Multi-Disciplinary Teams and the Oil Industry: A Concurrent Design Implementation at Statoil

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Abstract.

During the past few decades, organizations have increasingly focused on how to structure work. This has created a multitude of changes in such firms as Statoil, a major Norwegian oil and gas company, as well as across the entire petroleum industry. Increasingly, companies organize employees in teams and work groups, to meet challenges and to create a competitive advantage. Statoil seeks to structure work in a way that allows the best use of employees to achieve a more advantageous international position. Statoil has developed pilot projects using Concurrent Design -- a multi-disciplinary work method, and seeks to use this method for their new projects. This paper documents a case study for a pilot project using Concurrent Design at Statoil, and presents limited numerical results related to the efficiency of the approach. The paper also offers ideas that can minimize the time required to implement the multi-disciplinary approach of Concurrent Design, and reports on the results of a pilot survey at Statoil.

Key words: concurrent design, organizational change, multi-disciplinary teams, Statoil.

1 Introduction

Many organizations are moving from a sequential work processes towards a parallel way of working. Forming multi-disciplinary or multi-functional teams plays a central role in this change process (West et al., 2004). Organizations are more willing to improve the resources already in the organization and to try to improve the way they structure their work and work arenas. "The motivating premise underlying the use of these teams is that when representatives

from all of the relevant areas of expertise are brought together, team decisions and actions are more likely to encompass the full range of perspectives and issues that might affect the success of a collective venture" (Van Der Vegt & Bunderson, 2005).

In crisis, people naturally form teams and work concurrently. The necessary knowledge is ready at hand when needed, and problems that arise can be discussed on-the-spot. However, under normal working conditions in large companies, the over-the-wall approach to multi-disciplinary tasks has been common during the past decades. Some work is done and then passed on to the next person or unit in the production line and so on, with minimal communication (see i.e. Clampitt, 2005). This sequential work order is still carried out today, and if often both less efficient and effective, and wasting organizational resources.

In order to solve complex problems, organization in the oil and gas industry typically require the integration of knowledge from such different specialists as geologists, system engineers, civil engineers, economists, managers, and drilling personnel. These organizations rely on the formation of complex teams, but how exactly should this work be organized? How can the individual experts contribute his or her special knowledge to help the organization achieve superior solutions, and how can such organizations make timely and consistently high-quality decisions? Realizing that not all tasks gain from being solved in a team environment, there is a need for a methodology allows work to be completed in the most effective and efficient manner. This paper explores key success factors in multi-disciplinary task groups and identifies relevant factors for implementing a multi-disciplinary work method. Success means saving both money and time while achieving the best possible result. In this paper we describe a successful concurrent design implementation at Statoil. Section 2 describes the goals of our case study, and section 3 briefly describes out case setting at Statoil. The concurrent design methodology is reviewed in section 4, and the implementation results are summarized in section 5. Notable pitfalls are emphasized in section 6, and concluding remarks are given in section 7.

2 Problem Definition and Method

The goals of this case study were to enable *more efficient and effective work processes* through implementing Concurrent Design at Statoil. The case study followed a designing and implementing a concurrent design pilot project for the early phase (oil and gas) field developments at the Gudrun/Sigrun fields in the North Sea. The study was investigative in nature, looking at a set of factors that may be viewed from several different aspects. As such, we chose to use a case study, since these types of studies typically constitute a proper research method for action research and organizational change processes (Yin, 2002).

We followed the pilot project from early May until late June, observed the team during the first information meeting (a combined information meeting and training session), and then through eight follow-up sessions until the result was ready to be presented to the customer (Statoil). The authors took on a participant – by – observer role. During this period, we observed the meetings and sessions in a non-intrusive manner from within the meeting rooms.

A preliminary assessment tool (a questionnaire) was developed during this project. At the end of the project this questionnaire was made available to all the participants of the team, including the customer and project management. Through the questionnaire, seven elements of the pilot study were assessed: Efficiency, the quality of inputs and outputs, the understanding of the full value chain, interdisciplinary communication, the quality of the product, interdisciplinary consistency, and the "fun factor". At the end of the pilot, an open meeting was held were the

participants were allowed to openly share comments and remarks about the project, the product and the process. A brief summary of these results are presented in this paper.

3 A brief introduction to Statoil and background for the project

Statoil ASA is a Norwegian, integrated oil and gas company that was established in 1972. Currently, the company has significant international activities outside Norway. The organization operates in 33 countries and performs exploration and production in 15 of these countries. It has approximately 26,000 employees with the headquarters based in Stavanger, Norway. Fifty percent of Statoil's employees are based outside Norway. The company is the operator of 24 oil and gas fields on the Norwegian continental shelf and accounts for 60% of all Norwegian petroleum production. From the highlights of 2005 it is worth mentioning that the company had a net income of NOK 30.7 billion which is the best ever result in Statoil's history, and they achieved a 60% increase in international oil and gas production (Statoil Annual Report 2005).

Statoil's portfolio outside Norway is growing, and the increased competition among the largest oil and gas companies is very strong. To be able to find new reserves and to win the competition for access to exploration acreage is becoming more important. The production profiles for the industry are bleak, which forces the question as to how can they achieve better results with better margins based on the resources and competencies they already have (Van Der Vegt and Bunderson, 2005). The overall aim for Statoil is to find new solutions to be able to exploit its oil fields more efficiently. Organizing more efficiently and effectively than its competitors is believed to help Statoil establish a foundation for a competitive advantage both on the Norwegian continental shelf and internationally (Statoil Annual Report, 2005).

To improve the work processes, and quality of their decisions, and shortening lead-times to generate products, Statoil has decided to explore the possibility of using the *Concurrent Design* work method. Earlier, Statoil worked according to a non-integrative method that was rooted in sequentially based work processes where every department "minded its own business." The problem with this, however, was that when the work process needed to be coordinated, it often became apparent that the different departments did not have sufficient information concerning other areas of expertise – there was little or no inter-departmental knowledge transfer; this was one of the main reasons for introducing the multi-disciplinary work method Concurrent Design (Hayes, 2002). Particularly, Statoil's problems became apparent when the different disciplines met, and it was obvious that the various disciplines did not have sufficient knowledge and expertise regarding the other disciplines. This lack of knowledge transfer and lack of information can lead to bad decisions and a waste of time and resources because of numerous "cold" restarts in their work projects (Van Der Vegt and Bunderson, 2005). Statoil decided to conduct various pilot projects using Concurrent Design in the area of early phase field development, modifications and oil well planning.

4 Theoretical Background and Concurrent Design

In this section we will focus on *Concurrent Design* and *teams as a driver* in change management. Concurrent Design is a multi-disciplinary work method combining the elements of people, process and tools in a new and more structured way. The results of using such an integrated method can be better decisions and faster solutions through a total system approach

which includes integrating diverse knowledge and expertise early in the process (Øxnevad, 2000).

By using teams to both develop a new way of working and to bring the message out to their own discipline is a way to bring the message and the information to the whole organization in a very short time (Hayes, 2002). The Statoil management team has decided it is time to change the way they work. Trying to convince employees one by one will take too long. Using the different teams and their experience will not only take less time; it will also be much more influential. A group of people giving the same message as a single voice can be very convincing when presenting a potentially frightening message (Hayes, 2002).

Katzenbach and Smith (1993) also argue that team-based organization is much more open and positive when it comes to change and change processes. It is much easier for an organization that is based on a team structure instead of a hierarchical structure to respond faster and more positively to changes. Employees organized in teams are far more involved and have an active voice in what goes on in the team. They produce suggestions about how they can improve the way they are working and they listen very carefully to the other team members and their suggestions as well.

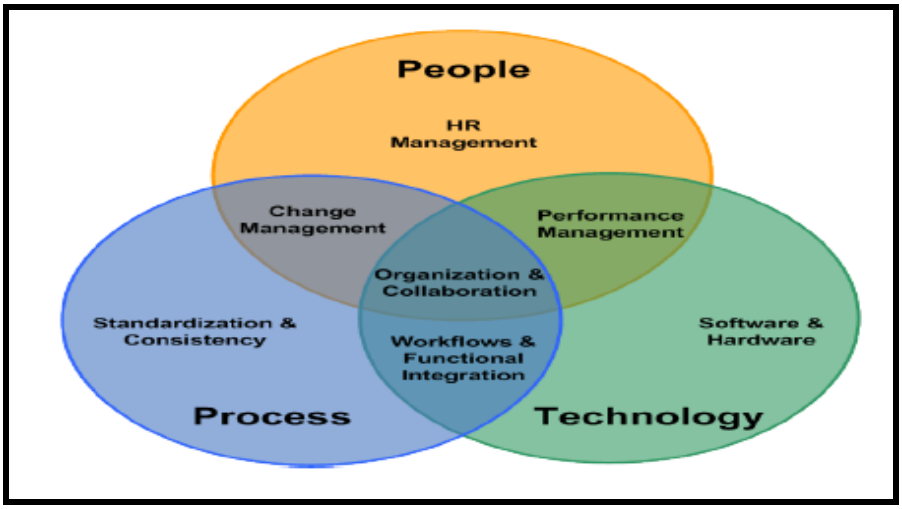

Figure 1: An illustration of the integration of the three important elements in an organization; People, Process and Technology

The Concurrent Design approach is based on the interconnection between the members of the team, the Concurrent Design process and the use of relevant tools early on in the process. These *three main elements* are illustrated in Figure 1. The development of the *operational method* called Concurrent Design started at the National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA). The main principles of the method are listed in Figure 2 below.

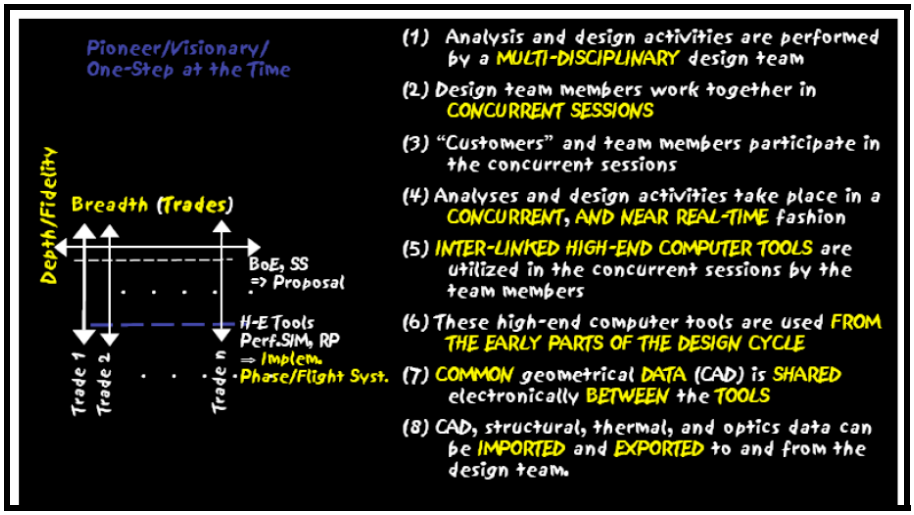

Figure 2: The Eight Principles of Concurrent Design (Based on: Øxnevad, 2000)

The eight principles in Figure 2 are the bases of the Concurrent Design method (Øxnevad, 2000). When establishing a *multi-disciplinary team*, a total systems approach to the problem must be ensured. Bringing in all the relevant disciplines into the project makes sure that all the functional areas are covered. The team members are brought together in the same room to work in *concurrent sessions*. This makes certain that the disciplines have quick access to the relevant knowledge and have the opportunity to deal with the problems and the challenges in *real time*, faster than before. With quick and sufficient access to the relevant knowledge, it gives the disciplines the opportunity to challenge the parameters and the data *early* on and to work with the solutions in real-time. This will, in the end, save a great deal of time and consequently money for organizations that are able to structure their work in this more efficient way.

Today, much of the time at work is spent in meetings that are often unproductive. Concurrent sessions give the team members an opportunity to perform design analysis and work in real-time as well as working in close proximity with the relevant disciplines (Øxnevad, 2000). A special Concurrent Design working arena was constructed at Statoil for this purpose, and illustrated in Figure 3 below. The work arena in this figure shows 4 "pods', where members of the concurrent design team work. The center pod is reserved for the session lead, customer, and external participants. The rectangles along the wall are overhead display units controlled by the session lead, and where each can display any of the computer screens in the room.

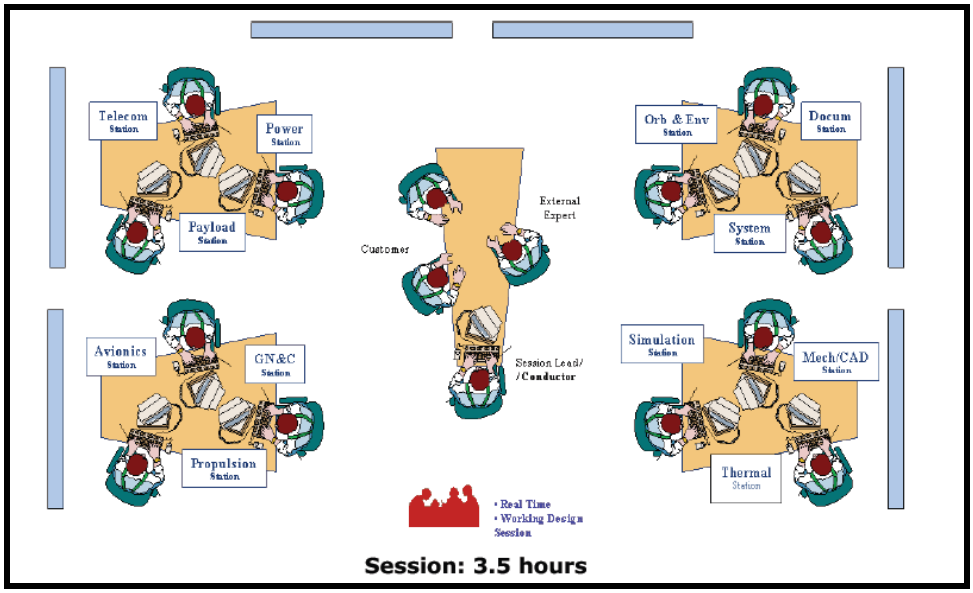

Figure 3: An Example of a Concurrent Design Work Arena

Using Concurrent Design, *the customer* is in the room to make decisions and to monitor the process and the progress. If it is necessary to make adjustments to the project or to look at new scenarios, the customer is in there, ready to make these decisions. *The session lead* plays an important role in the Concurrent Design methodology. This person has a prime responsibility to make sure that the communication in the sessions goes according to plan, that the objectives are being reached, and to involve the project manager and the customer whenever needed.

All the relevant disciplines are in the room and the customer is present in the middle, able to make decisions and change the course of work, if necessary. In these sessions, the team members use *high-end inter-linked computer tools* to perform their work. The disciplines use these tools to establish facts as *early as possible*. They *share the data* and the information with the other disciplines, and this enables them to have a high level of accuracy and an integrated system from early on in the process (Øxnevad, 2000).

A *team* is never totally isolated, neither when it comes to its own organization and nor when it comes to their external relations. A specific team is a part of a larger organization and that organization gives the team a set of boundaries and rules in which the team can operate and function. If Statoil is to successfully implement a multi-disciplinary work method, such as Concurrent Design, it needs to understand how the organization and the team work together and how they interrelate with other parts of the organization (Hayes, 2002).

5 Results and Analysis

This section is organized in two parts. The first part summarizes data from the pilot study at Statoil. The second part relates the observations from this study to Hackman's six elements of organizational support for implementing a multi-disciplinary work method, and are key to Statoil's further implementation and use of Concurrent Design throughout her organization.

5.1 Pilot study results

For the purposes of comparing the concurrent Design work method with Statoil's traditional work methods, we constructed a simple pilot survey to be used as a preliminary evaluation for this case study. A set of seven questions were asked, related to efficiency, quality, understanding of the value chain, interdisciplinary communications, quality, interdisciplinary consistency, and the fun factor. We used closed–ended questions with Likert scale values ranging from 1 to 5; each associated with an "improvement scale" given in Table 1 below. We note that the scale is somewhat biased, in that the midpoint ("neutral") is not a score 3. However, this was communicated to the team members before the survey was taken. The questions were framed as "compared to past work projects, what type of impact did the concurrent design method have with respect to" each of the seven factors given in Table 1. The full sixteen (16) team members answered all seven (7) survey questions.

Question	Average Score	StDev
Did you experience ..... **Efficiency** in your work?	3.38	0.72
Did you experience ..... **Quality** in your results and output?	2.63	0.72
Did you experience ..... **Understanding** of the full value chain?	3.50	0.73
Did you experience ..... **Interdisciplinary** communication?	3.88	0.50
Did you experience ..... **Quality** in the final report?	2.80	0.86
Did you experience ..... **Interdisciplinary Consistency** in the final report?	3.00	0.97
Did you experience ..... **Fun Factor**?	3.69	0.70

Scale:

1	2	3	4	5
LESS (<0%)	NEUTRAL (0-10%)	BETTER (10-30%)	MUCH BETTER (30-50%)	EXTRA-ORDINARY (50-80%)

Table 1. Pilot Survey Results

Given the small sample size and therefore lack of a better statistical analysis of the data, we need to execute caution as to how to interpret the numerical results. In our opinion, these results should be viewed as indicators only, and an improved survey with proper statistical analysis would lead to more definite conclusions. Thus, the results outlined in Table 1 indicate that the concurrent design work method may lead much better interdisciplinary communication, as well as an improved 'fun factor" for the involved team members (as seen from both the higher average scores and the comparatively lower standard deviations for these questions). The team members' understanding of the full value chain seems to have been improved compared to traditional project work. Quality and interdisciplinary consistency seem also to be improved

If Statoil wants to have effectively working teams, the teams need organizational support to be able to function properly and be an asset and a creative force throughout the organization. Hackman (1990) identified six aspects of organizational support provided by different levels of the organization. It is essential for Statoil to be aware of these six, different elements if the teams and the organization are going to function well together and to bring out the best from the relationship. These six elements will be relevant for Statoil when they start to implement Concurrent Design as their way of handling complex problems throughout the entire organization (Hackman, 1990). The six elements are:

1. Clear targets
2. Adequate resources
3. Reliable information
4. Training
5. Regular feedback
6. Technical support

We have integrated these elements in our evaluation from the empirical data collected at Statoil below.

5.2 Clear targets for the Concurrent Design teams

Statoil needs to formulate and articulate a clear and well defined target for what the team or teams are supposed to do (Hackman, 1990). The target will certainly vary depending on the projects, but the objectives and the purpose from the Statoil management still need to be clear and well defined for the team to reach its potential. The team needs to understand the objectives and the discussion behind them to be able to work as a well-integrated and fully functional Concurrent Design team.

The results from our investigation into the Gudrun/Sigrun pilot point in one direction. Both the results from the measurement of "interdisciplinary consistency" and "the understanding of the full value chain" reflect this. The highest improvement, by far, was the element of "interdisciplinary communication". The ability to talk and explain to the other team members in the room, and the opportunity to transfer knowledge among the different disciplines based on the project and the objectives, was the biggest improvement.

5.3 Adequate resources from Statoil

When Statoil forms Concurrent Design teams, it is crucial for the teams to be provided with adequate resources when needed. A team will not be able to perform to its highest standard according to its objectives if a significant amount of resources is not provided by the organization (Hackman, 1990). Having the resources and the relevant disciplines available is crucial for the Concurrent Design team. If a team member was not available to work in a session or had to leave for another work task during a session, we noted that the productivity and progress of the project sank dramatically.

Resources for a Concurrent Design team in Statoil are the various disciplines that are involved in a specific project as well as disciplines are given to participate. The team also needs an adequate work area as discussed true previously. Finally, the team must have access to the various computer applications needed to solve the tasks of the project. All these resources are provided by the Statoil organization in which the team operates and works. Putting all these aspects together, communication between the Statoil management team and the Concurrent Design team is of utmost importance if the team is going to produce a robust and innovative solution.

5.4 Reliable information from Statoil management

To provide creative and innovative solutions for Statoil, the Concurrent Design team needs access to applications and sources of information to be able to gather and make use of reliable information (Hackman, 1990). Statoil has many different databases and it can be frustrating and time consuming to find the relevant data you need to move the project forward.

The importance of reliable information is also relevant when it comes to the team's decision making. The decisions have to be made based on dependable, relevant and updated information and data. The Concurrent Design team also needs access to the information regarding Statoil's organization. The team has to publicize organizational changes and developments, which could be vital for the specific project the team is working on.

Being involved in the process of decision-making can give teams a better understanding of the overall problem, and knowing why decisions were made makes it more likely that people will be loyal to these decisions (Senge, 1990). Participants of the team can also learn from other fields and see why a solution that is not optimal in their particular field may be an optimal solution as a whole for Statoil.

5.5 Training in a multi-disciplinary work method

Participants in a Concurrent Design team also need to be trained for this way of working. Since the environment during the sessions sets certain demands on the experts, it might not be suitable for everybody. The experience from the Gudrun/Sigrun pilot in Statoil was that people enjoy this way of working; they found it both fun and challenging to work in a new setting and to work closely with all the relevant disciplines of the project (Van Der Vegt and Van Der Vliert, 2000). When Statoil starts to use the Concurrent Design way of working throughout the organization, training can not be emphasized enough. The environment and the climate in a Concurrent Design room can be very hectic and sometimes loud with many discussions going on at the same time. We experienced very clearly the element of training when experts and "stand-ins" came to work with the Concurrent Design team. When a new participant joined the team during the project we experienced a decrease in the communication and information flow. The sharing of data sometimes stopped because of the inexperience of the new person working in a knowledge- and data–sharing environment.

Training in the work method has to be provided for all the participants before joining a team in Statoil. The participants must learn to view each other's ideas in a positive way, exploring their extent of possibilities and maybe selecting certain points from many ideas to work out a solution. This ensures a more constructive communication during the sessions, hence a better and faster solution through multi-disciplinary decision making (Øxnevad, 2000).

5.6 Regular feedback – both during and after the project

Getting immediate feedback on their work and the feeling of being heard and appreciated can also be a motivational factor for the participants of a Concurrent Design team at Statoil. Constructive feedback must be given in such a way that it opens up the possibilities of learning and understanding (Hackman, 1990). It should be objective, correct, and given at the right time. This requires good communication. It must not be moralizing and one must have a two-way

communication. Also, feeling ownership for their task is therefore an important motivator, just as feeling ownership for the whole project (Van Der Vegt & Van Der Vliert, 2000).

In addition, the learning process implicit in this work method can and should be a motivational factor (Van Der Vegt & Bunderson, 2005). To exploit the Concurrent Design method fully, both formal and informal learning can be central elements in Statoil. Many of these challenges also exist in projects with less concurrency. Implementing concurrent work processes could highlight these challenges and be an inspiration and resource for other types of work as well. Hence, learning how to work this way and transferring that knowledge are good ways to educate the staff to be better group workers (Van Der Vegt & Bunderson, 2005). The functionality of the method is that when experts have been deeply involved in the total process, much of the uncertainty that one finds in the organizations is diminished because one has witnessed the decisions, why the decisions were made, and so, at least to a grater extent than before, trust the decision-makers in the organization.

5.7 Technical support when needed

Every team needs some sort of assistance. Technical support from the organization is one way of making the communication between the Concurrent Design team and the rest of the organization better and more efficient. This technical support can range from information about whom to ask and where to look for help if a problem or situation should occur. To enable the team to focus on their task and not on all the practical problems surrounding them is a more efficient and sensible use of your resources.

One of the benefits of the Concurrent Design method is the possibility of involving an expert at the work arena. If advice or information is needed, the Concurrent Design team can use their specific work field and their knowledge and expertise of the project to enhance the level even more by introducing the needed expert. It is also beneficial to use a Technical Assistant, or a secretary, during the sessions. When you operate in a concurrent environment, the discussions and the decisions are made rapidly. To have someone document these important decisions and other important discussions can be a very helpful (Øxnevad, 2000).

6 The pitfalls for implementing Concurrent Design at Statoil

Throughout this case study, we observed firsthand the five tripwires which endanger implementation of a multi-disciplinary environment in an organization (Hackman, 1994). These are discussed in detail below.

6.1 Managers call a performing unit a team, but really manage it as a set of individuals

The Concurrent Design way of working is based on the contribution of every team member of the project. The Statoil management and especially the project managers have an important task when it comes to creating a culture and an environment for multi-disciplinary work. To manage this difficult challenge, the first part of the process is to identify and treat the team as a unit. The Concurrent Design team is a unit responsible for its deliveries and final results. To create a common understanding and a feeling of belonging is crucial to the members.

Their feeling of commitment and team identification will, in the end, contribute to the standard of the result (Van Der Vegt & Van Der Vliert, 2000).

6.2 Imposing too much or too little authority

The management of Statoil and the project manager have a set of goals and objectives they desire to achieve. The implementation of the Concurrent Design way of working is a tool to achieve some of these goals. To be able to make better decisions and faster solutions is a goal for every organization; the question is how they going to reach this set of objectives. When Statoil has decided to implement a multi-disciplinary work method, it creates some important implications for the organization as a whole (Hayes, 2002). Suddenly, Statoil has to balance the aspects of giving the team the autonomy and freedom to make its own decisions and the ability to reach their stated goals and objectives. On the other hand, Statoil has to coordinate and control the team in a way that these goals and objectives don't interfere with and go against the direction of the rest of the Statoil organization (Hackman, 1994). This dilemma may be a possible obstacle to implementing the Concurrent Design approach. The members of the team need to feel a certain level of autonomy to be able to do their best. The Concurrent Design team as a whole needs to experience that the Statoil management gives them the opportunity to make their own choices as long as the result is satisfying. On the other hand, giving the team total freedom and too much autonomy can result in bad decisions and an unstructured work process. This can, in the end, lead to the team not being able to meet its deliveries on time (Hayes, 2002).

Hackman (1994) believes the best way is to provide the team with a direction for their work. Statoil can achieve this by making very clear what they want the goal to be, and that this is understood by the participants as well as by the project management. However, the team still needs the freedom and the creativity to decide within the team how they should go about meeting those goals and objectives.

6.3 The tendency to tear down organizational structures

When Statoil implements a demanding work method such as the Concurrent Design, the rest of the organization will, to a greater or lesser extent, be implicated. The Concurrent Design team will have to position itself in the Statoil organization as well as vice versa. Statoil does not need to turn all their existing structures upside down when implementing the Concurrent Design work method in their organization. Statoil should keep its existing structures but give the Concurrent Design team enough resources and manpower to do the work according to plan and objectives in the most effective way (Hayes, 2002). This will create a better working environment and, in the end, a better result for the team and for the Statoil organization.

The most important elements are to compose the team according to the task, to have motivated and trained members of the team, and to have a clear norm of what is to be expected from the team. As long as these sets of norms and resources are at the team's disposal, the Concurrent Design team can be a well-functioning unit within the existing Statoil organizational structure.

6.4 Assuming staff is eager to work in teams and that they are already skilled at doing so

The value of team training cannot be emphasized enough. However, Statoil should not assume or expect that everybody is skilled and ready to work in a multi-disciplinary manner. It

takes training and practice to enable a Concurrent Design to function well. The team members have to be trained and skilled in how to communicate with the other disciplines (Øxnevad, 2000; Hayes, 2002). They must learn how to share, explain and especially visualize aspects and problems for the other participants of the team. There might be some resistance towards this way of structuring Statoil's work. The training and the preparation of the team members can be a very positive element in dealing with this resistance (Hackman, 1994).

The team members should also be trained in how to communicate and share their data. Often, when just starting a project, the various disciplines have to proceed with the project based on uncertain data. The experience of the pilot project at the Gudrun/Sigrun field was that engineers are not comfortable with the sharing of uncertain data. This is something that has to be learned and experienced through the training method. When working in parallel, the different disciplines have to get used to sharing (uncertain) data throughout the project process. It will create unnecessary stops and delays if some of the participants have not been trained or educated in the importance of data sharing between disciplines. If Statoil decides to establish permanent teams in the various divisions of its organization, the value of team training will be apparent. It will show what a team is capable of doing with regards to reducing time, and obviously costs, working in a multi-disciplinary way.

The same elements of training and preparing for working in the Concurrent Design way are important for the project managers in the different projects. The project manager needs to be able to make faster decisions, structure the project process and be totally involved in the various parts of the project. This requires a different approach and a different mindset for a project manager.

6.5 Skimping on organizational supports

The last, but probably most important aspect, is the element of organizational support, or the lack thereof. If a team is going to produce and deliver at its very best, the need for organizational support is crucial. The most effective team operates in safe and predictable surroundings. It creates a culture for the team and its environment that will increase the team's effectiveness and ability to produce better results in a shorter time.

Hackman (1994) describes the elements of reward systems, an educational system, an information system and material resources as enough for the team and its members to perform at its highest level. All these elements are discussed earlier in the paper. Statoil cannot expect Concurrent Design teams to be able to fulfill their desired outcomes if they are not given the sufficient resources to do the job required. If some of the elements mentioned above are lacking, it will create frustration and a poor working environment, both in the Concurrent Design team and in the rest of the Statoil organization.

7 Concluding remarks

To be able to fully explore and make use of a demanding and challenging multi-disciplinary work method like Concurrent Design, Statoil needs to be prepared to make necessary resource commitments. It should pay attention to the psychology of the individuals and the teams. The structures of the organization will shift and so will the demands of the Statoil employee. Implementing this method will be a factor in increasing the empowerment of the employees as well as a contribution to making the Statoil organization well equipped to face the challenges

ahead. Especially the increased international build-up, but also the work at the Norwegian continental shelf will benefit from working in a more efficiently and effectively. The impact of information technology, and the proper use of it, will make Statoil a leading company in its field.

If this work method is only implemented halfway, the organization will be damaged. We experienced, through our monitoring of the pilot project Gudrun/Sigrun, the enthusiasm and increased motivation of solving complicated tasks and handling difficult changes during the project. The overall efficiency, as well as the understanding of the full value chain of the project, were dramatically increased. But the best results came from the elements of the interdisciplinary communication and the fun factor. Working in a Concurrent Design way can, and will be, extremely challenging. The individual employee in the team represents their discipline of work. Each member has a huge responsibility to produce the best possible result. However, the employees of Statoil are extremely well educated and like being challenged. Thus, this is a way of working that gives them both the responsibility and the important fun factor of working side by side with experts in different areas, as well as the motivating factor of achieving a good result with the rest of the team.

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