it to be a success. The project needs to have the correct resources and time available to carry out the project. Support by upper management is important and the whole project organization needs to be informed about how and why we are doing this. Without the people being informed they might not want to cooperate due to skepticism or resistance towards change. The

information gathered in the project needs to be handled with care. Many of the task managers were concerned about being compared towards one another. Some will take their performance very personal and might be refusing to cooperate if they are treated badly or the information is misused.

# 7 Conclusion

Profit and margins is important for a company that is listed on the stock exchange. The company has a responsibility towards its owners to create value for them and maximize their investment. I have developed a database for the storage and handling of profit criteria's and this thesis has tried to document the effects of this. During the study I have carried out interviews and done extensive document searches in the library and in Aker Solutions many procedures to try to find relevant information and theory that fit this purpose. I have come up with some conclusions that I would like to present in this chapter.

After an analysis of the individual profit criteria's it was found that some can be used as KPI but most of them can't. If we want to get a better monitoring of the status in the tasks then we need to start monitor these criteria's that can be used as KPI's. This will give the modification managers a more up to date picture of the status in the tasks and in the complete portfolio that they are responsible for. They can then actively monitor and follow up tasks that are in the danger zone. The modification managers can then be more active in their leadership. Focusing on the profit criteria's will not make the task managers get tunnel vision. It will help them to become more focused on delivering a good project which will help increasing the profit.

More focus on profit will lead to more profit. Even though this has not been based on hard data the answers from the task managers were so convincing that I believe that this is true. If you focus on something and try to get better at it you will eventually improve. Focus on the profit criteria's will lead to more awareness and this will help improving the results. The criteria's are so general that I don't think that there is anything that will be "forgotten" that will ruin the delivery. Tunnel vision won't be a problem. It can however be a problem if you get too creative when trying to improve your score. You shouldn't take chances and make the task more complex than it has to be or upset the client with demands or fancy interpretations of the contract. Focusing on the profit is a good start but I think that the goal for the future has to be to be able to show the complete economic picture in the task. This will give the task managers more variables to manage but it will help defining a clear line between the responsibility between the task manager and the engineers. A task manager should manage and not get involved in too many details on the technical side.

I definitely think that PEM is a good tool to be able to deliver results in this contract. There are flaws in PEM but I think that these can be fixed fairly easy. The database will hopefully make this happen. More interest in the profit criteria does will help develop PEM to better fit this type of contract. More people that are focused on perfection will lead to perfection. As a task manager you should be able to make decisions even though PEM is not outlining what to do. You have the artistic freedom in your task to do so and I think that you need to use it. It is impossible to create an operating system that will cover all aspects of a contract thus the task mangers need to fill in the holes. However areas that are part of the management key deliverables in figure 10 needs to be covered. Task financial forecast need to be updated as soon as possible.

There is a big potential for getting a good result from a benchmarking project in this contract. Even though most of the task managers are skeptical to base such a project on the results from the profit database I do think that they would benefit from it. We are dealing with people that take pride in what they are doing. It is important that they get informed about why the project is good idea and

that the project has a lot of support from the upper management in the contract. It is important that such a project gets carried out in a structured and controlled manner such that you earn the trust form the task managers and their 100% co-operation. There is a lot of room for errors and not handling information and people with care. Such a project will demand a lot of resources that I think is not available in the contract today. The basis organization need to come up with resources and funding to be able to carry out the project successfully.

# 8 Further Research

There are a few areas where I think that there is potential for further research.

### *KPI's*

Further research need to be done on what KPI's are the best and how to monitor them. Since this would be a new way of measuring the task managers on you need look at how you get them involved and positive towards being measured in this way. Get everybody involved is key for success.

### *PEM*

Cost & follow up is a weakness in PEM that need to be corrected. PEM is much geared toward engineering and need to be updated with better support for commercial matters. Contract management might be something that is needed? Better training for task mangers in SAP? The business side of running a project needs to be incorporated better in PEM.

### *Benchmarking*

If used correctly benchmarking has a big potential in this contract. Further research need to focus on what type of benchmarking that would be the best? I think that you should focus on finding the best competitor and use them as a benchmarking partner.

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# 10 Appendix

1. Interview guide 2 Pages
2. Best Work Practice – BWP - Update and upkeep of profit forecast database 7 Pages

# Intervjuguide

## I. Person og Jobb relaterte spørsmål

- Alder
- Utdanning
- Fartstid i Aker Solutions/Aker Kværner/Aker/Kværner?
- Tidligere jobb/Arbeidsgiver/Bransje?
    - Økonomi
    - Prosjektleder/prosjektingeniør
    - Ingeniør
    - Leder
    - Annet

## II. Jobben som Oppdragsleder

- Fartstid som Oppdragsleder?
- Hva er det som motiverer deg til å ha denne jobben?
- Opplever du jobben din som krevende?
- Hva opplever du evt. Som krevende? Nøkkelord:
    - Plan
    - Kost
    - Fortjeneste
    - Endring
    - Møter
    - Ledelse
    - Rapportering
    - Teknisk
    - Kunde
- Mestrer du jobben din?

## III. Fortjeneste og ny database

- Beskriv ditt forhold til fortjeneste? Er det noe du er opptatt av?
- På hvilken måte hjelper dette verktøyet deg evt. å bli en bedre oppdragsleder?
- Motiverer det deg til å bli bedre? Økt konkurranse følelse?
- Hjelper nytt verktøy deg å få bedre fokus på fortjeneste?
- Føler du at mer fokus på fortjeneste gjør at du produserer mer fortjeneste?
- Er dette verktøyet godt nokk eller ser du forbedringer?

## IV. KPI 'er i oppdrag

- Hva vet du om KPI 'er, hva betyr de for deg?
- Går det at bruke fortjeneste elementene som KPI 'er?
- Hva får du utav å bruke de som KPI 'er?
- Styrer du etter disse eller er det andre ting du styrer etter? Nøkkelord:
    - PEM
    - Plan
    - KPI 'er
    - Kost/PTC
- Kommer du å bruke input-ark i status møter med kunde? Nøkkelord:
    - Enighet
    - Forpliktelse
    - Forutsigbarhet
- Hva må til for at du skal oppnå et bedre resultat?
- Er noen oppdrag letter å score høyt en andre? Beskriv.
- Beskriv kunden sin innflytelse over om du scorer høyt eller lavt på KPI 'er?
- Er de KPI 'er som blir målt relevante?
- Er der andre ting som er relevante som ikke blir dekket av KPI 'er?
- Er det fare for at en får tunnelsyn med å kun fokusere på KPI 'er?
- Hva effekt har endringer på om du scorer høyt eller lavt i oppdraget?

## V. PEM

- Beskriv hva PEM betyr for deg?
- Hvor stor frihet har du at ta egne valg når det kommer til styring av prosjektet?
- Er PEM optimalt for å lykkes med å nå de KPI 'er du har i dine oppdrag? Beskriv?
- Er noen fase viktigere en andre? Kan du bryte det ned i faser?
- Opplever du god kontroll på endringsstyring?
- Mangler du noe?

## VI. Benchmarking

- Hva tenker du på når du hører ordet benchmarking?
- Beskriv det du vet om benchmarking?
- Syns du fortjeneste er et greit utgangspunkt for benchmarking?
- Lærer du av dine kollegaer i dag?
- Hvordan skjer denne læringen?
- Hvorfor tror du noen lykkes bedre en andre?

# PROJECT AGREEMENT

| SN-000: | Update and upkeep of profit forecast database |
|---|---|

| | |
|---|---|
| **Type:** | Procedure/ Best Work Practice |
| **Area/Discipline:** | Task Management |
| **Project:** | Statoil V&M, Snorre |
| **Owner:** | Financial Project Controller |
| **Date/Rev:** | 23.05.12 Rev 1 |

## 1.1. Introduction

An Access database has been created to be able to gather and analyze the forecasted profit on study- and execution tasks in the Statoil V&M Snorre project. This forecasted percentage of profit will have to be updated monthly since payment certificates from the client are received once a month. This procedure will explain the steps on how to update the input for the database.

## 1.2. Object

This procedure/BWP will provide a method to be able to keep the Access database up to date.
The database has been created as a tool for the Task Managers to know the forecasted percentage in their portfolio and for project management to better forecast the profit percentage on the complete portfolio. The profit is calculated according to appendix B 2 and B 4 in the contract or according to special percentage in the task agreement.

## 1.3. Description

The Access database will be stored on the shared drive. It is only the project financial controller that will have the permission to make changes into the Access database.

The Project Financial Controller will collect the input on predefined excel files. These files will be reviewed / updated once a month in combination with monthly reporting to the client. It is the responsibility of the Task Manager to update the Excel input file. If the Task Manager changes previously reported numbers or adds a new WBS then he/she needs to input a new date into the *Sist Oppdatert* column. If there are no changes then the last date will stand. The date will tell the project financial controller if there are any changes that will have to be done to the Access database. Track changes will be activated in the Excel input sheet to assist the Controller to keep track of changes. It is only the Controller that is allowed to accept changes in the Excel input sheet.

It is recommended that the Task Manager will discuss the numbers in Excel sheet in the status meeting with the client. Since the numbers reported are based on the Task Managers best guess it is a good idea to have this best guess verified with the client. This will lead to a more accurate result and there will not be any surprises at close-out.

The results will be posted once a month (on the 15th) on the business stream SPS where the task manager belongs. The results are based on hours that are invoiced (item 11, 13 and 14). The profit will increase monthly until the task is finished.

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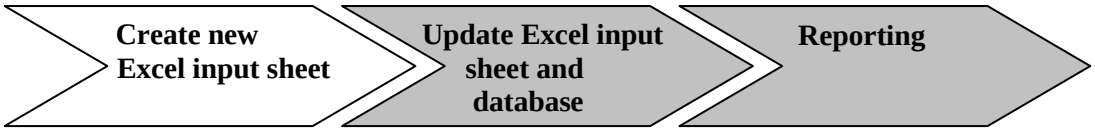
**Description**

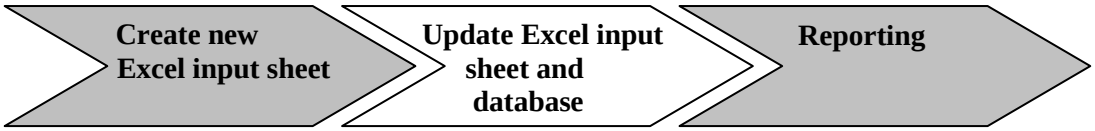



| Who | What | How |
|---|---|---|
| Modification Manager | **New task manager joins the project** | If a new Task Manager joins the project the modification manager will have to give notice to the financial controller. |
| Financial Controller | **Create Excel input file and store on the shared drive** | Financial Controller will create a new Excel input sheet and store it on the shared drive. Financial Controller will send an e-mail to the new task manager with instructions on how to fill in the sheet. |
| Task Manager | **Input into Excel sheet** | Task Manager will fill in the Excel input sheet and give notice to financial controller when finished. |
| Financial Controller | **Input into Access database** | Financial Controller will input the numbers from the Excel input sheet into the Access database. |
| | **Update Excel input sheet and database** | |

Statoil

AkerSolutions

**Description**

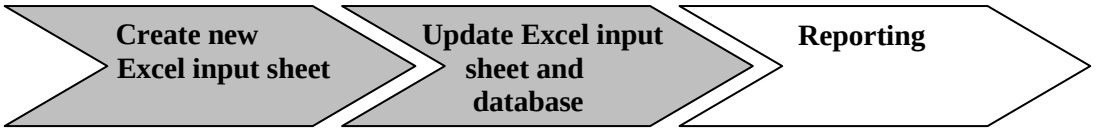



| Who | What | How |
|---|---|---|
| Task Manager and Estimator | **Update Excel input sheet** | Task Manager together with Estimator will update the Excel input sheet stored on the shared drive once a month. If there are updates the date column will be updated with a new date. This will be done in combination with the monthly reporting to the client. Task Manager **will not** accept the track changes in the Excel input file |
| Financial Controller | **Check updates in Excel input sheets** | Financial controller will check all of the Excel Input sheets and see if there are updates. Financial Controller will accept all of the track changes in the Excel sheet. |
| Financial Controller | **Update Access database** | Financial Controller will update the Access database with the changes. |
| Financial Controller | **Import new payment certificate into Access database** | Financial controller will load up new payment certificates into the Access database when they are available from Statoil extranet. |
| | **Reporting** | |

Statoil

AkerSolutions

**Description**




| Who | What | How |
|---|---|---|
| Financial Controller | **Print report from Access database** | Financial Controller will print new report in PDF format and upload to SPS site on the 15 each month. |
| | **Reporting** | |

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Excel Input sheet for Study

| Statoil WBS | 1 - Oppgavespesifikk KTR katalog for relevante disipliner forelå ved oppstartsmøte. | 2 - Styringsplan for studie (arbeidsplan/detaljplan) med oppgavespesifikke aktiviteter på disiplinnivå forelå ved oppstartsmøte. | 3 - Navngitt studieteam, personer som vil registrere timer mot oppdraget, forelå ved oppstartsmøte. | 4 - Ca. 70% av studieteam angitt i oppstartsmøte ble holdt intakt gjennom studiearbeidet. | 5 - Forutsigbar sluttkost (løpende kvalitet i kostprognose). | 6 - Godkjent studie ble levert (oversendt Selskapet) i henhold til avtalt milepæl på oppstartsmøte. | 7 - Studien inneholdt leveranser (beskrivelser og dokumentert) i henhold til oppdragsdokument og Selskapets styrende dokumentasjon. | 8 - Selskapet hadde ingen kommentarer til kvalitet på studieleveransene (foreslåtte løsninger er stansuavhengig og optimalisert ift ressusbruk på Selskapets Anlegg). | % Fortjeneste Studie | Status | Kontrakt | **Sist oppdatert** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Range | 0 % til 2 % | 0 % til 2 % | 0 % til 1 % | 0 % til 2 % | -1 % til 2 % | -1 % til 2 % | 0 % til 2 % | -1 % til 3 % | -2 % til 15 % | Skriv ONGOING eller COMPLETE | Skriv STATOIL V&M, SPECIAL eller TAMPEN | **Dato** |
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Excel Input sheet for Execution

| Statoil WBS | 1 - Styringsplan for utførelse (arbeidsplan/detaljplan) forelå ved oppstartsmøte med oppgavespesifikke prosjekteringsaktiviteter for relevante disipliner. | 2 - Navngitt prosjektteam (personer som skal registrere timer mot oppdraget) forelå ved oppstartsmøte. Omfatter ikke personell på verksted og Anlegg på sokkelen. | 3 - Prosjektledelse angitt i oppstartsmøte ble holdt intakt gjennom prosjektet. | 4 - Risikoer identifisert, registrert og styrt for sikkert Arbeid. | 5 - Timer i styringsestimat ble ikke overskredet. | 6 - Forutsigbar sluttkost (løpende kvalitet i kostprognose) | 7 - Prosjektet ble levert (RFOC signert) i henhold til avtalt milepæl. | 8 - Oppdraget har ikke forårsaket uforutsett utstyrs- eller systemstans eller produksjonstap. | 9 - Planlgt timer vs forbrukte timer på Anlegg (PT vs FT), +/- 10% | % Fortjeneste Execution | Status | Kontrakt | **Sist oppdatert** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Range | 0 % til 1 % | 0 % til 0,5 % | 0 % til 0,5 % | 0 % til 0,5 % | -0,5 % til 1,5 % | -0,5 % til 1 % | -0,5 % til 1,5 % | -3 % til 1 % | 0 % til 1 % | -1 % til 5,5 % | Skriv ONGOING eller COMPLETE | Skriv STATOIL V&M, SPECIAL eller TAMPEN | **Dato** |
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