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Evaluation of Approaches and Methods for Establishing a Good Safety Culture

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Preface

This project thesis is written at the Norwegian University of Science and Technology (NTNU), for the department of Industrial Economy and Technology Management, with health, safety and environment (HSE) as field of study. The assignment is carried out during the spring semester of 2011, in the fifth year of study, and gives 30 credits, which represents 100 % of the study workload this semester.

The supervisor for this assignment was Professor Jan Hovden at the department for Industrial Economy and Technology Management, NTNU. I would like to thank him for valuable contribution in planning, content, structure and feedback for this project thesis. I would also like to thank my contact person at BP Norway, HSSE Team Lead Bjørn-Ivar Amundsen for valuable guidance and feedback on this assignment. Furthermore, I would like to thank BP Norway for supporting me economically and providing me the opportunity to write this thesis.

I would also like to thank the seven different contact persons in the following six organizations; BP Norway, Conoco Phillips Norway, Wintershall Norway, Petroleum Safety Authority, ABClub at BP Norway and Samarbeid for Sikkerhet, for taking part as interviewees, providing me the necessary information.

Finally, I would like to thank Buphinder Kumra and Anders Carlsson for reading through my assignment and correcting orthography.

Abstract

The purpose of this thesis is to evaluate different approaches and methods used in the oil industry, based on theory, research and industrial experience. An evaluation of three oil companies' safety culture approaches were therefore conducted; BP Norway, Conoco Phillips Norway and Wintershall Norway, in order to suggest an approach suited for establishing a "good" safety culture according to the Norwegian Framework Regulation §15. The Norwegian petroleum safety authority, Industri Energi (ABClub at BP Norway) and Samarbeid for Sikkerhet were also used to crosscheck the different organizations for similarities and differences to their safety culture approaches and methods, bringing in several aspects of the Norwegian oil industry.

The evaluation was mainly based on Hale's (2000) eight elements, which were used as rationale for a "good" safety culture, according to the Norwegian Framework Regulation § 15. The evaluation was carried out by seven in-depth interviews from the six organizations, with employees in or close to management in order to target the views from the upper management.

The results show that the oil companies have implemented many decent measures to establish a "good" safety culture, but still face some challenges to get the desired effect. The different safety culture approaches have managed to address many elements regarded as essential for establishing a "good" safety culture, however, to a various extent. For instance, the results confirm that the culture approach and the behavioural based safety (BBS) approach are better in some areas compared to others, each having their advantages. While the safety culture approach more easily create trust and a common starting point in the organization, the BBS approach is better with regards to involving their employees. Both approaches have, though, demonstrated that with several tools in place the creative mistrust is easily created, regardless of the path chosen. Finally, the results show that both approaches can give lasting changes to the safety culture, however, the culture approach has a better starting point as it provides a more extensive scope. Other research on safety culture has also confirmed this, and further highlights the importance of BBS elements, as it ultimately can pose an effect on the culture.

Regarding the desired effect, the assignment also demonstrates that implementation of a safety culture approach alone is not enough to get a desired effect, as many additional success factors also creates challenges, e.g. that successful implementation needs strong commitment from management, as this will positively encourage the employees to follow. Moreover, the result also confirmed that only observing statistical aberrance on safety performance gave no guarantee of a safety culture change. The reason for this is because safety culture is by meaning hard to detect, and it is therefore important to work qualitatively, e.g. by management observation and communication with employees.

To conclude, the thesis has shown that it is possible to establish a "good" safety culture using a safety culture approach with various methods, in order to create a lasting change. However, the fact that the companies see their approach as the most preferable, creates challenges in the practical life in relation to implementation of a common approach for the Norwegian oil industry.

Table of content

1	Introduction.....	1
1.1	Background.....	1
1.2	Aims.....	2
1.3	Scope & limitation.....	2
1.4	Research questions	3
1.5	Project approach	3
2	Theoretical Framework	5
2.1	Concept of culture and organizational culture.....	6
2.2	Concept of safety	9
2.3	Concept of safety culture	11
2.3.1	What is safety culture?	12
2.3.2	Implementation and value of safety culture programs	18
2.3.3	What influences and affects safety culture.....	20
2.3.4	Safety performance as a tool for assessing safety culture	22
2.3.5	Safety culture and compliance	23
2.3.6	Criteria for evaluating a safety culture approaches and methods.....	24
3	Methodology of the empirical studies.....	27
3.1	Research design	27
3.1.1	Comparative design.....	28
3.2	Research approach	28
3.2.1	Approach for the literature review	29
3.2.2	Methodology of the interview phase.....	30
3.2.3	Documentation and written material	33
3.2.4	Review of HSE programs.....	33
3.2.5	Approach for analyzing data	34
3.3	Method critique.....	37
4	Safety culture approach in the case organizations	39
4.1	BP Norway	39
4.2	ConocoPhillips Norway.....	41
4.3	Wintershall Norway.....	43
4.4	Petroleum Safety Authority of Norway (Petroleumstilsynet)	44

4.5	Industri Energi (ABC union at BP)	46
4.6	Samarbeid for Sikkerhet	46
5	Interview results	49
5.1	Understanding of key concepts	49
5.1.1	Views on concepts	49
5.2	Present approaches and methods	54
5.2.1	Approaches and methods at work place	54
5.2.2	Safety culture programs	59
5.2.3	Safety culture indicators	68
5.3	Present views in the oil industry	73
5.3.1	Management vs. employees	73
5.3.2	Permanent employees vs. contractors	81
5.3.3	Views on the Norwegian Framework Regulation	83
5.4	Approaches and methods for the future	86
5.4.1	Views on the future	86
6	Discussion	91
6.1	Safety culture approaches – do they match regulation?	91
6.2	Present measures – are they effective enough?	102
6.3	Shared responsibility or compliance?	105
7	Approach for establishing a good safety culture	111
8	References	115
	Appendix 1: Interview Guide	119
	Appendix 2: Information letter	121

List of figures

Figure 1 Organizational culture model (Schein, 2004)	7
Figure 2 Rasmussen's (1997) migration model.	10
Figure 3 "Swizz Cheese Model" (Reason, 1997).	11
Figure 4 Organizational aspects affecting safety (Antonsen, 2009).	13
Figure 5 Safety culture ladder (Hovden, 2010).	13
Figure 6 Different paths to behavioural change (Engen & Lindøe, 2008).	15
Figure 7 Different approaches to safety culture (DeJoy, 2005).	16
Figure 8 Individuals risk perception.	21
Figure 9 Thesis approach.	27
Figure 10 Model for assessment of risk on the Norwegian continental shelf (PSA, 2010).	45

List of tables

Table 1 Project approach.	3
Table 2 How different organizational culture handles safety (Reason, 1997).	14
Table 3 Strengths and weaknesses to a safety culture program (DeJoy, 2005).	20
Table 4 List of interviewees.	32
Table 5 Description of the reviewed HSE approaches.	33
Table 6 Analysis of data.	36
Table 7 Organizations views on concepts.	54
Table 8 Organizations thoughts towards their own approaches and methods.	59
Table 9 Organizations thoughts towards safety culture programs.	67
Table 10 Organizations thoughts towards safety culture indicators.	73
Table 11 Organizations thoughts towards management and employees.	80
Table 12 Organizations thoughts towards permanent employees and contractors.	82
Table 13 Organizations thoughts towards the Norwegian Framework Regulation § 15.	86
Table 14 Interviewees' opinion about the future.	90
Table 15 Suggested approach and methods for establishing a "good" safety culture.	112

1 Introduction

This chapter gives a brief introduction to the project, covering the background of the project, aims, research questions, delimitations and the project structure.

1.1 Background

Safety improvements have historically been approached by several different perspectives by giving focus on Man-Technology-Organization. Seen from earlier stages, focus was first directed towards blaming the accident prone individual. With time the focus has shifted towards technical safety, e.g. barrier philosophy to later on including organizational factors (Lund & Hovden, 2003). As a result from the increased complexity due to advanced technology (Perrow, 1999), several big accidents have occurred, causing severe damage and having put work carried out on safety in a negative light. A few examples of such major accidents are the Chernobyl accident in 1986 and, more recently, the Deepwater Horizon oil spill in 2010. Even though accidents happen in high-tech systems, its root causes are not always entirely technological. Investigations done in the Chernobyl accident showed a lack in safety culture that had become blind to hazards present at work (Antonsen, 2009).

In recent years increasing focus has been given to both behavioural and cultural safety, and implementing this in the safety thinking process. As a result, several companies have developed safety programs in attempt to create awareness and thereby improve the safety culture within their company. The ultimate target is thereby to reduce the number of accident and systematically work towards the company's vision (e.g. vision-zero) (Engen & Lindøe, 2008).

From the increased focus on safety culture it is stated in the Norwegian Framework Regulation § 15:

“A sound health, safety and environment culture that includes all phases and activity areas shall be encouraged through continuous work to reduce risk and improve health, safety and the environment.”

Even with so many good intentional safety programs, reports and use of resources, one has not been able to conclude what is the best suited method to establish a “good” safety culture. This thesis will, therefore, focus on the research on safety culture together with evaluating different approaches and methods, to assess various organizations' perception of safety culture and see whether there can be created a common approach suited to establish a “good” safety culture in the Norwegian oil industry. The theme of this thesis was proposed by BP Norway and the assignment was composed by the author in collaboration with BP Norway.

The increased interest and focus given to this area makes this a very interesting topic to work with. Even with a lot of already conducted research and spent resources, there still has to be done a fair amount of work on the area. This makes the task challenging, yet more interesting.

1.2 Aims

The purpose of this assignment is to evaluate different approaches and methods used in the oil industry and assess BP Norway's safety program in order to suggest an approach suited for establishing a good safety culture according to the Norwegian Framework Regulation §15, based on theory, research and industrial experience. The main issues of this assignment are therefore to:

- Review the health, safety and environment (HSE) culture programs in different oil companies and relevant literature on safety culture.
- Develop criteria for evaluating the goodness of reviewed HSE culture programs.
- Conduct qualitative analysis and to assess and compare HSE culture programs, i.e. by interviewing key persons in oil companies/contractors, authorities and unions and undergo accessible statistics of relevant performance indicators on safety culture.
- Based on the previous points, assess whether HSE culture programs give the desired effect.
- Suggest which method is suited to establish a good safety culture according to the Norwegian Framework Regulation § 15.

1.3 Scope & limitation

Data gathering for this assignment is mainly divided into two main parts. The first part represents the theoretical part and is primarily done exploring the internet and other reports on safety culture. Other relevant information provided by supervisor Professor Jan Hovden at NTNU and case company BP Norway will also be assessed. The second part includes information collected through interviews, documentation and observations, and is the most important part of this master thesis, representing the empiricism.

Safety culture has a lot of interpretations. A “grey zone” can be seen between the understanding of safety culture and behavioural based safety as these areas are in some cases mistakenly taken as one. This project will only look at the concept of safety culture, and will not include the part of strict behavioural safety. However, an explanation of the differences will be presented in order to separate the two terms. Likewise, an explanation will also be given to separate the terms of safety culture from the terms *safety climate*, *safety performance*, and *HSE culture*, in order to avoid misunderstandings between these fields.

As this thesis takes hold of safety culture approaches and methods, the thesis will primarily include safety cultural approaches only. However, if some of the case organizations have different approaches or methods it will be presented as their measures, and discussed in light of safety culture.

When presenting the different approaches and methods that are conducted recently, I have chosen to delimitate this to three oil companies. However, I have chosen to include the authorities, trade union and a collaboration project in order to get a full overview of what other parts in the oil industry think about these approaches and methods. Furthermore, the interviewees chosen only represent the management level, and as such, these interviewees are

the foundation of how the organizations perceive and act towards the different aspects. Finally, the thesis gives 30 credits, and as such the project must be regarded as equal.

1.4 Research questions

Research questions will be discussed in light of the results and the safety culture theory. Basic assumption made in the industry indicates that safety programs can improve the safety culture and, in turn reduce the number of major/minor accidents and incidents. Based on the objective of this assignment, the following problem descriptions have been made:

- Which method is suited to establish a “good” safety culture according to the Norwegian Framework Regulation § 15?
- Which safety culture approaches give the desired effect and which do not, in order to see what is necessary to get a desired result?
- Is safety culture perceived as shared responsibility or compliance, e.g. do employees and management have a common understanding?

1.5 Project approach

An introduction to how this thesis will be approached is given in the following table:

Table 1 Project approach.

Process	Parts	Description
Assignment	1. Introduction	Introduction to the project, safety culture and safety programs.
Literature	2. Theoretical framework - Findings from literature search	Information on earlier conducted research on safety culture, together with a clarification of the concepts in order to better understand the framework for discussion.
Data gathering	3. Research method	Gives a description of the thesis structure and design, together with the different methods used during data collection.
	4. Case organization backgrounds - Annual report - Documentation	A short introduction of case organizations, and additional information regarding safety through important statistics.
Analysing	5. Result - Interview results	Present the gathered information. This will provide an overview over the interview result.
	6. Discussion	Using the overviews from the result and by use of theory, answer the research questions put in the beginning.
Conclusion	7. Establishing a good HSE culture program.	Conclusion of thesis with proposed method based on preceding points.

2 Theoretical Framework

The purpose of this chapter is to give an introduction to the theory seen most relevant for this thesis. Research on safety and culture constitutes a multidisciplinary field and as such this chapter will draw upon theories, concepts and practices from different disciplines and practitioners in order to understand the different concepts. The presented theory will later on provide the framework for discussing the organizations interpretations of the concepts, what is currently being done and the safety culture approaches and methods, hence, making it possible to assess what is needed to establish a good safety culture.

The first subchapter is divided into two sections, giving an introduction to the concepts of culture and organizational culture. What is understood by culture? How does the concept of culture relate to organizational culture and safety culture? The first section will only give a brief understanding of the culture concept as it is obvious that a great amount of discussion upon culture lies outside the scope of this assignment as it would indubitably require at least a book of its own. The second section introduces the concept of organizational culture, a formal definition and how the concepts relate to each other.

Furthermore, this chapter will study the concept of safety in order to understand the relation between risk and safety in organizations. What is the definition of risk? What is meant by safety? The second subchapter introduces the concept of safety and consists of what is considered as safety in organizations in relation to risk.

Finally, the chapter uses what is presented on the concepts of safety and culture in order to grasp the concept of safety culture. What is understood by safety culture? What is the difference in the concept of safety culture related to other terms which also relate to safety and culture, e.g. behavioural based safety, health, safety and environment (HSE) culture and safety climate? And what are “good” approaches and methods that enhance safety culture?

The first section of this subchapter explains the origin of safety culture and gives an introduction to the concept in order to understand what we mean by safety culture in relation to safety and culture in an organization. Furthermore, this section consists of several parts with the purpose differentiating safety culture in relation to other similar concepts. However, as these concepts lie outside the scope of this assignment, only a minor discussion is presented upon the differences and similarities between safety culture and the concepts of behavioural based safety, HSE culture and safety climate in order to distinguish these concepts and provide a concrete framework for discussion later on.

The second section explains the implementation of safety culture programs. The main purpose is here to show the strengths and weaknesses of a safety culture program. Another important aspect is covered in the third section, taking hold of issues influences and affects safety culture. The next two sections cover safety performance and compliance in order to clarify the relation to safety culture. Based on the previous sections, the final section consists of what the author regards as important elements for evaluating safety culture approaches and methods in order to assess whether an approach can be established to create a “good” safety culture.

2.1 Concept of culture and organizational culture

Before we try to understand the concepts of organizational- and safety culture, it is first and foremost important to begin with the concept of culture. The word “culture” stems from the Latin *colere*, which means “to grow” or “cultivate”, and has its roots in sociology and anthropology. It is a concept difficult to grasp and has been referred to as one of the two or three most complicated words in our language (Eriksen, 1998).

The culture concept is a widely debated term, with yet no straight answer. Through time the term culture has been used in several different contexts, hence, resulted in a wide range of meanings. Studies done by the American anthropologists Kroeber and Kluckholm (1963, in Antonsen 2009) in the 1950s found more than 160 definitions of culture. Within anthropology the concept of culture refers to the “human nature” provided by our beliefs, knowledge and customs and by this possesses the ability to classify experiences, understand them and transfer such abstractions to others (Eriksen, 1998). A formal definition is provided by the American psychologist Schein (1992) stating:

“Culture is a pattern of shared basic assumptions that a group has reached as it has solved its problems in terms of external adaptation and integration, that has worked well enough to be considered durable, and therefore be taught to new members as the correct way and perceive, think and feel in relation to these issues.”

Sociologists on the other hand tend to think the culture concepts refers to the values that members of a group share, thereby the norm they follow and the objectives that they create. I see culture as something that lies somewhere between the sociological and anthropological view, as culture has both an individual and a public aspect to it. This is in accordance with the opinion of the Norwegian sociologist Antonsen (2009) and his view of culture, which can be seen as frames of reference where information, symbols and behaviour are interpreted and the conventions for behaviour, interaction and communication are generated.

Seen culture from an individual perspective, it is our beliefs, knowledge and practices that provide frames of reference, which makes our actions meaningful. On the other hand, culture should also be seen in public perspective, as we create patterns that are shared by a group that thereby creates a set of values for those members (Antonsen, 2009).

There is no doubt culture is a difficult word to define, and that there is no fixed or agreed meaning of culture (Tharaldsen, 2010). Despite that, there are still some common threads that give the concept of culture a mutual direction. Most of these common threads are related to some kind of understanding with regards to ways of thinking, feeling and reacting, norms and rules and common practices.

With this in mind, one might see that the relation between the concepts of culture and organizational culture also needs to be clarified. Several different disciplines with differing points of views within theory, methodology and epistemology see organizational culture differently. Some believe that an organization has a culture, while others believe it is a culture (Bolman & Deal, 2009). However, there are some fundamental problems associated with viewing *organization* as a metaphor for *culture*, as it indicates that *organization* is

synonymous with *culture* (Antonsen, 2009). This can be explained as the culture concept can bear the risk of symbolizing everything, causing less focus on studying the organizations relation to market, environment and materials. One has to draw a line as to what are cultural and non-cultural phenomena. If no non-cultural phenomenon are found, the concept of organizational culture would naturally be of no meaning as “organization” and “culture” would represent the same meaning (Antonsen, 2009).

Whit this is mind, I personally think the concept of organizational culture lies somewhere in-between, as I believe an organization expresses a culture, but is overall built up by different organizational variables. This can be seen in relation with Bolman & Deal’s (2009) view, looking at organization as culture in relation to product and process thinking. As a product (organizational variable) it is an expression of a member’s wisdom and knowledge collected through experience. As a process (culture) it is renewed and recreated again each time new members learns practices (creating patterns), and later teaches and expresses them to others. This is somewhat similar to how Reason (1997) defines the concept of organizational culture:

“Shared values and beliefs that interact with company’s people, organizational structure and control system to produce behavioural norms”

Unlike Bolman & Deal, Reason includes the conception of culture in multiple levels, making it clearer that culture is present from the individual to the “organizations whole”. This is also illustrated by Schein (2004) and his model of organizational culture originated in the 1980’s:

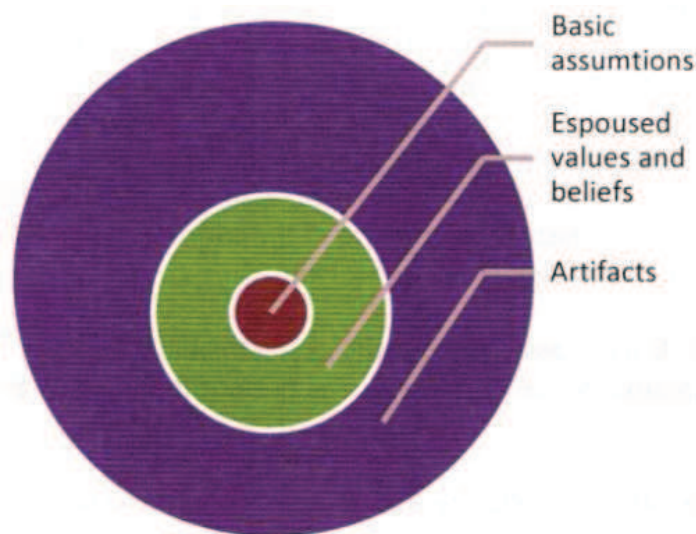


Figure 1 Organizational culture model (Schein, 2004)

From the figure above, Schein (2004) illustrates that perception of organizational culture vary at different levels. The levels are divided into three distinct levels in organizational culture, where a level is the degree to which a cultural phenomenon is visible to the observer, starting from the outer to the inner circle.

The artifacts, which represents the outer layer, covers every tangible or verbally identifiable phenomenon in an organization. The most important thing about the artifacts is that one has the ability to easily observe design and what is happening, but it is also important to

understand that it is difficult to interpret it. Symbols, architecture, furniture, dress code, office jokes, stories, visions and emotions all exemplify organizational artifacts (Schein, 2004).

The espoused values and beliefs, representing the middle layer, reflect upon someone's beliefs and values. These values are subsequently transformed into shared value and can eventually become shared assumptions if one act upon the values and the solutions are successful. In this layer values also represent the organizations stated or desired cultural elements. This is most often a written or stated tone that the management hope to radiate throughout the office environment. The values and beliefs on this layer often predict a lot of the behaviour that can be seen at the outer layer (Schein, 2004).

The inner layers in Schein's model are represented by our basic assumptions and are those elements that are not visible for the observer. These assumptions are the actual values that the culture represents and do not necessarily correlated to the values, but are so well integrated in the office dynamic and not cognitively identified in interactions between members that they are hard to recognize from within (Schein, 2004).

In many cases elements in our basic assumptions are shameful to talk about, and several anonymous rules and beliefs are present within the organization without the conscious knowledge of the members. When looking at culture as set of basic assumptions, these assumptions define what we emphasize, our understanding of things, and what we act upon in different scenarios. A challenge or question to our assumptions can cause individuals to get concerned or defensive. It is therefore important to identify that the human mind needs cognitive stability, in order to bring changes in a group's culture. Two keys are identified to successful culture change (Schein, 2004). They are:

- The management of large amount of anxiety that accompany any relearning at this level.
- The assessment of weather the genetic potential for new learning is present.

In light of my research questions of whether safety approaches give the desired effect or not, it will be necessary to ensure whether different approaches continue to exchange experiences, and thus correlate to these two key factors for successful organization culture change.

In recent years, however, some researchers have expressed some scepticism towards Schein's culture model. Antonsen (2009) among others have argued that Schein's culture model is highly problematic in many studies of safety culture, as Schein expresses a great amount of scepticism regarding psychometric studies of culture. In relation to today's society, I further argue that Schein's model may be perceived as rather static, as each layer is defined by boundaries, hence, not resembling the practical aspect which is more dynamic.

Nonetheless, this does not mean that Schein's organizational culture model must be neglected as important regarding the explanation of organization culture. As I have already mentioned the scope of culture lies outside this assignment and I have, so forth, not gone into further detail in Schein's theory. It is therefore only briefly presented in order to present the basic thinking of how to see organizational culture.

2.2 Concept of safety

The term *safety* must be understood in relation to the term *risk* or *hazard*. Whether one is talking about safety as a feeling, as a state or a practice the notion of risk or hazard will always be present. Several definitions to risk exist, but as a simplification it is common to talk about risk as “a function of possibility of an event taking place” (Antonsen, 2009). When a low level of risk is present, the perceived level of safety is high. Likewise, if a high level of risk is present, the perceived level of safety is low. When talking about safety one is always talking about being safe against something. But what is it we want to be safe from? As to risk, there are several understandings of the concept of safety and one therefore needs to specify what type of safety we are talking about.

By tradition, the concept of risk was first and foremost related to what we today refer as “the act of God”. This ruled out the idea of human fault and responsibility, where the risk was perceived to be a force of nature like storms, floods, earthquakes and like (Lupton, 1999). However, the concept of risk has in recent times been extended, where the concept now includes risk and hazards both created by nature and by humans. The German sociologist Beck (1992) indicated that in addition to the increased development of technologies and societies in the western world, we also increased the number of new risks, causing increased uncertainties and thereby a “risk society”.

When looking at safety for this assignment, the issue is here related to work organizations. This indicates that risk attached to nature, terror, sabotage and such, are not included. The term “safety” is thereby associated with safety against unwanted accidents and incidents in organizations. These types can result in major accidents with catastrophic consequence, e.g. relating to humans, environment, financial losses that affect the organization. Different perspectives are often used to understand major accidents and how robust organizations can be created, namely; Haddon’s Energy Model, Normal Accident Theory (NAT), High Reliability Organizations (HRO), Information Processing Perspective, Conflicting objectives, adaptation and operation and now more recently Resilience Engineering (Rosness, et al., 2010).

These perspectives are commonly referred as “six perspectives”. The purpose of having such perspectives is to obtain different views and possibilities to why accidents occur, and be able to create resilient organizations in the future (Rosness, et al., 2010):

- Resilience Engineering: focuses on a socio-technical system’s ability to attend to, monitor, and cope with performance variability (Hollnagel et al., 2006).
- Haddon’s Energy barriers model: provides the opportunity to see the immediate causes of accidents, where accidents occur when objects are affected by harmful energy out of control, in the absence of effective barriers between energy source and the object (Kjellén, 2000).
- Normal Accident Theory (NAT): explains some major accidents in terms of a mismatch between the properties of the technology to be controlled and the structure of the organization responsible for controlling the technology (Perrow, 1999).

- High Reliability Organizations (HRO): is grounded in studies of organizations that have demonstrated an outstanding capacity to handle fairly complex technologies without generating major accidents (LaPorte & Consolini, 1991). Important concepts from this research refer to organizational redundancy and the organizations ability to peak demands and crisis.
- Information processing perspective: refers to Turner's theory of man-made disasters associated with the accident caused by a breakdown in the flow and interpretation of information in an organization (Turner & Pidgeon, 1997).
- Conflicting objectives, adaptation and operation: points focus on managing conflicting goals. Accidents can be seen as a result of actors working on the edge of the acceptable limits (Rasmussen, 1997).

Rasmussen's (1997) migration model, explaining "Brownian movements", takes initial basis in work that is on the edge of what is considered acceptable. Illustrated in figure 2, the worker moves around in a 2-dimensional space bounded by the limits of acceptable work load and what is financially feasible for the organization. The end product of these conditions will then provide a performance vector pointing to the limit of acceptable risk. Once this limit is crossed the likelihood of an accident occurring will be present (Rasmussen, 1997). In relation to safety culture this indicates that it is important to provide workers with the proper amount of workload, giving them time to do work properly. Additionally, it is important to create a culture and awareness, that pressure from management should not exert on employees, hence, avoiding accidents.

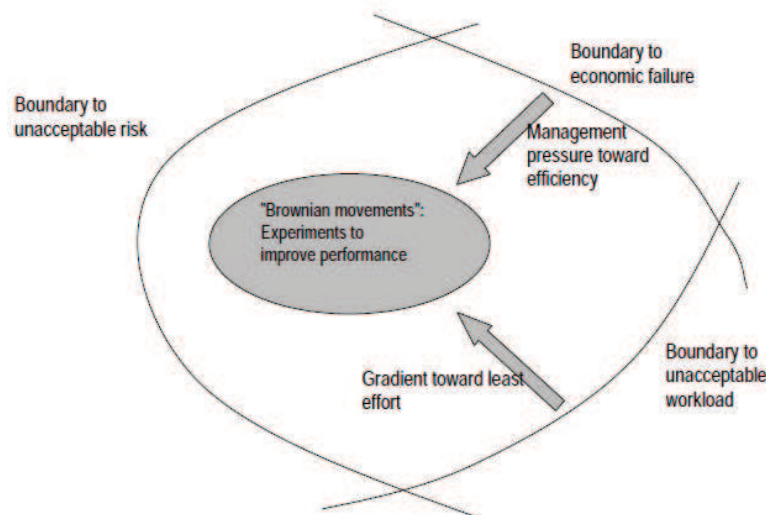


Figure 2 Rasmussen's (1997) migration model.

In relation with the increased focus on awareness of the risk in the society, there has emerged a new field within research, namely quantitative risk analysis (QRA). This analysis has the purpose to support all decision making, by assessing and quantifying the risk associated with operation of any technical system. The analysis has the intention of indicating what may go wrong and quantify how likely it is that it goes wrong, and what the consequences may be.

One can see parallels from this field of research with Reason's (1997) "Swiss Cheese Model", which to some extent also indicates what can go wrong, together with the consequence.

Reason's model shown in the figure below, has the intention of showing the importance of several barriers in place. In an ideal world these defences would all be intact with no signs of weakness. In the real world however, each layer has its weakness illustrated by the "holes in the cheese" (Reason, 1997).

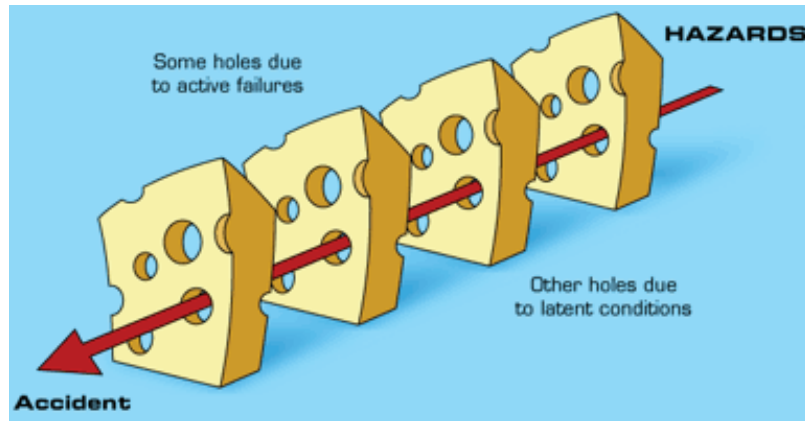


Figure 3 "Swizz Cheese Model" (Reason, 1997).

If one relates Reason's model to the QRA, one might see that the QRA e.g. helps quantifying the risk of each layers possibility to fail, and thus we can quantify the risk of failure in each layer causing an accident to occur. On the other hand, the QRA views the concept of risk as statistical in a way that accidents are assumed to be stochastic and random in occurrence, hence, giving less attention to finding the actual cause of the accident (Antonsen, 2009). The QRA research and Reason's "Swiss Cheese model" therefore jointly constitutes the initial definition of risk made in the beginning of this section.

In relation to the approaches towards safety culture, presented in the forthcoming result, my initial view regarding the approach of how to handle safety culture, involves some scepticism with the use of numbers, as my initial idea of safety culture does not include relevance of numbers, but rather towards cultural perceptions. This will, though, be beneficial to examine in order to answer the research question regarding whether different safety approaches give the desired effect or not (ref. chapter 1.4), and if quantifying risk actually helps in practice.

To conclude the meaning of risk in this assignment, I have chosen to focus on safety as "our ability to handle and control the risks and hazards posing a threat" and thus my perception of the concept has to do with minimizing risks. This also indicates that the concept of safety includes all measures taken to minimize risks, whether it is reducing likelihood of a hazardous event or reducing the consequence the event may have.

2.3 Concept of safety culture

With the concept of culture and safety described by the previous subchapters, the concept of safety culture would simply imply that one has to make every organizational variable focus on minimizing risk to state a safe culture. However, this would not be accurate. As previously

mentioned, research on both safety and culture constitutes large fields and as such this indicates that the concept of safety culture corresponds to the same. As such, it is important to provide a similar clarification of the concept in order to provide a clear framework for discussion of the forthcoming results.

2.3.1 What is safety culture?

The concept of safety culture first appeared after the Chernobyl nuclear accident in the investigation report on Chernobyl, pointing to a poor safety culture in the organization (Antonsen, 2009). Since that time, a different range of definitions have been developed, most of them deriving from the organizational culture literature (Tharaldsen et al., 2009). This is mainly because of researchers' emphasis on different elements of safety culture as more prominent than others. Antonsen (2009) claims that the most frequently cited definition on safety culture derives from the Advisory Committee on the Safe Nuclear Installations (ASCNI). This definition forms the basis for much of already conducted research, and was also employed by Lee (1996, in Guldenmund 2000), defined as:

“The product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization’s health and safety management” (ASCNI 1993, in Antonsen 2009)

The concept “safety culture” has been discussed for a couple of decades, and as I see it, the increased focus on (organizational) culture makes it the main concept, where safety is a part of it. As such safety culture can be defined as:

“Those aspects of culture, that affects safety” (Waring 1992, in Glendon & Stanton 2000).

Guldenmund (2000) proposes another similar definition, but unlike Waring, has a somewhat more concrete definition of the concept:

“Those aspects of the organizational culture which will impact on attitudes and behaviour related to increasing or decreasing risk” (Guldenmund, 2000).

This latter clarification will therefore be made the basic foundation of this thesis. Furthermore, these definitions are also in accordance with Antonsen’s (2009) model, presenting safety culture as the organization’s culture that affects safety:

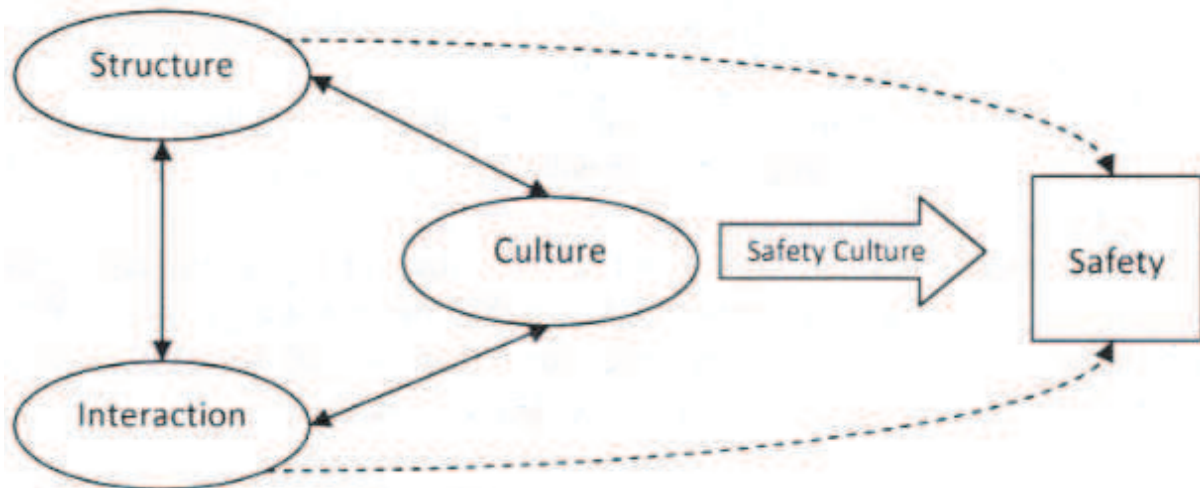


Figure 4 Organizational aspects affecting safety (Antonsen, 2009).

Figure 4, can further be presented with Reason's (1997) proposal of a system that classifies organizations based on how they handle safety information. He differentiates between three different types of cultures; Pathological, Bureaucratic and Generative. This has further on been adopted and developed by Shell into a safety culture ladder, namely the Hearts and Minds program (figure 5) (Westrum 1998, in Hovden 2010):

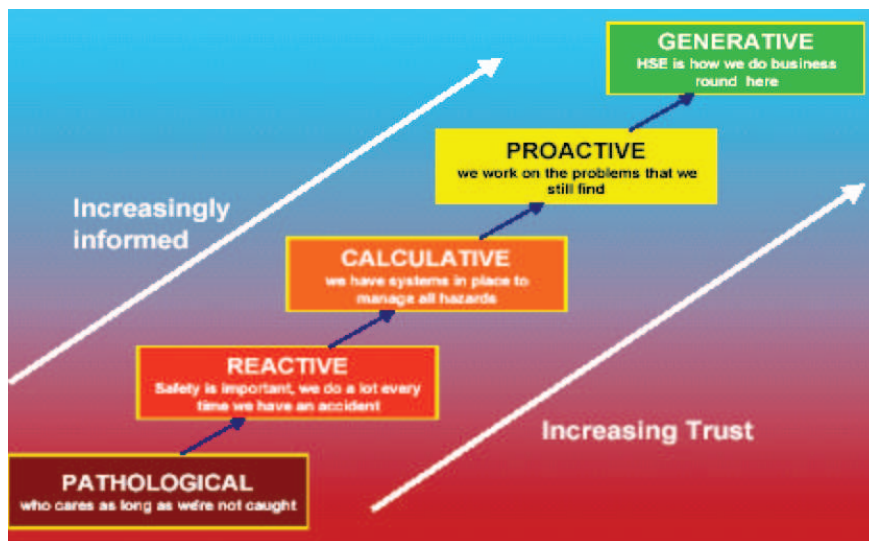


Figure 5 Safety culture ladder (Hovden, 2010).

It is essential to understand that this figure shows Shell's perception and that in order to theoretically match this figure, the Bureaucratic includes the areas; Reactive, Calculative and Proactive. Further on this can be presented by the following, where the ultimate goal for an organization is to act generative (Reason, 1997):

Table 2 How different organizational culture handles safety (Reason, 1997).

Pathological	Bureaucratic	Generative
<ul style="list-style-type: none"> • Don't want to know • Messengers (whistle-blowers) are "shot" • Responsibility is avoided • Failure is punished or hidden • Actively discouragement of new ideas. 	<ul style="list-style-type: none"> • May not find out • Messengers are listened to if they arrive • Responsibility is compartmentalized • Failures lead to local repairs • New ideas often present problems 	<ul style="list-style-type: none"> • Actively seek it • Messengers are trained and rewarded • Responsibility is shared • Failures lead to far reaching reforms • Encouragement of new ideas.

From the previous explanations, one can see that research on organizations safety culture expectation, want organizations to be generative. This will, hence, give the safety approaches the desired effect, since being generative involves actively seeking relearning and that the genetic potential is present, as new ideas are encouraged. Likewise, the desired effect is not achieved with pathological organizations, as genetic potential is discouraged.

Before I present the approaches towards safety culture, we will have to take a detour and look at the concept of safety culture in relation to other somewhat similar concepts.

2.3.1.1 Safety culture and behavioural based safety

In the field of safety research there is an on-going debate about the difference between behavioural and cultural approaches to safety (Tharaldsen, 2010). In practice, however, we often tend to use insights from both perspectives, but an exploration of their characteristics is needed in order to understand the difference to both theory and practice.

Behavioural based safety (BBS) has its roots in psychology, related to reward and punishment to the individual. BBS is essentially an extension of two elements. A distinction is often made between behaviour modification and applied behaviour analysis, reserving the last term for applications in natural settings, such as work places. It makes use of stimuli – response models and well established principles of operating conditions and reinforcement theory, which have shown to be applicable to behaviour change effort in clinical and applied context (DeJoy, 2005; Engen & Lindøe, 2008).

Unlike the behavioural approaches, a cultural approach to safety often takes a holistic and inter-subjective starting point, taking the employees' meaning towards work related risks into consideration. In contrast to BBS, which mainly is concerned with observable behaviour outputs, the cultural approach tries to take hold of the tacit and embodied sides of culture, in order to consider how external and internal conditions influence employees' possibility of behaving in a safe or unsafe manner (Tharaldsen, 2010). This can be shown by the two routes for change in behaviour, illustrated by Engen and Lindøe (2008):

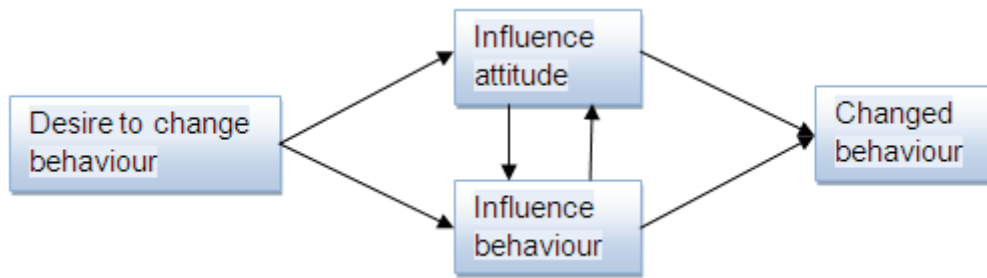


Figure 6 Different paths to behavioural change (Engen & Lindøe, 2008).

The illustration shows the difference between a cultural approach (route choice at the top), which want to influence our attitudes, while a BBS approach perform measures directly to the worker (route choice at the bottom). However, in their explanation Engen and Lindøe (2008) argues that it is important to understand that this illustration only provides a simplified version, but it is nevertheless, realistic to assume that there is a mutual interaction between the two paths as the vertical arrow indicates.

As such, with my initial research question regarding which method is suited in order to establish a “good” safety culture, there will be a need to be aware of the influence the two directions gives each other. I therefore argue that in order to achieve a “good” safety culture one will have to look at what might affect the safety cultural approach and that there will be a need of a BBS influence clarification.

The practical use of both perspectives also indicates that there implicitly ought to be some similarities between the two approaches (DeJoy, 2005; Engen & Lindøe, 2008):

- The two approaches both use a systematic or strategic approach to manage safety, and argues that the BBS approach leaves safety to the lower levels of in the hierarchy, but must even so have support from the upper management.
- Both approaches use analytic methods in order to assess change.
- Both approaches see the importance of including their employees in managing safety, in order for everyone to share the purpose of safety.
- The two approaches sees organizational culture as significant, as those following the BBS approach see culture as a significant background for implementing BBS programs. This program also gets an even further support, if a positive safety culture is in order.
- BBS programs will in later stages lead to cultural change.

However, as the BBS approach examine the specific context of the employees, diagnose and treat the critical behaviour and work with the outcomes of culture, it will in this respect have a different starting point compared to a cultural approach (DeJoy, 2005).



Figure 7 Different approaches to safety culture (DeJoy, 2005).

To conclude, one can characterize the two elements as different approaches. According to DeJoy's (2005) illustration shown in figure 7, one can look at the BBS as a bottom-up approach where the attention is given towards "the sharp end", and the employee's safe behaviour. The aim is then to recognize and change critical behaviour. On the other hand DeJoy looks the cultural approach as a top-down approach. Here the attention is directed towards change in the organizations values and basic assumptions. The aim is then to work with the management and make long lasting improvements in safety by understanding their culture and introduce changes (DeJoy, 2005).

Even with this explanation, I argue that this may be somewhat misleading, and that the elements actually depend more on how the actual intervention is carried out, rather than a striking characteristics of both. It here directs towards the question of whether these safety programs give the desired effect or not, as one cannot be sure whether it is the top-down or bottom-up approach that gives the best desired effect, since the two approaches ultimately poses an effect on one another (ref. chapter 1.4).

2.3.1.2 Safety culture and safety climate

Simultaneously with the derivation of the safety culture concept, was the concept of *safety climate*. This concept emerged from a more empirical tradition by the light of research such as Zohar, Cooper and Phillips, using methods related to statistical analysis (Guldenmund, 2000). As such, a clear distinction between safety culture and safety climate should be made, reserving the latter for overall perceptions or attitudes of a group of people, measured by questionnaires and statistical techniques providing a "snap shot" of the present safety condition (Tharaldsen et al., 2009).

According to Zohar (2008) *safety climate* refers to shared perceptions regarding safety policies, procedures and practices, and argues that safety climate tools should mirror policies-in-use rather to than its formal meaning. He also argues that safety climate tools should disclose the real priorities the management have towards safety, when safety is under strain (e.g. safety vs. production or time pressure).

As *safety climate* is often used to describe employees' perceptions of how safety is dealt with at the specific workplace and is mainly used to predict safety performance by leading indicators, a favourable safety climate is therefore essential for safe operations. As such, I argue that in order to get insight in an organizations safety culture, one can use these leading indicators on safety climate to work as a contributive factor to indicate the problem areas related to safety culture.

Although the concept of *safety culture* and *safety climate* create an obscurity as they revolve around the same areas, a partition between the concepts needs to be made in order to tell them apart. Research done by Guldenmund (2000) suggests such a partition based on Schein's (2004) culture model. Here, safety perceptions which subsequently are formed into shared values found at the level of espoused values and beliefs, equal to the concept of safety climate, while the inner layer of basic assumptions is related to the concept of safety culture. In connection to whether a safety culture gives the desired effect, this partition, shows that in order to assess the desired effect of safety culture, one must be able to see the effect at the inner layer. The layer of espoused values and beliefs, presenting the safety climate can thus be helpful to give indications towards the effect of safety approaches used.

However, it is important to mention that some common weaknesses have been presented by Antonsen (2009) regarding Guldenmund's (2000) study of safety culture. Antonsen argues that Guldenmund only sees the solution to the theoretical concept of safety culture to the "mother concept" of organizational culture, namely Schein's (2004) organizational culture model, and does with this not include the works of Turner (1978, in Antonsen 2009) and Weick (1999, in Antonsen 2009).

To conclude, I argue that safety culture is, by definition, very hard to detect, and hence, measure directly. Safety climate on the other hand, can as its research method suggest, use statistical techniques to measure safety performance, hence, only giving an opportunity to indicate the main problem areas.

2.3.1.3 Safety culture and health, safety and environmental culture

According to Karlsen (2010) health, safety and environmental (HSE) culture describes the organization planned and systematic improvement of working environment and safety of the production process and products' effects on health and the environment. HSE also includes the safety of consumers using the services and products, and the adaptation to the external environment. HSE is based on learning principles, where both individuals, groups and businesses as a whole can learn to improve the quality of its safety standards (ibid).

The Petroleum Safety Authority of Norway (2010) suggests that the concept of HSE integrates and embraces four areas:

- Health (in accordance with health and working environment legislation)
- The natural environment (in accordance with the Pollution Act)
- The working environment (in accordance with the Working Environment Act)
- Safety (in accordance with the Petroleum and Working Environment Acts)

In pursuing an HSE culture, many people point to the work of the organizational psychologist James Reason (PSA, 2010). He developed a set of concepts which can be implemented in order to build a sound HSE culture. Reason argues that an expressive feature of a sound safety culture is that it is informed, characterised by several factors, e.g. a good reporting systems, is perceived to promote fairness and is flexible, adaptable and that organizational members learn from their experience.

Organizations that possess the ability to learn, and constantly question their own practice and patterns of communication are characterized with a sound HSE culture. An informed organization should therefore be able to adapt dialogue and critical reflection of their practices (PSA, 2010). In order for people to keep learning, the willingness to share expertise and further develop their HSE knowledge is important. Requirements for a sound HSE culture can by this be presented by two points:

- Efforts to improve health, safety and the environment are not viewed in isolation from each other.
- A good balance is maintained between the independent responsibility of each person in HSE work and the responsibility of the enterprise to provide good working conditions.

If an organization becomes convinced that they have a sound HSE culture, they are almost certainly mistaken, as this kind of attitude weaken their ability to detect danger signals (ibid). This is in accordance with the investigations done in the Chernobyl accident, showing a lack in safety culture that had become blind to hazards present at work (Antonsen, 2009). I therefore argue that this latter clarification indicates that safety culture is not that different from what is understood by HSE culture.

As previously mentioned, the concept of HSE culture indicates a more broad range than the concept of safety culture. It implies focus on safety, health and environment (PSA, 2010). However, these two concepts are rather the same, as I argue that HSE culture is safety culture, but only including a more holistically approach. I therefore imply that one can take into account all work done on HSE culture and implement it when dealing with safety culture.

To conclude, this means that in order to find a method based on the Norwegian Framework Regulation §15, one will have to include all the aspects. As such, I argue that since I see safety culture and HSE culture as the same, a “good” approach to safety culture should focus on the entire HSE concept, and as such, these terms will for the remainder of this assignment be seen as one.

2.3.2 Implementation and value of safety culture programs

The on-going research on safety culture and the dissension of what constitutes a “good” method for safety culture indicates that there still will be given much importance to the concept. According to Reason (1997), multiple barriers are used in order to prevent potential hazards from occurring, namely the defence-in-depth strategy. As earlier mentioned barriers are considered important as they significantly reduce the possibility of accidents, and also makes the whole system more robust for people who manage and operate it.

Regarded to safety culture, the human element of such system has become increasingly distant from the process they control and from the hazards that can potentially put their operation in danger. Such an illustration is presented with Reasons “Swiss Cheese Model” of defence in depth (figure 3), where holes appear in the barriers due to active or latent failures, and if aligned an accidents will occur. Further, a lack in awareness of the full extent of danger can lead to the creation of prolonged holes in the barriers (e.g. lack of maintenance). Finally, and perchance the most severe effect related to safety culture appears if a proactively disinclination to deal with deficiencies exists allowing defensive gaps persevere (Reason, 1997).

Culture programs emphasizing safety have the aim to improve the organization safety culture, and have its origin from management (and behaviour) theory (DeJoy, 2005; Tharaldsen, 2010). Comparing it with Schein’s (2004) organizational culture model, DeJoy (2005) indicated that cultural programs stand out as more top-down approach with main focus on understanding and changing the basic assumptions and espoused values and beliefs in the organization. He argues that to make considerable improvements towards safety, the organizations culture must be understood and changed. In order to successfully be able to do so, DeJoy (2005) indicate that when implementing a cultural program one always needs to engage the upper management in order to rethink the significance and values of safety, and create dialogue and change that enhances the importance of safety within the organizational culture.

Frequently used methods for this process in general includes both qualitative (interviews) and quantitative (questionnaires) methods in order to “measure” existing culture. However, I argue that it is sufficient to include other methods, e.g. observation. From this, one can evaluate the programs. In order to elucidate the organization’s espoused values and beliefs, cultural programs repeatedly seek to simplify parts of the analysis and planning process to recognize priorities and implementation strategies to improve safety performance, hence, safety climate (DeJoy, 2005; Zohar, 2008; Tharaldsen, 2010).

However, if focus is held on observing statistical aberrance on safety performance, there is no given guarantee that an organizational change in culture has impacted in any significant method, hence, underlining that one should only use these statistics as assistance for indicating whether a program has the intended effect or not.

Dejoy (2005) also presents strength and weaknesses of culture change programs, and point out that some of the weaknesses of the BBS approach are indeed strengths of a culture change approach. This can be presented by the following:

Table 3 Strengths and weaknesses to a safety culture program (DeJoy, 2005).

Culture change program	
Strengths	Weakness
<ul style="list-style-type: none"> • Offers a greater opportunity to change basic assumptions of poor safety performance. • Produce change at the organizational level. • Is more extensive in its scope, as culture change is not related to specific sets of BBS or any special safety problem. • Provides an opportunity for significant employee participation as the broader scope enhances possibility of participation from different levels. 	<ul style="list-style-type: none"> • Culture programs are often subjective and not easily replicated or verified. • The technologies of such programs are quite unclear and not precise enough. • It is easier to detect the behaviours of employees in the “sharp end” and hence record the espoused values and beliefs and basic assumptions. • Evaluating organizational culture is regarded as an indirect process and selection of where and how to intervene in the organizational culture with respect to safety can be an inaccurate and complex task.

2.3.3 What influences and affects safety culture

According to Antonsen (2009) most studies view safety culture as a subset of organizational culture, as those parts of an organizations culture that has effect on safety. Here he raises the question; how is one supposed to know which parts of organizational culture influence safety?

What influences and affects safety can be hard to extract, as there have been done several studies on safety culture and safety climate, regarding which factors influence safety. The main problem occurs, as important factors influencing safety are measured differently, and are not searching for the same causes. However, I emphasize a study conducted by Mearns et al. (2003) on *safety management practice*, which found that management commitment towards safety is related to successful implementation of safety measures, e.g. prioritizing safety over cost and production, keeping high focus on safety during meetings, attendance of managers at safety meetings, and personal meetings with employees featuring safety as a topic. This can be seen in accordance with Antonsen (2009), emphasizing that management practice is considered central, with safety as an aspect of it.

From the study conducted by Mearns et al. (2003), one can understand that management have strong influence on safety. A study conducted by Rundmo and Hale (2003), found that high management commitment to safety was given in order to prevent accidents. This is somewhat similar to what Mearns et al. presented in their study, enhancing the major role of management influence. With the great amount of influence from management, one can implicitly understand that there are strong relations between actions taken by the management and the assessment of the employees’ behaviour towards safety. However, I argue that if management alone have such influence on safety culture, this will not be in agreement with the Norwegian Framework Regulation §15, as involvement of every party is vital.

Another reoccurring factor in studies on safety culture influence indicates that it is not only the management that poses an influence on the employees, as employees also affect themselves. Individual differences in one's personality, attitudes, knowledge, and beliefs can influence a worker's ability to safely handle workplace hazards. Related to employees' behaviour, is also the decision-making at different levels regarding risk exposure and risk handling. Hovden & Larsson (1987) argue that the starting point is directed towards the risk-perception where variables and relations encompass the cognitive, emotional and moral aspects of accidents and risk conception on different levels from the individual to the society represent different perspectives on reality. These should therefore be treated differently and I have so forth presented them as such:

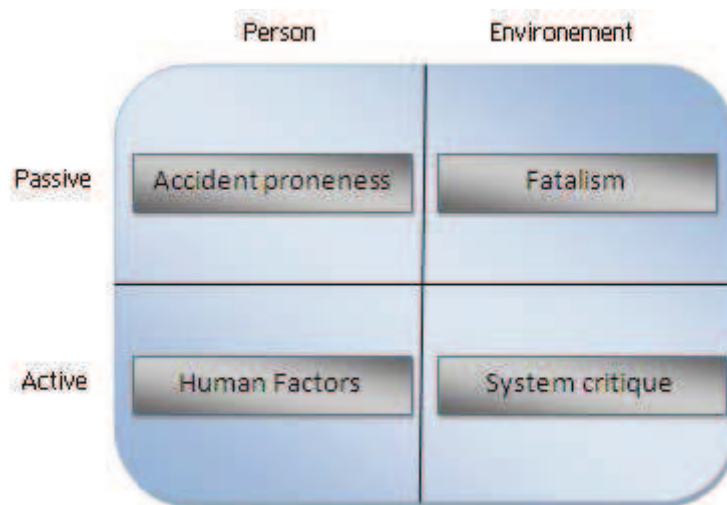


Figure 8 Individuals risk perception.

Here the accident-prone person is referred to those who blame themselves for being inattentive and as such, causes accident upon themselves. Fatalism refers to the certainty that accidents are unavoidable results of chance or fate, and that employees can do little to avoid them. Human factors is related to those accidents that can occur due to people seeing themselves as “champions” (Tarzan), while the system critiques are those only blaming the environment and the society. Regarded to the influence on safety culture, a study conducted by Henning et al. (2009) showed that fatalistic employees might be less likely to take part in safe work practices as they believe these behaviours have little influence on accidents (Henning et al., 2009; Rundmo & Hale, 2003). I therefore argue that it is important to create participation and commitment from employees. This is especially vital regarding safety, as employees in the “sharp end” are those exposed to the greatest dangers and therefore needs to create a sense of ownership to what is done.

However, this latter argument causes some scepticism as I would also argue that even though I agree that management has strong relation to employees' safety, and that the presented studies have to some extent taken into consideration participation of employees, they have not reflected upon the differences in a permanent employee and contractors. Hence, I believe it is significant to understand that creating participation from the organizations employees might increase their employees' ownership towards the organizations safety cultural approach, but it

is not certain that this will create the same feeling towards the employees hired as contractors. It is therefore vital to involve every employee in a decision-making process in order to share the purpose of safety. As a result, one can then be able to see resemblance to the Norwegian Framework Regulation §15.

2.3.4 Safety performance as a tool for assessing safety culture

Before attempting to show the relation between safety performance and safety culture, I would like to remind the previously reflected thought, indicating that safety performance was mainly shown by leading indicators. As such, it had the function of describing employees' perceptions of how safety is dealt with at the specific workplace. This is furthermore related to what was pointed out as safety climate. As such I point out, that this section gives a clear understanding as to how one can assess the desired effect of a safety culture approach (ref. chapter 1.4).

In safety research, one can generally assume that there is a relationship between safety culture and safety performance, e.g. that the employees' safe or unsafe practices or behaviours are a function of the core organizational safety culture and the reflected or measured safety performance. However, it has been difficult to provide empirical evidence for causal links between them (Cooper & Phillips, 2004).

In order to clarify the organization's values and visions, cultural programs repeatedly seek to improve safety performance (DeJoy, 2005; Zohar, 2008; Tharaldsen, 2010). However, if focus is only held on monitoring statistical variance on safety performance, there is no given guarantee that an organizational change in culture has impacted in any significant way (DeJoy, 2005). Even so, we normally tend to believe that a mutual relation implies that safe behaviour may lead to a safer culture and fewer accidents will occur. Furthermore accidents may urge the organization towards a safer culture and better scores on safety performance measures (Tharaldsen, 2010). In some situations, however, improved safety culture involves better incident reporting, which will in such cases worsen the safety performance, e.g. higher accident statistics, indicating that a desired effect is not reached. This can then again result in employees having higher safety awareness as they expect more incidents to occur, hence, they act more critically to other employees expecting less (Reason, 1997).

Safety performance on the other hand can relate to different aspects and levels, and the development of sound safety indicators in an organization, industry or a sector depends on careful design (Hopkins, 2009). It is here important to understand that as process safety indicators refer to hazards occurring from the processing activities, personal safety is related to hazards to persons and therefore has almost nothing to do with process safety. As safety indicators are outside the scope of this assignment, it is still important to understand that process safety accidents may typically damage or threaten a plant and cause multiple fatalities. Likewise, personal safety indicators will not tell you how well you are managing process safety and only focus on individual safety (Hopkins, 2009). These leading indicators then present us with information concerning the current situation, which in turn may affect safety culture (Tharaldsen, 2010).

To conclude, this shows a clear relation between how one can decide whether a safety program has had the intended effect or not, as I argue that one can use safety performance, by leading indicators, to assist the work in improving safety culture. This argument arises as I believe safety indicators neither lack personal nor process information, but it all depends on the organization's willingness or ability to treat them as important and real. This means, that indicators on safety performance used adequately, e.g. personal safety indicators usually referring to injuries or fatality rates can be of good use to act upon a dissatisfying area regarding safety culture.

2.3.5 Safety culture and compliance

In order to promote safety, organizations often make a set of rules for the workers to follow. These are often set into the organization's safety policies. As such, it tells us that compliance with these policies is interrelated to safety culture, as this will reduce the number of accidents, hence, a better safety culture (Hale & Borys, 2010). Rule-compliance is an important part of any safety strategy, and in the way towards risk management of safety. It is important to understand that risk management also provides a safety strategy, but gives very little guidance to the final decision-maker (Hopkins, 2011).

By nature, rules are general in their use, and it is therefore predictable that there will come occasions where workers will judge these rules and treat them as unnecessary or insufficient. These behaviours will in turn cause non-compliance, unless we do not manage them cautiously (Hopkins, 2011). In regards to safety culture, this means that when workers come across procedures they find unworkable or inapplicable, they should notify management about the situation and request a re-examine of a rule, rather than make their own solutions. Furthermore, management should respond quickly, and be able to identify the concerns of the worker. It is here important that the management do not lose track of the rule's initial basis when trying to adjust to the worker's problem. It will therefore be important to find a solution that is workable for all (Hopkins, 2011). However, I argue that this is not that simple, as behind this type of behaviour, is another. It is important to understand that not all employees are as straightforward, and as such, will act in a non-compliant manner, e.g. by not caring about rules, find the rules unrealistic or skip following rules to complete a task in time.

To conclude, this means that rule-compliance strategy requires the management to identify that a set of rules is always a working progress and that it needs to be actively managed (Hopkins, 2011). Rule-compliant cultures, will hence, indicate that we can achieve a safer environment. Another way of seeing this is in connection to the Norwegian Framework Regulation §15. This regulation provides us with functional requirements. Even though these requirements are not very concrete, they still indicate that compliance with these requirements will contribute to an improved safety culture. I therefore argue that a company with good safety culture is a company that is rule-compliant, but where rules are not too hard to comply with. If such, this will drive us further away from a safety culture, as workers only will comply because they may face negative consequences.

2.3.6 Criteria for evaluating a safety culture approaches and methods

Even with all the good intentions towards the concept of safety culture, it is still difficult to determine what is regarded as “good or bad” safety culture, and even more difficult to determine what method is suited to establish a “good” safety culture, e.g. why some companies do better than others, even though they have the same conditions.

Based on the differentiation made between safety culture and the other safety related terms, I argue that the following elements indicate what one ought to emphasize when evaluating a safety culture approach, in order to find a method for establishing a good safety culture (Guldenmund, 2000; Schein, 2004; DeJoy, 2005; Zohar, 2008; Tharaldsen et al., 2009; Antonsen, 2009; Tharaldsen, 2010):

- (Organizational) culture need to be the main concept, where safety is an aspect of it.
- Ought to take a holistic and common starting point, taking the employees’ meaning towards work related risks into consideration.
- Needs to be a top-down approach, where the attention is directed towards change in the organizations values and basic assumptions.
- It should reflect upon the aspect of an organizations culture, reflecting common symbols, sense-making and practices which enables or disables groups, organizations or societies to protect them, the environment and its members from harm.
- It should not differentiate HSE culture from safety culture, as they imply the same topics.

These elements however, provide a rather general explanation. In order to understand these elements, they need to be further concretized. In light of the research question set up, these five elements do not show much resemblance to what is considered to create a “good” safety culture according to the Norwegian Framework Regulation §15. As this regulation encompasses that everyone should promote a sound HSE culture, none of the evaluation elements match the regulation directly.

As many companies have introduced their workers to expensive programs and various tools in order to change their safety culture, I anticipate the companies want to make a change towards improvement of their current state of safety. To evaluate what a method with “good” safety culture must contain, I take basis in Hale’s (2000) suggestions for a “good” safety culture in order to have some ideal criteria for what is considered as “good”. These elements are more concrete than my previous elements, and in turn, have more resemblance to the Norwegian Framework Regulation §15, as many of these elements are related to involvement of employees, management and the organization:

1. The importance given by all employees, particularly top managers to safety goals, alongside and in unavoidable conflict with other organizational goals, e.g. safety vs. cost of time or money.
2. Which aspects of safety in the broadest sense of the world are included in that concept, and how the priority is given to, and felt between the different aspects.

3. The involvement felt by all parties the organization in the process of defining, prioritizing and controlling risk, e.g. including every member in a decision to share the purpose of safety.
4. The creative mistrust that people have in the risk control system, which indicates that they always expect new or old problems on new guises, and never convinced that safety culture or performance is ideal, e.g. If members are convinced they have a ideal safety culture, they are mistaken.
5. The caring trust that all parties have in each other, each doing their own part (including yourself), needs a watchful eye and helping to cope with the inevitable slips and blunders that can always occur, e.g. overlapping and shared responsibilities.
6. The honesty in communication about failures as learning experiences, and to imagine and share new dangers, which guides to reflexivity about the working of the whole risk control system, e.g. drive a responsible learning culture.
7. The belief that causes for incident and opportunities for safety improvements should seek not just in individual behaviour, but also in the interaction of many causal factors, e.g. have the belief that solutions can be found and expected from any member.
8. The integration of safety thinking and action into all aspects of work practice, so that is seen as an inseparable, but explicit part of the organization, e.g. implicit understand safety and exert it to others (hands on the railing when going up stairs).

These elements will further on be used as rational when discussing the different results and in order to assess whether such a method for safety culture can be established.

3 Methodology of the empirical studies

The purpose of this chapter is to explain the reader how this thesis was conducted. This is important in order to increase the reliability of the work and make it possible for the reader to understand the work conducted, hence, be able to replicate the study. To be able to do so, this chapter is built up by three subchapters.

The first subchapter introduces the research design used in this study. Here, a description is given presenting which design is chosen and why it is chosen. This description then lays the foundation for the research approach. This approach is discussed in the second subchapter presenting a thorough description of how the thesis was conducted. It here takes hold of the different methods used for information gathering and how it was analyzed. The last subchapter presents the method critique and looks into the validity of the methods used, and hence, it gives an indication of which methods are good and what measures could have further increased the validity and reliability of the research conducted.

The theme of this thesis was proposed by BP Norway and the assignment was composed by the author in collaboration with supervisors. The following picture gives a brief introduction to how this thesis was conducted.

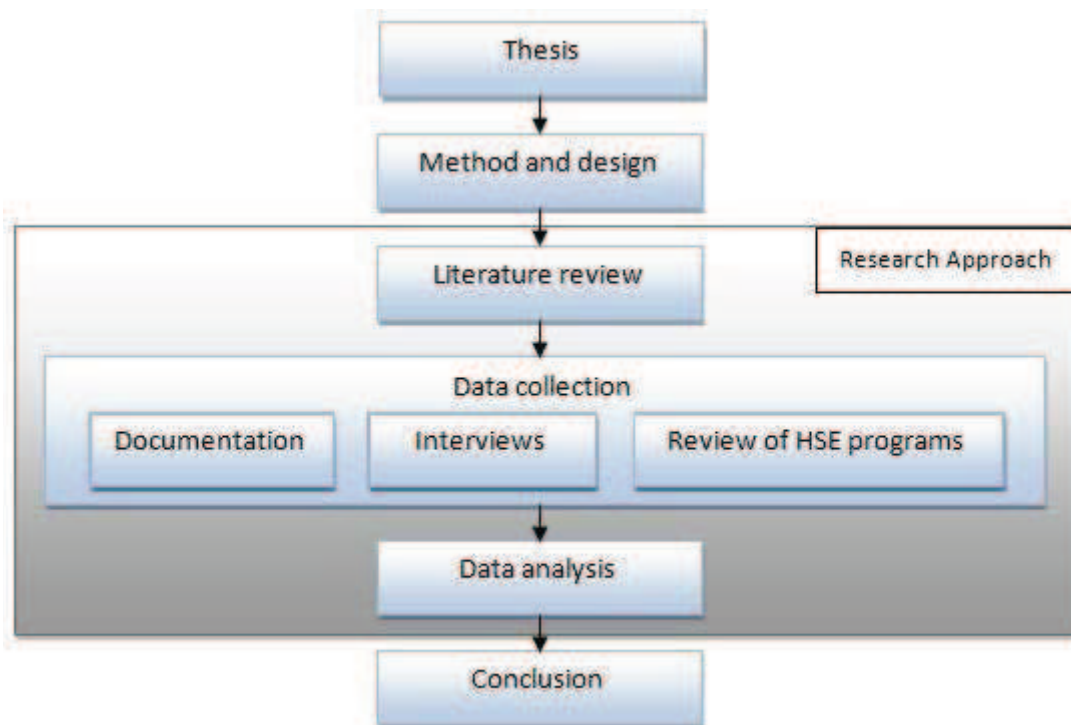


Figure 9 Thesis approach.

3.1 Research design

As an important part of every assignment the research designs can be seen as different frameworks for collection and analysis of data. As such, it is vital to ensure that the right research design is chosen to obtain evidence that is appropriate for a set of criteria's used to evaluate research and to the research questions (Bryman, 2008). The choice of research design

will in turn lay the basis for the selection of the methods used to gather information, discussed in the second subchapter.

3.1.1 Comparative design

A comparative design involves studying two or more cases, by the use of the same identical methods. As such, it deals with the logic of comparison in order to enhance understanding of social phenomena, when compared in relation to each other (Bryman, 2008). From the development of the research questions, the choice of research design came rather natural. As this thesis revolved around finding an approach suited to establish a good safety culture, it became clear that research needed to be conducted on two or more organizations, in order to get a better understanding of the safety culture phenomenon and see if the different organizations had the same understandings. As such, a comparative design was seen as the most preferable.

As this research design can be realized by the use of either quantitative or qualitative methods, its data collection usually is within the cross-sectional format (Bryman, 2008). However, from the author's points of view culture change cannot be understood by quantification, as culture cannot be assessed by numbers. A qualitative method was therefore chosen in order to seek explanations for similarities and differences to gain a greater knowledge and more thorough understanding of the social reality in the various organizations.

The qualitative method is in general characterized with fewer data objects, but gives more in-depth results, e.g. interviews giving more supplementary text. This makes a qualitative method more inductive, meaning that data collected together with observation can serve as foundation for further development of theory (Bryman, 2008).

As culture change is seen as a process developed over time, the biggest dilemma with this research design is that the information gathered is done at a single point in time. From the authors point of view it would, therefore, have been more suitable to use a longitudinal design, giving the opportunity to measure the effects of the various approaches and methods used, over time. However, the restricted amount of time and that the different approaches and methods have been used for years defend the choice of research design. This is because the data gathered represents the organizations thoughts on the different aspects of safety culture and the various measures after implementation. As a result, the research can be seen as summative at this point in time.

3.2 Research approach

In order to assess which method is suited to establish a good safety culture it is important to understand what is currently being acknowledged as essential within the concept of safety culture. Literature is searched with the purpose to get insight and obtain knowledge in order to answer the research questions. It is also used to validate discussions made, when presenting the results. As such, the first section in this subchapter presents the different methods used during the literature review in order to get the best possible overview within the concept of safety culture.

The second section presents the methodology of the interview phase, which represents the main source of information for this assignment. Here a thorough description is given, to how the interviews were carried out. This involves the choice of interviewees, development of the interview guide and the use of the information letter to inform the interviewees before the interview. Furthermore, the third section presents the approach for the review of the HSE programs in the oil companies in order to further increase the validity of the assignment, bringing in the element of observation.

The final section presents how the gathered information was analyzed. Here, a description is given, presenting how the information from the interviews and the observations were used and evaluated.

3.2.1 Approach for the literature review

Here, a presentation of the different type of sources used, during the literature review, are described in order to get the best possible overview within the concept of safety culture.

Search tools and databases

In order to obtain different journals, books, scholarly literature different search tools and databases have been used:

- **NTNU library** provides a greatly variety in safety and organizational related literature, in form of books and articles.
- **Google Scholar** provides a simple way to broadly search for scholarly literature. One can search across many disciplines and sources such as peer-reviewed papers, theses, books, abstracts and articles from academic publishers, professional societies, websites, universities and other academic organizations. Google Scholar helps one identify the most relevant searches in academic research, and is used as a tool for additional screening of literature
- **ScienceDirect** is a leading full-text scientific database containing journals and book. ScienceDirect is a part of Elsevier the world's largest company providing scientific, technical and medical information.

During the execution of the search, the topics and search-phrases were all related to the topic of this assignment. By this, I mean that the search was made to encompass literature related to safety, culture, organizational culture, safety culture and like, in order to continue or support the writing.

Course material and recommended literature

Articles and books from attended courses (mainly *safety management* and *HSE-tools and methods*) have been taken into account, as they have given background material for this assignment. Furthermore, supervisor has recommended relevant literature on occasions and the author has also asked for recommendations from other practitioners.

References in already obtained literature

The following references in the literature have been used to better understand topics and the opportunity for further elaboration.

Review of current articles in safety journal

To include new thinking and developments within the subject of safety culture, related articles from Safety Science and the Journal of Safety Research have been reviewed.

Reports from authorities, research institutions

Relevant reports from PTIL (Petroleum Safety Authority of Norway), IRIS (International Research Institution of Stavanger), SINTEF, OLF (Oljeindustriens Landsforening), and PI (Psykologisk Institutt) have been selected when searching for particular publications or reviewing the titles related to safety culture the last couple of years.

3.2.2 Methodology of the interview phase

As the thesis is founded on how people perceive safety culture and change, it is likely to estimate that this topic is hard to map with quantitative measures. As such, a qualitative method was chosen and is for this assignment the main information source. The interview phase therefore constitutes a vital part of the research approach. Furthermore, the chosen method and design for this assignment, made it clear, that conducting interviews gave more in-depth answers, making it easier to compare different organizations perceptions.

The informants where chosen by the author in collaboration with BP Norway. The initial request from the author involved three main aspects. In order to increase the validity of the assignment, these three aspects revolved around a triangulation, based on Bryman (2008), to get insight in the different aspects within the oil industry. The purpose of this triangulation was therefore to see if the companies/contractors, authorities and unions had the same opinion about safety culture, hence, see if the different sections in the oil industry had the same assumptions in order to established an approach suited for good safety culture.

The request given from the author was as such, three companies/contractors, the authorities and unions. Furthermore, as this assignment had the purpose of looking into different approaches and methods, the author requested persons with HSE responsibility working in- or close with management and who preferably had offshore experience. The different positions asked for, were therefore directed towards people who worked with and dealt with culture change in order to get a selection of people who could give their opinion and exchange their experience on this theme. Furthermore, these positions were also desired as the author assumed that implementation of new measures is taken by management. As such, the author believed the interviewees would play an important role in the implementation phase, as they would all be working in or close with management.

Interview guide

In order to follow the research method chosen, a set of questions were developed into an interview guide. Together with previously established interview guides on the same topic, this interview guide was made by the author, developing several questions related to different aspects within the concept of safety culture, found in Appendix 1. To give the interviewees as much flexibility as possible while answering, the interview was developed as a semi-structured interview and conducted in Norwegian so the interviewees could speak in their native language and easily express themselves.

A semi-structured interview makes it possible for the interviewer to ask the interviewees a set of questions and additionally ask questions for further elaboration based on the interviewees answer. This gives the respondents more flexibility as they are then able to go thoroughly into what they think, hence, give the interviewer further detailed information where this is needed (Bryman, 2008).

Information letter

In front of the interview, the author also developed an information letter. This information letter was sent to all informants in advance, and was developed with the purpose of enhancing the reliability of the interview. In order to avoid any confusion, the letter was developed in Norwegian. The letter also provided the respondents the opportunity to prepare themselves in advance as the letter included the reason for the interview and the main topics going to be asked. However, the information letter also included a declaration of professional secrecy, an approval from the interviewees and information on how the collected data was being handled confidentially, shown in Appendix 2. Regarding the approval, each interview was sent back to the interviewees in order for them to accept, that what was transcribed was their own opinions, in order to increase the validity of the answers.

Even though this letter had the purpose of increasing reliability and validity, it also presented some challenges. While it gave the informants the opportunity to think through the topics, in order for them to give an in-depth answer, it also provided them the opportunity to think through what they wanted to omit. As such, the interview guide was not sent to the interviewees in order to not lose the spontaneity in the informants' answers, hence, get answers which came more naturally from the respondents.

Finally it is also important to mention, that this information letter was also approved by Norwegian Social Science Data Services (NSD) regarding the use of sensitive personal data in order to follow the ethical guidelines.

Interview process

In order to make it comfortable for the respondents, the author started the interviews by telling a bit about himself, the assignment and how the interview was planned out. This information was initially what was already written in the information letter, sent to the informants in advance. The purpose of this introduction was to relax the interviewees and give them the possibility to clarify with the interviewer if there were some uncertainties regarding the information letter. To successfully obtain the information from the interviews, all the interviews were taped with a digital recorder. Additionally, the informants were told that information about themselves would remain anonymous. This was also written in the information letter and was approved and signed by the informants in advance of the interview.

The duration of the interviews conducted varied between all interviewees. The initial duration was approximately one hour, but due to the semi-structured approach, the interviews varied from 60min to 80min, depending on how many additional follow up questions that were asked. It is important to understand that as the formulation of the research question can influence how elaborative answers is needed, the author found it sufficient to interview a fewer amount of people, but rather in-depth interviews. As such, there were conducted 7

interviews. Furthermore, the length also varied as some organizations were not asked to answer the company specific questions, as the initial desire was to obtain more in-depth answers were the different organizations had their main priorities. This was mainly done with the authorities, unions and the collaboration project, also listed in the following interview list:

Table 4 List of interviewees.

Company	Position
BP Norway	HSE advisor (in the board)
BP Norway	Safety representative
ConocoPhillips	HSE director
Wintershall	HSE personnel (earlier PSA)
Petroleum Safety Authority of Norway	Chief engineer
Industri Energi (local Industri Energi union at BP Norway)	Union representative (ABC)
Samarbeid for Sikkerhet	Head of committee

After the interviews were conducted, every interview was transcribed by the author. This was done in order to ensure that every aspect of the respondents' answers was taken into consideration, as it is important to understand that the interviews had the purpose of obtaining the informants' opinions on behalf of their organizations.

From the initial request, there were three oil companies, the authorities, and a union. However, it is important to point out that the union, Industri Energi, is represented through a local Industri Energi union, namely; ABC union. Furthermore, BP also arranged an interview with Samarbeid for Sikkerhet (Working for Safety), which represents a collaboration project in the oil industry. From table 4 one can see that the respondents were all related to HSE, and were either in or close with management. Within the oil companies and the union, the respondents had also worked offshore. This gave the possibility to see what the different organizations do, in their line of work, in order to improve the safety culture. It also provided different point of views from management level, and as such, it is likely to think the information gathered reflects the views in the organizations, where there is a possibility to affect the safety culture approaches and methods.

However, in posterity, the author realized that it could have been beneficial for the validity of the results to get some interviewees from the "sharp end" as this would have given thoughts around how the workers are affected by the approaches and methods implemented by management together with a better representation of the organizations thoughts. The initial thought of the author was, nevertheless, that management are those who in the end decide what is implemented, and as such, it was only chosen interviewees with connection to management. Furthermore, given the time frame of this assignment, including several other in-depth interviewees would have made it rather difficult to complete this assignment, as it demands a great amount of time to fully transcribe hour long interviews.

3.2.3 Documentation and written material

All written material obtained from the organizations was reviewed in order to assess the different approaches and methods used. Accident statistics at the different companies were also taken into account in order to look for statistical significance. The main importance was, however, given to the use of cross-checking the literature in the documentations to the interview results in order to get the most accurate results and answers.

3.2.4 Review of HSE programs

As it is pointed out in the research question, another important part of this thesis is presented through the review of HSE programs in the oil companies. This is done in order to assess whether HSE culture programs give the desired effect and if they further improve the safety culture in the organizations. As this thesis includes three oil companies, the author preferably wanted to attend all the companies' safety culture program. However, Wintershall did not have any such program, while ConocoPhillips used their PSI-academy as their approach. Since the PSI-academy was not implemented as a safety culture program, the author was not able to attend any program in this company. As such only BP Norway's safety culture program was attended, namely; HSE-basic course. The following list gives a brief introduction to which programs were attended, and what is reviewed from the different companies. However, these safety culture approaches are more thoroughly described in chapter 4.

Table 5 Description of the reviewed HSE approaches.

Company	Name	What is reviewed
BP Norway	HSE-basic	Author attended the course, in order to understand what is taught to employees about safety culture. The review of this course included a review of their approach and methods. All written material was also obtained and taken into consideration. The written material is described in chapter 4, while supplementing observations are included in the result.
ConocoPhillips	PSI (Personal Safety Involvement)	PSI was not attended, as the PSI-academy is not a safety culture program. However, all written material on the different PSI-courses was obtained, and as such, this is used to review their safety culture approach.
Wintershall	No program	No program was implemented, nor did they have actively use different tools to enhance their safety culture.

The review of the HSE-basic course started at 8am in the morning and lasted the entire 8 hours. In order to minimize the attention from course leader, the author presented himself to the course leader and told him/her about the reason for the visit. The purpose of this brief

introduction was only to give the course leader a notification that the author was going to observe the course. The author chose to sit in the back as this gave the possibility to observe all participants without being too visible. To successfully gain all vital information from the course, the author printed out the lecture the day before. This gave the possibility to get a slight head start compared to the others and make it possible to focus more on what was done in practical that day. In order to fully understand what was told, the author in few occasions asked follow up questions to clarify what was told. This was carefully written down on the lecture slides, in order to remember the context to the proposed question.

As the purpose of attending such safety programs came from the formulation of the research question, this explicitly also enhanced the chosen method and design, by bringing in the element of observation. The observations gained from these programs were highly beneficial when comparing the interview results and documentation, hence, increasing the validity of the results (Bryman, 2008). As with the different interview aspects, the choice of gathering information by use of different methods was based on the author's initial wish to increase the validity, by the use of triangulation.

3.2.5 Approach for analyzing data

Data analysis is an important part of every assignment, and needs to be done accurately in order to get the correct information from the data collection phase. In this assignment the data analysis is divided in four main parts, namely;

- Understanding of key concepts
- Present approaches and methods
- Present views in the oil industry
- Approaches and methods for the future

Furthermore, every part will in chapter 6, be discussed in light of theory and the elements for a good safety culture, together with the organizations documentation and the observations made by the author.

Understanding of key concepts

The understanding of key concepts is related to how the interviewees' personal perception is regarding concepts related to safety culture. The purpose of using these understandings as an individual part of the analysis is based on the possibility to identify the starting point of each organization towards safety culture. From the author's point of view, this means that if organizations have the same starting point, it will be easier to develop an approach suited for establishing a good safety culture which can be used by the greater part of the oil industry.

Present approaches and methods

The present approaches and methods consists of the largest part of the interview, hence, it contains the most important thoughts regarding different approaches and methods for improving safety culture. The purpose for including this as an individual part, relates to finding out what the organizations think about their approaches and methods for a safety culture improvement. Here, it will be important to look at the gap between the different

approaches and methods the organizations have, in order to see if there can be developed an approach suited for all.

Present views in the oil industry

The present views in the oil industry are related to the interviewees' thoughts towards safety culture across their organization, taking into account the relations between management, employees and contractors. The reason for including this as an individual part is based on the possibility to identify what the organizations think about themselves and their culture. This will give the possibility to look into attitudes, acceptance requirement, role models and the different cultures present in the industry.

Approaches and methods for the future

This part constitutes the final outcome of what the interviewees think about the future and is related to their own opinions, based on the previous data analyzed. Here, it is possible to identify whether the persons in the respective organizations believe there can be defined a best practice or if one should focus on other areas within safety culture. From the author's point of view, this means that if organizations have the same thoughts towards the future, it might be possible to develop an approach suited for establishing a good safety culture which can commonly be used in the oil industry.

Table 6 Analysis of data.

	Outcome	Data collection	Indicator
Understanding of key concepts	The organizations perceptions regarding views on concepts.	Interviews	Questions related to: - concept of safety and safety culture
Present approaches and methods	The organizations thoughts towards their own approaches and methods.	Documentation, Interviews	Documentation on approach and various methods and tools. Questions related to: - focus on HSE - approaches and methods - chosen path towards safety culture - limitations
	The organizations thoughts towards safety culture programs.	Documentation, Interview, Review of HSE programs	Documentation on HSE programs, pamphlets, reports, etc Questions related to: - attitudes towards culture programs - research on safety culture programs - challenges - desired effect - behaviour - follow-up Author's own observations.
	The organizations thoughts towards safety culture indicators.	Documentation, Interviews	Documentation on performance and in form of statistical records. Question related to: - measurement and assessment - reflection of safety culture - sufficient feedback
Present views in the oil industry	The organizations thoughts towards management and employees.	Interviews	Question related to: - responsibility - mutual understanding - role models - safety vs. production - acceptance requirement - culture and compliance
	The organizations thoughts towards permanent employees and contractors.	Interviews	Question related to: - operation Some indicators such as responsibility, compliance and safety vs. production will also be used to see significance.
	The organizations thoughts towards the Norwegian Framework Regulation § 15.	Documentation, Interviews	Documentation on regulations, RNNP-reports and HSE culture pamphlets. Questions related to: - change from § 15 to § 15 - intention of regulation - concretization
Approaches and methods for the future	The interviewees' opinion about the future.	Interviews	Questions related to: - development of approaches and methods - mutual understanding - best practice - importance of focus

3.3 Method critique

When conducting a literature search it is important to make sure that the way the research is done helps to provide research credibility. In order to show my assignments credibility, I have taken basis in Alan Bryman's (2008) *Social Research Methods*. Here, different forms for validation exist and a brief summary is here given, in order to show which elements are fulfilled (*italic and boldfaced*) and which can be improved in further research (*italic*):

- ***Reliability*** criteria ask whether what we are measuring is a stable measure of what we are interested in, or if it will be impacted as we measure.
Regarding this criterion, much of the literature used is already conducted several years back, and this assignment is therefore reliable in the sense that the proposed theory will not vary after completion. Furthermore, the interviews conducted takes hold of the interviewees' perception of safety culture, and as such, it is not likely that these perceptions will change during this assignment, and hence, the results will not be impacted during the study.
- ***Validity*** criteria checks whether our data collection is relevant in order to say something about what we are interested in investigating and understanding. It is a criterion used to check if our findings are true.
Concerning this criterion, all used literature is mostly related to safety culture. Other literature used is however vital, in order to provide a supplement to the concept of safety culture. Regarding the interviews, information gathered is only from persons with experience within the field, and have been collected from different areas within the oil industry (closely linked with triangulation).
- ***Replicability*** criterion is used to check whether it is possible for other researchers to repeat the same assignment, if they wish, and by this be able to get more or less the same outcome.
This criterion can in this assignment be interpreted in both ways. As the literature used is available for every person, it implicitly tells us that the same information can be found and thereby used, resulting in somewhat same findings. However, it is important to understand that with so many theories on safety and organizational culture, a person might use different aspects of the theory compared to this project. In that case, the outcome will of very much certainty be variable from assignment to assignment, hence not replicable. The same goes for the interviewees. If the same interviewees are used again, this study will get the same results, but if other interviewees are used, this most probably will give different answer.
- ***Member Check*** criterion is used to verify if the ones we have researched or compiled data from agree that our data is a reasonable description of their reality.
This criterion is takes into consideration, as the information gathered from the interviewees was sent back to each informant, and was approved by all as valid for representation of their own opinions.
- ***Rich description*** is a criterion with the purpose of checking whether the reader is given enough data to assess our analysis and conclusions.
Regarding this criterion, the significant part of this assignment is conducted in order to understand the concept of safety culture and as such, it is likely to get a good

understanding of the concept. However, many researchers have spent a lifetime in understanding a concrete phenomenon and it is therefore difficult to conclude the concept of safety culture with this assignment, even though it gives a thorough introduction to the concept. Given the amount of time of this thesis, I would argue that the risk description is covered, but one could always add more research, theory and interviewees to give the reader increased data.

- **“Work Ability”** criterion is used to show whether the research results have produced desired results in practice.

As this assignment is conducted in order to see whether there can be created an approach suited for establishing a good safety culture, it implicitly tells that this project can only give a theoretical suggestion and does so forth not include any practical implementation. If such a method can be created and used, it will in later years be able to measure or check, if it actually has produced the desired result.

- **Triangulation** criterion has the main objective to check whether one can make the same discovery through several different approaches.

Regarding this criterion, the assignment uses different approaches for data collection, and therefore practices the triangulation criteria, as different approaches have in many cases indicated the same explanations. Regarding the interviewees, the author has also chosen to get informants from different aspects, and as such, the author also practices the triangulation when gathering the information.

- **Peer review** is a criterion used to check whether others have seen us in the cards and made a critical assessment of our research.

As this assignment is conducted with the assist of supervisor, which greatly possesses information and knowledge towards this field, this assignment has on several occasions been in for review in order to enhance its content and increase credibility.

Besides these criteria's, it is also important to mention the more general aspects of the literature search. As an additional critique, the following can be said about the methodology:

- Literature on databases and search tools, have large amount of literature available, and it is therefore important to understand that there are probably several articles on the topic of safety culture, that have not been assessed due to the aspect of time.
- During the execution of the search, the topics and search-phrases have all been related to the topic of this assignment, namely; safety, culture, organizational culture, safety culture. In the field of safety culture this can be rather lean, as one also could have included words related to safety culture (e.g. safety climate, HSE, safety performance, behaviour-based safety and such) in order to fully understand the safety culture meaning.
- The organizations thoughts are presented through the interviewees' answers. As such, it might not represent all the aspects in the organization.
- Time limits have influenced the literature search together with the number of interviewees, as the previously mentioned points could have been dealt with, if more time had been available.

4 Safety culture approach in the case organizations

The purpose of this chapter is to give a brief introduction to the six different case organizations. As the organizations differ from operator companies, authority, union and a collaboration project, the introduction will include the organizations main activities and a short introduction to their different safety culture approaches.

The different case organizations chosen are rather different in their approach. Whilst the operator companies uses methods in order to affect their safety culture, the authority, unions and the collaboration project tries to assist the companies in doing so, by providing laws, regulations, best practices and like. The different approaches presented will later on be used to discuss the strengths and weaknesses towards safety culture in order to see if there is an approach suited for establishing a good safety culture, and as such, it is also to be considered as an important part of the empirical study, through obtained documentation and observation.

4.1 BP Norway

BP (2010) is one of the world's leading energy companies and first started to operate in Norway during the 1920's. Their main activities in Norway are exploration and excavation on the Norwegian continental shelf.

Today, BP Norway has 1023 employees working in the Norwegian sector, and had for the year of 2009, income of 5,623 billion NOK. This is a slight downfall compared to the previous year. However, in relation to safety, BP Norway is well under the average of total recordable injury frequency rate (TRIF), compared to the rest of the oil industry in Norway. From their annual report of 2009, BP Norway showed a TRIF as low as 2.9 accidents per million work hour, which was well under the average of 5.5 accidents per million work hour for the Norwegian oil industry (BP.no, 2010). In their annual report, BP also mentioned that no serious injuries had occurred.

BP Norway's safety culture approach

In order to achieve BP Norway's (2010) vision of "*no harm to people*", BP Norway indicated that every employee should be responsible to safeguard health, safety and environment. This meant that BP needed a strong focus on HSE, and needed to make sure they possessed a "good" safety culture. To be able to ensure that this was given high priority BP Norway implemented, in 2003, a safety culture program. The focus of this safety culture program was given towards attitudes rather than behaviour, and as such, the program was a top-down approach, and could be seen as a culture change program.

However, in recent years BP have introduces new tools to their safety program, taking into consideration the affect behaviour based safety has on the culture and that there is a mutual interaction between the two paths. Such tools are namely; 1) 'Time-Out' for safety (TOFS), 2) Observation and conversation on safety (STOP), 3) 4 point check and 4) Safety observation conversation (SOC). The first three tools are meant for both employees and leaders, while the last tool is used by leaders to observe and give feedback to workers. With this, BP Norway has brought in elements from the BBS approach and the program has moved from a culture

change program, to culture change program with elements from the BBS (BP HSSE Norway, 2010).

As previously mentioned BP introduced new tools to their safety program. Some of these tools were, as pointed out, related to behaviour based safety. Even so, only half constitutes BP's measures to culture improvement. The following points give a description of BP's measures, during the safety culture program, for improving their safety culture (BP HSSE Norway, 2010)

HSE culture model: is the main tool in BP's safety program. To work towards the goal of "no harm to people", BP has during previous years created a model for continuous training. The main element of this tool is to train every employee to include the concept that everyone must help strengthen the culture by changing their own behaviour, step by step, hence, the concept moving ½ mm. To find areas where the individual can improve, one need to ask the question; what do we do when we are good? Furthermore, to ensure that employees keep moving ½ mm in an everyday life, BP has set up HSE modules, in order to have a continuous improvement of their HSE culture (BP HSSE Norway, 2010).

Traction: is a global web-based BP system for reporting undesirable events and following up preventive measures. The tool is thought to all employees, in order to have the ability to follow up on incidents related to their work. This enhances a learning culture, where workers are able to learn from each other's errors. Furthermore the Traction database also records SOC's performed (BP HSSE Norway, 2010).

Lesson Learned (LL) database: is a tool more or same like Traction. However, this tool is rather new to the safety culture program, as LL-database contains information focused on learning points that are identified for specific incidents. Here the main incidents are taken from Traction, and are put into a one-pager, making it easier for employees to read short versions of recent incidents, in form of bullet-points and short texts. The ultimate goal is to stimulate employees to read incidents that can affect them at a later point in time, and thereby drop reading a large Traction report containing a huge amount of information (BP HSSE Norway, 2010).

Just culture: is a tool used when there is any violation of BP's safety rules and standards, in order to objectively and reasonably handle these cases. It focuses on guidance and positive enforcement of "good" safety behaviour and attitudes. Employees are told there will be consequences for violation of safety standards, procedures and employment conditions and that the consequences will be based on the severity, risk potential and any previous violation (BP HSSE Norway, 2010).

'Time-Out' for safety (TOFS): teaches workers to stop their work at any time in order to review the safety of their work. The ultimate goal with this tool is therefore to provide the worker with the ability to realize, that one should never hesitate to stop a work process during its procedure, if it feels unsafe. In turn, this will make the work safer. A TOFS may be of short duration, but to its advantage it can have a major impact on preventing and avoiding an

accident. TOFS is used as a personal tool that can be used by anyone who is involved in a task (BP HSSE Norway, 2010).

Observation and conversation on safety (STOP): is a tool that focuses on encouraging “safe” actions through observation and safety conversations at the workplace. STOP focuses more on dangerous actions than the systems that are currently used for reporting unwanted incidents. During the safety program the workers are introduced to STOP-cards, which are a key part of the tool, used to describe the observation made. These cards are registered electronically and reviewed by the management each day, in order for them to bring them forward to the daily meeting (BP HSSE Norway, 2010).

4 point check: is a tool used for the last risk assessment before a job starts up. This is to make sure that risk assessment is performed and that the work permits and safety precautions are familiar to all parties involved. In order for it to count, BP explains the importance of having them signed and functioned as documentation, during the safety program. This secures that everyone involved have received sufficient information on the work that is performed. During the safety program the employees are made aware of the four elements that need to be clarified (BP HSSE Norway, 2010):

- How should the job be done?
- What can go wrong?
- What measures must be implemented?
- Whom must I inform?

Safety observation conversation (SOC): was first implemented in 2007. It provides a systematic observation of work performed and encourages positive interaction between the management and workers. SOC is a tool for use by all managers and other personnel who are responsible for safeguarding the safe operations. A SOC has the main objective to recognize and prevent the unsafe acts, errors and violations that trigger events. By this BP hopes to root out the hidden latent hazards that are present during operations, maintain protective barriers and recognize and promote “good” practice and behaviour (BP HSSE Norway, 2010).

4.2 ConocoPhillips Norway

Being one of the largest foreign operators on the Norwegian continental shelf, ConocoPhillips Norway today has 1902 employees. Their main activity on the Norwegian continental shelf is exploration and production of oil and gas. This activity provides 10 % of the total oil and gas production in the firm globally, making Norway one of the biggest business units in the firm outside the USA (ConocoPhillips.no, 2010).

From their annual report of 2008, ConocoPhillips Norway had a net income of 7,113 billion NOK, showing a considerable improvement compared to the past years. With regards to safety, ConocoPhillips had for the year of 2008 a total personal injury rate of 2,2 accidents per million work hours. This was a significant reduction of 33% from 2007, where the severity also declined. ConocoPhillips also reported three serious incidents, with no serious consequence (ConocoPhillips.no, 2010).

ConocoPhillips Norway's safety culture approach

As one of the largest oil companies on the Norwegian continental shelf, ConocoPhillips is dedicated in pursuing a zero philosophy for injuries and critical incidents, where the ultimate goal is “*zero undesirable incidents*”. The company believes that every employee is responsible to act safely (ConocoPhillips.no, 2008). In order to do so ConocoPhillips has chosen a safety cultural approach enhancing several tools as a vital part to achieve this goal. In 2004, ConocoPhillips introduced what is today their main tool for strengthening the safety culture, namely; Personal Safety Involvement (PSI). Ever since the PSI was developed, the management of the company has supported and valued this BBS tool (Conoco Phillips HSE, 2011). As such, no cultural program is implemented. The increased focus given to employees' safe behaviour makes ConocoPhillips' safety culture method a bottom-up approach.

Since 2004, this tool is commonly referred to as the PSI-program or in some cases the PSI-academy, and constitutes the closest method to a culture change program as the PSI-program has the cultural element of introducing safety thinking and attitudes on an everyday basis. However, this can still not be seen as a culture change program as the focus of the training is directed towards how to act safely in the sharp end, only making it a proactive tool to increase risk awareness of each individual employee and contribution to the prevention of undesirable incidents, accidents and injuries (Conoco Phillips HSE, 2011).

Ever since the PSI-program started, more than 15000 people have undergone this training. During the PSI-program employees have the opportunity to take several different PSI-trainings and are also introduced to several proactive tools. Some of these courses and tools are briefly described, by the following points (Conoco Phillips HSE, 2011)

PSI awareness: is the course often taken when going out offshore, or when doing a limited duration job. It is a course of few hours, with the main functionality of teaching the safety philosophy and requirements related to the responsibility of the individual (Conoco Phillips HSE, 2011).

PSI training camp/school: is what is known as the basic course. Here every individual receives thorough training in the PSI-philosophy, and teaches to use all the PSI-tools, good communication and interpersonal behaviour (Conoco Phillips HSE, 2011).

PSI @ the workface: is meant for PSI team travels to a facility or workface. The main purpose here is to ensure that the training the PSI team receives through learning is implemented and maintained at the workplace. These teams further on contributes to HSE meetings and are suited to hold PSI workshops to maintain the employees' practical application of the tools (Conoco Phillips HSE, 2011).

PSI maintenance: are often given when there is need of revitalising measures. Measures may often include campaigns, lectures, courses and motivational sessions for PSI ambassadors. The PSI maintenance therefore can be seen as a continuous process where any process needs inspiration and new ideas (Conoco Phillips HSE, 2011).

PSI in planning and design: is a course often taken when in planning and design phase. This ensures a foundation of safety during the operation phase, and is important for all new installations, as installations are needed to be built with a view to safe operation and accident prevention (Conoco Phillips HSE, 2011).

PSI-conversation: is a tool designed for both management and employees in order to talk about the work being conducted. It focuses on different areas of conversations with the ultimate goal of encouraging “safe” operations through safety conversations at the workplace, e.g. risks and hazards during work, planning, barriers, personal protective equipment, tools, housekeeping, silent consent etc. Furthermore, it reminds employees to talk about positive aspects as well, and not only focus on the negative. The questions asked, often are related to the 5 PSI questions (Conoco Phillips HSE, 2011).

5 PSI question: are questions that are often asked related to hazardous operations or observations made. The purpose of these questions are, with this, avoid employees to get conceited. As such, it serves as an additional factor for the PSI-conversations, but is also encouraged to be asked independently (Conoco Phillips HSE, 2011). These questions are:

- How can you and others be injured?
- What type of accident could occur?
- How can you and others avoid being injured?
- What happens if something unexpected happens?
- What have you done to prevent you and your workmates from being injured?

Reporting form: is a tool for register, react, report, and hence, reduce risk in the company. As such, it provides a quick handling and reporting of unwanted incidents and conditions help improving safety for everyone (Conoco Phillips HSE, 2011).

4.3 Wintershall Norway

As a large German oil company, Wintershall started to operate on the Norwegian continental shelf when they established their office of Norwegian subsidiary, Wintershall Norway in Oslo, 2006. In 2008, Wintershall Norway acquired the former oil and gas company Revus Energy ASA in 2008, located in Stavanger. Their activities in Norway were therefore moved to Stavanger, where their main activities are exploration and production of oil and gas (Wintershall-Norge.com, 2010). Together with Det Norske Oljeselskap, Wintershall Norway established a consortium to drill exploration wells on the Norwegian continental shelf with the use of Songa Delta consortium. The operation started in 2009 and will continue to the summer of 2012. In this consortium period there will be cases of new players in some wells. For example, in 2011, Nexen took over as operator for a well belonging Wintershall Norway (Songa Delta Konsortiet, 2011).

Due to the fact that Revus Energy ASA recently was acquired by Winterhshall, Wintershall Norway is a smaller division of the Wintershall portfolio. As such, Wintershall Norway has a smaller number of employees, with a total of 70 employees stationed in Norway, which is an increase by 47 from the previous year. From their annual report of 2009 their operational was

negative 719 million NOK. Regarding safety, Wintershall Norway reported no major accidents or incidents for the year of 2009. No personal injuries occurred.

Wintershall Norway's safety culture approach

In relation to safety culture, Wintershall Norway is in the beginning stage of finding the most suited approach on the Norwegian continental shelf. Together with Wintershall globally, Wintershall Norway are committed to Wintershall's vision of "*zero harm to people*" (Wintershall-Norge.com, 2010). Since the acquisition of Revus Energy ASA, the employees at Wintershall Norway have not changed the way they act regarding safety culture.

Wintershall have for the time being agreed that Wintershall Norway can continue as they did before the acquisition due to ongoing process of finding the most suited approach on the Norwegian continental shelf.

From the time at Revus Energy ASA, Wintershall Norway were strong believers of the "HSE and Culture" made by the Norwegian Petroleum Safety Authority (Petroleumstilsynet) in 2003. Today, Wintershall Norway therefore have minor HSE workshops, which are set to change the attitudes of their personnel, indicating that their focus is pointed to a cultural change. As Wintershall globally does not have any safety culture program, the division in Norway hope to bring this with them in the planning of the approach that will be used on the Norwegian continental shelf, and be able to create something more centrally from Wintershall globally.

Wintershall Norway and other operators have through the Songa Delta consortium also established common contracts and common programs for management and developments of QHSE in the consortium. This will help ensure that everyone in the consortium has more or less the same safety culture, when working together (Songa Delta Konsortiet, 2011).

4.4 Petroleum Safety Authority of Norway (Petroleumstilsynet)

The Petroleum Safety Authority (PSA) of Norway is the regulatory authority for technical and operational safety, including emergency preparedness, and for the working environment. Its role covers all the phases of the industry, "from cradle-to-grave", including planning and design, construction and operation to possible ultimate removal. The PSA focuses on some priority areas where actions pose bigger impacts, and where special attention is needed. These areas namely constitute technical and operational barriers, management and major accident risk, groups exposed to risk and preventing harm to the natural environment (PSA, 2008).

01 January 2002, Norway's petroleum regulations specified that all organizations must have a sound HSE culture. Such a demand, however, had never previously been expressed so directly in either Norwegian or international regulations (PSA, 2010). The ultimate aim was to ensure a further improvement in HSE standards. Nonetheless, the regulatory authority still did not specifically define what the concept of an HSE culture required. With the same idea in mind, the PSA revised this regulation which entered into force 01 January 2011. This revised formulation can now be found in the Norwegian Framework Regulation § 15 (previously in the Norwegian Framework Regulation § 11) and is equal to the one presented in the introduction of this assignment.

PSA's safety culture approach

From their handbook on “HSE and Culture” the PSA points out, that many people show to the work of the organizational psychologist James Reason, who developed a set of concepts which could be implemented in order to build a sound HSE culture. Also the PSA draw attention to Reason's meaningful features of a sound safety culture. These features can be present by four elements towards a “good” safety culture (PSA, 2010):

- Reporting culture
- Just culture
- Flexible culture
- Learning culture

The PSA points out, that these four elements have the eventual target to help ensure that every member in an organization is informed.

Furthermore, the PSA (2010) also presents the risk level on the Norwegian continental shelf by the use of a thorough project, showing the recent trends in the Norwegian petroleum industry. During this project, the PSA collects information from many sources by using different methods for information gathering. This project is briefly described by the following point:

RNNP: the PSA uses a combination of different methods in pursuing the development of risk on the Norwegian continental shelf, based on interviews, surveys and workshops. From the figure below, the left side shows some of these different methods (PSA, 2010).

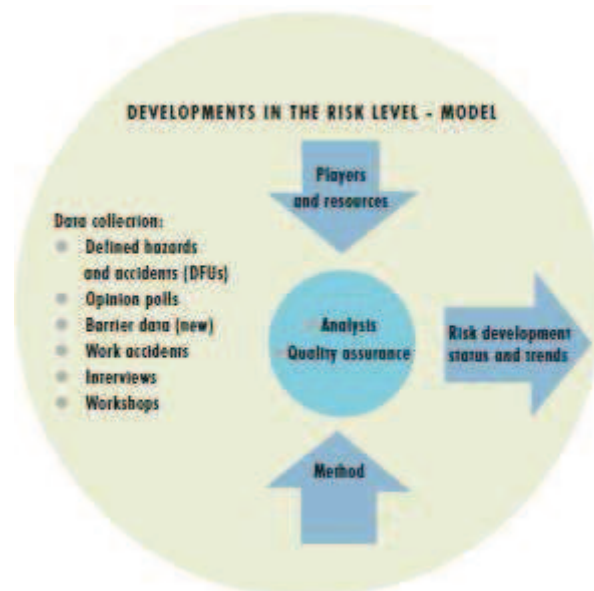


Figure 10 Model for assessment of risk on the Norwegian continental shelf (PSA, 2010).

The report presents the current trends in the petroleum industry, and hence, provides the companies with quantitative data to assess the safety performance on the Norwegian continental shelf (PSA, 2009). Further on, it is important to understand that with this large amount of quantitative data, the PSA (2010) proposes four elements to help organizations see

that they should treat them as important and real. The main focus is therefore to keep the organizations informed, in order to increase the organizations willingness and ability to handle unsafe actions, and thus improve their safety culture, by assessing the trends in safety performance. The RNNP-report is a clear demonstration of how one can assess the safety performance, and hence, it is able to show us the desired effect on the Norwegian continental shelf.

4.5 Industri Energi (ABC union at BP)

As an important part of the petroleum industry, trade unions work on behalf of the workers and safeguard their personal interest while working on the Norwegian continental shelf. Such a trade union was founded in September 2006, namely; Industri Energi. Industri Energi is today the largest and most powerful trade union for employees associated within industrial and energy sector in Norway. It was in 2007, the fastest growing union, and is now the fourth largest federation in the Norwegian Confederation of Trade Unions (LO) with 50000 members (Industri Energi, 2010). Affiliated with Industri Energi is also the ABC union at BP, safeguarding the employees' personal interests (ABCclub.no, 2010).

4.6 Samarbeid for Sikkerhet

As a result of a common goal between every participant in the petroleum industry, of avoiding harm to people, environment and materials, the project Samarbeid for Sikkerhet (Working Together for Safety) was established at the end of 2000/2001. This project had the purpose to promote best practices and work towards "harmonization" in the petroleum industry and thereby improve HSE by increased focus on conditions which influenced this. This included the security of installations, both onshore and offshore on the Norwegian continental shelf (SfS.no, 2010).

Samarbeid for Sikkerhet (SfS) is today one of the most far-reaching collaboration projects initiated within HSE in the petroleum industry and includes participants such as (SfS.no, 2010):

- the Petroleum Safety Authority of Norway (PSA)
- Unions (the Norwegian Oil Industry Association (OLF), the Norwegian Confederation of Trade Unions (LO), Corrosion-, Insulation- & Service Companies Association (KIS), Lederne (The Norwegian organizations of managers and executives), Industri Energi, SAFE, Fellesforbundet, Norsk Industri (Federation of Norwegian Industry), the Norwegian Ship Owners Association (NSA), The Collaborating Organisations (DSO)
- Oil companies
- Suppliers

Many of the projects performed are done in groups of these participants. These groups ultimately prepare recommendations to the industry in form of best practices or present "harmonization" of different practices so that those working on the Norwegian continental shelf do not have to learn new routines and procedures each time they enter a new field. Much

of Samarbeid for Sikkerhets' (SfS) work is presented through experience transfer in terms of safety films or based on real events occurred (SfS.no, 2010).

SfS' safety culture approach

As a tripartite cooperation project within the field of HSE, SfS continuously work with current important events in order to avoid harm to people, environment and material. This means that SfS do not have any specific approach to safety culture, and as such, it varies dependent on who is assigned to the group when safety culture is given importance, as it is with other events (SfS.no, 2010). In the past SfS have tried to implement a best suited practice for safety culture when they proposed a method for establishing a good safety culture. However, this method was rejected by the Norwegian Oil Industry Association (OLF) and a best practice was never released. Though this method was not accepted, the main focus from the assigned group of 13 people was at the time directed towards culture change, by trying to implement a common safety culture training program made up by models, experience and practical tasks (SfS, 2010).

5 Interview results

This chapter will present the empirical data gathered during the assignment. In order to present the results in a well arranged way, the results will be divided into the four main parts, described in Chapter 3. These four parts will, furthermore, be divided into eight categories. As described in the method chapter, this assignment was carried out as a qualitative approach and as such the results will be presented qualitatively. These results will, furthermore, be supplemented with more in-depth and precise formulations from the interviewees in order to enhance the results together with the observations and review of the HSE program. In the end of each category a overview table will be presented qualitatively. The chapter will then together with theory and case organizations safety culture approach, serve as a foundation for discussion of the research questions.

The first subchapter deals with the various organizations understanding and is presented by the first category regarding key concepts. The main purpose of this category is to show the organizations thoughts towards key concepts related to safety culture, and hence, give an indication of how they go about their safety culture.

Further on, the second subchapter presents the organizations thoughts around their present approaches, presented in Chapter 4. As such, this chapter includes three categories revolving around approaches and methods, safety culture programs and safety culture indicators. In addition to this, the third subchapter presents the organizations present views in the oil industry. Here, thoughts around workers and the present regulations in the oil industry are presented through three categories. Finally, the last category regarding thought for the future is presented in the fourth subchapter.

5.1 Understanding of key concepts

Here the results of the organizations understanding of the key concepts will be given. The analyzed data will be presented, grouped in the parts of safety, safety culture and HSE culture. In the end of the category, the overview table will be given.

5.1.1 Views on concepts

BP Norway

As BP Norway is in the oil and gas industry, it implicitly tells us that a lot of work is conducted offshore. Regarding the concept of safety, the interviews at BP indicates that safety is perceived as something that has to with keeping someone safe. This however, is not something that can be taught theoretically, and as one interviewee says it:

Safety representative: No, I am very cautious with defining concepts, as they usually fall on their absurdity. For me safety is a lot of practical work.

The reason for this statement come as the employees think the problem is related to how safety is dealt with in real life. Associated with this comment, the respondent's at BP Norway indicates that arrangement of different equipment for practical work is what the concept applies:

HSE advisor: *It is important that we have sufficient equipment, and possess the supporting materials that make us feel safe, so we can avoid injuries and high potential risks. This will in turn, make the surroundings safe.*

Further on, the interviews at BP Norway indicates that safety culture is perceived as something that is related to the wholeness in the organization:

HSE advisor: *Safety culture is that the same things are practiced in all parts of the company. It is the way we do things around here.*

In BP Norway, the informants have little belief in having small parts of American, Norwegian or English culture, as they believe that the culture is something that has developed over time. In order to create a good safety culture, the respondents indicates that all other cultures needs to be in place, so that it is possible to remove all ill-natured systems that emerges and cultivate the good. Finally the respondents in BP Norway also points out that a company with good safety culture, in main point, has a lot of repetition both onshore and offshore.

Regarding the difference in the concept of safety culture and HSE culture, the interviewees at BP Norway consider HSE culture and safety culture, by meaning, as the same issue. Such a comment is said by one of the interviewees:

Safety representative: *The HSE concept in the oil industry has developed itself to become more or less a safety term.*

However, the informants also mentions that there can be seen some obscurity to the term in the oil industry, as the employees feel the term safety culture does not bring in the element of health to the same extent. As a result, they believe there can be given little focus on health in HSE conferences and safety conferences, and as one respondent put it:

Safety representative: *Health is mentioned in subordinate clauses and as a result Norway has a very high sick leave. This is an example of how culture has evolved, where we in Norway have a sickness absence of 10% and we in BP are at 2-2.5%.*

ConocoPhillips Norway

In ConocoPhillips Norway the understanding of the concept of safety is related to HSE culture, as this has been the focus for many years. This indicates that ConocoPhillips does not see safety separated from HSE, as they believe everything is integrated. Safety is having a good working environment, external environment and operating results in relation to that and it means to have good reputation. As the interviewee put it:

HSE director: *If we think about safety, it is to avoid operating without safety, taking care of the personnel and everything related to HSE.*

With regards to the understanding of safety culture, ConocoPhillips Norway builds on their perception of safety. They believe that such commitment starts at the corporate level and that in a company with good safety culture everything is interrelated. There has in recent years been a lot of focus on the wholeness and not only safety culture. The interviewee highlights

that in ConocoPhillips Norway, employees exert a good HSE culture. For instance, they have strong focus on commitment to operate on the basis of legislation and being ethical. This indicates that employees believe that every part must work together, and as the respondent put it:

HSE director: *It does not only have to do with safety, but the wholeness of our operations. We can't say we are "just" going to work with safety culture, because we need to look at the wholeness and build on the whole HSE concept.*

As to the difference in safety and HSE culture, the respondent indicates that employees at ConocoPhillips Norway do not believe there is any such difference. They believe that when working with safety, it is the focus on HSE culture that has to be highlighted rather than safety culture, since safety culture is related to the wholeness, and as the interviewee says it:

HSE director: *Many times we speak of safety culture, but we actually mean HSE culture.*

Wintershall Norway

As the smallest and youngest oil company of the three chosen for this assignment, Wintershall Norway's perception towards the concept of safety is rather thought-tough. From the interview, Wintershall Norway indicates they think of safety as a part of the HSE notion. Here employees believe that health, safety and environment are closely connected. However, safety is here also seen as personal safety towards the individual, taking care that employees are not exposed to falling objects and adequately equipped. Nevertheless, they highlight that they believe safety has to be seen in the bigger picture and balance personal safety against prevention of major accidents, and as the interviewee put it:

HSE personnel: *This is something we are trying to implement in our company, to think holistically.*

Regarding the concept of safety culture, employees at Wintershall Norway do not only focus on safety and think of safety culture as a part of HSE culture. Here, it is highlighted that safety culture and HSE culture are interchangeable terms, and as the informant put it:

HSE personnel: *The term safety culture was a rather incorporated concept in the USA, and it was here in Norway that we started to call it HSE culture. The most important thing is to have an understanding about the concept of culture.*

Furthermore, employees at Wintershall Norway feel it is natural to begin with the management setting the premises. However, they highlight that management must have an understanding of the concept of culture, because they believe management are capable of doing both good and less good things. As such, employees feel the biggest danger is related to introduction of a "good" culture in the organization, if management does not have any understanding of the concept.

The difference between safety culture and HSE culture is perceived as the same concept in Wintershall Norway. Employees feel that the two terms are equal when it comes to the working situation, and as the interviewee says it:

HSE personnel: *If employees are not given enough sleep and not well rested, this is regarded as a health issue, but in the long run these health issues can cause major accidents.*

PSA

From the interview, the informant indicates that much of the PSA's views can be seen in the HSE culture pamphlet. Here, the concept of safety is viewed in accordance with the Working Environment Acts. As such the concept of safety covers many aspects, e.g. that the employer (organizations) shall inform the employees about accident and health hazards, together with providing sufficient training, education and instruction to the employees. This means that safety is seen in relation to the totality.

Regarding the concept of safety culture, it is correspondingly perceived in relation to HSE culture. This is due to them being the authorities, and as such, the focus is not given to safety culture alone, as it is linked to how the PSA go about their risk handling. From their point of view there is a strong connection between health, safety and the environment. The PSA believes that working well with the work environment and health conditions, will in turn also affect the safety, and as the respondents put it:

Chief Engineer: *It is just as important to work with all three elements, as one has to look at the underlying causes of the accidents, e.g. a health issue related to if employees are not fully rested, can in turn create unsafe actions, effecting safety.*

Industri Energi

As a trade union, Industri Energi has a rather practical approach towards safety. For them it is important to take care of the personnel working offshore in the North Sea by providing safety while working. The concept of safety is for them safety in relation to personal protective equipment (PPE), safety related to terror and safety towards the work employees is assigned to do.

The concept of safety culture is for Industri Energi the culture or approach that employees have in relation to safety. Safety culture is here how employees see their own role as a contribution to the whole. It is, first and foremost, perceived as the employees' attitudes towards safety, and as the interviewee says it:

Union representative (ABC): *Regardless of how many forms or procedures employees have, it will not help unless people take it into themselves and have an attitude that suggests that they should take a few minutes to do the job safely.*

Furthermore, the practical understanding to the concepts also indicates that Industri Energi has a rather practical understanding to the terms safety culture and HSE culture. From the interview it is indicated that though it is obvious that there is some connection between the terms, there are differences in the terms and as the informant put it:

Union representative (ABC): *HSE culture brings in the elements of health and environment, and hence, it takes everything into consideration. This is obvious as thinking about your on health is also thinking about your safety. However, safety culture we only tend to think safety.*

Samarbeid for Sikkerhet

As a large collaboration project, Sfs includes many different aspects within the Norwegian oil industry, hence, brings in thoughts from many areas working as a collective unit. From the interview it is highlighted that safety is important, hence, the name Sfs (Working together for safety). The concept of safety is here perceived as the extended concept, taking into account HSE and economical safety.

The concept of safety culture is correspondingly the way things are done, covering the whole HSE concept. Sfs believe good safety culture is where one actually has a wish of finding the best possible way and live up to that. Strong emphasis is therefore given to communication, and as the respondents put it:

Head of committee: *For me the most important thing is that employees speak up and that we have a culture where we are enthusiastic and employees speak among themselves.*

Safety culture is also perceived as taking care of each other. Always seeing room for improvement and sharing this knowledge is another are Sfs highlights. This does not mean that employees should carry around books on safety culture, but that things in use should have its root in some kind of system which can be discovered immediately as the relative safety culture in a company.

Regarding safety culture and HSE culture, employees believe safety culture covers the whole HSE term. This means that when speaking of safety, Sfs takes the whole HSE term into account. Correspondingly, when talking about culture, they feel it covers the way employees behave in relation to HSE, and as the interviewee says it:

Head of committee: *For us, HSE culture is safety culture.*

Overview

The following table gives an overview from the previous results regarding the different organizations views on concepts.

Table 7 Organizations views on concepts.

	BP	ConocoPhillips	Wintershall	PSA	Industri Energi	SfS
What is safety	Adequate arrangement, safe surroundings, practical work	HSE safety, safe environment, operating safe	A part of HSE, personal safety, safe surroundings	A part of the totality, in accordance to Working Environment Act	No injuries, safe surroundings, practical work	HSE, economical safety
What is safety culture	Mutual understanding, shared responsibility, continuous repetition	Starts at company level, wholeness,	Interchangeable with HSE, culture concept is key	A part of holistic thinking	Employees' approach to safety, attitudes,	The way things are done (a system), communication, taking care, continuous improvement,
Safety culture vs. HSE culture	HSE is a safety term, concept of safety is dominant	Safety and HSE go hand in hand, HSE should be prioritized	Equal, safety culture is to narrow	Strong connection, HSE culture is safety culture	Some connection, difference in safety and HSE	HSE culture is safety culture.

5.2 Present approaches and methods

Here the results of the organizations present approaches and methods will be given. In the first section, the analyzed data presents the current activities and thoughts around these activities. The second section takes hold of the thoughts around safety culture programs and looks into attitudes, research, limitations, desired effect, behavioural change and follow-up. The third section presents how the organizations perceive their safety culture and measure it.

5.2.1 Approaches and methods at work place

BP Norway

From the interviews at BP Norway, it is emphasized that current focus is strongly related to their current statement, *“no harm to people”*. This is first and foremost represented through BP Norway's safety culture program, HSE-basic, where it is underlined that focus is on change in employees' attitudes related to everything that grasps the concept of HSE. Furthermore, it is indicated that there are several tools in place to ensure that there is sufficient follow-up from both management and employees themselves.

As to the chosen path, the informants at BP Norway indicate that the HSE-basic together with the various tools may not be the right method to ensure a “good” safety culture, if they are not used correctly. From the interviews it is indicated that BP Norway has a tendency to use the various tools when something has happened. The informants believe this sends a somewhat wrong message, as they believe the tools should prevent the accidents from occurring. Moreover, the informants indicate that the HSE-basic course is the right approach, but believe it is too simple to say that employees are fully trained after one attendance, and as the respondent put it:

HSE advisor: *When we look at feedback we get from what is done offshore, we get in some cases results indicating that people are missing some of the important information from the course.*

Concerning the limitations and preventions to their present activity, the informants at BP Norway indicates that they believe they have enough tools and that the tools they have are sufficient for their purpose. However, from the interview it is highlighted that too many tools may be perceived as overkill. As such employees simply may get saturated, and as the informant says it:

Safety representative: *It has something to do with how much space you have got in your head. It is not good if the "landscape" is too complex.*

Regarding if their present activity could be taken further in order to establish a common HSE culture, the informants are rather clear, as they indicate that such a method is not possible since every oil company has their own way of doing things, creating an own identity. However, it is highlighted that this may be possible in the companies which yet do not have any approach.

ConocoPhillips Norway

From the interview the informant indicates that focus in ConocoPhillips Norway has now shifted from an organizational culture program to a more individual level, where individual contribution is central in risk awareness and thinking safety 24/7 (each individual being the last safety barrier and is key to managing risk). In order to achieve this, ConocoPhillips Norway has several tools and developed the PSI-academy, represented through a set of different workshops and courses in order to enhance personal involvement and ownership, and as the respondent says it:

HSE director: *The PSI ensures that employees dare to intervene and speak out by stopping unsafe work or by discussing the job with other employees. Simultaneously, the PSI also creates awareness to the employees, to know that the person that stops his/her job is only trying to help.*

Regarding the chosen path, it is from the interview highlighted that ConocoPhillips perceives the PSI-academy as the right way to go in order to enhance their safety culture and HSE performance. Furthermore, the informant stresses that the PSI program is chosen based on the strategy plans that are developed each year, to obtain the best effect. This is done by analyzing incident statistics, internal audits, feedback from customers and authorities and an assessment tool called HSE Excellence (performing a self assessment to evaluate the company's current state within HSE Management System), and as interviewee put it:

HSE director: *The PSI has been chosen as the main behaviour tool for the last couple of years, and is continuously being enhanced, bringing in new elements each year.*

Concerning limitations to approaches and methods, the informant indicates that there is no issue in ConocoPhillips regarding use of recourses. From the interview it is clearly underlined that the most important thing is getting everyone onboard, in order to integrate and involve all

parties. Once that is done, the informant indicates that the possibility will always come to introduce a new idea.

Regarding whether ConocoPhillips Norway's approaches and methods could be used in order to develop a common HSE culture, the respondents indicate that there is no such "silver bullet" that has been created, which will ensure a "good" safety culture within an organization. However, the interview points out that the use of PSI might be a way to go, as the use of "integrated operations (IO)" has liberated a lot of time for both HSE personnel and leaders, and as the respondent put it:

HSE director: With IO, we can now be more interactive both onshore/offshore and conduct PSI-conversations that creates an open dialogue with employees. This is a positive observation, that IO and PSI has had a positive effect on safety.

Wintershall Norway

At the current stage, Wintershall Norway believes they are conscious about their focus. From the interview it is indicated that Wintershall Norway does not believe in big happenings, such as 2-day HSE courses, being the only answer. However, it is emphasized that HSE is high on the agenda. The informant indicates that Wintershall Norway's focus is on the totality of their work, and not being conceited and as the informant put it:

HSE personnel: irrespective of how we work, there is no guarantee that the next major accident is right around the corner.

From the interview it is indicated that Wintershall Norway does not have any explicit approach or method at the moment. This is due to the fact that they are in discussions with their parent company after the take-over from Revus Energy. Furthermore, the informant underlines that this probably means that Wintershall Norway will have to follow their parent company's culture. However, Wintershall Norway hope to influence their parent company with suggestions about what they believe is right, and as the respondent says it:

HSE personnel: Right now we are revising our management system, where HSE is merged. Here we will write about HSE culture and how we want employees to work.

As to the path Wintershall Norway is following today, there is not any clear opinion. The informant indicates that the previous policies from Revus Energy still are the one followed. However, there are some uncertainties whether these will be changed after discussions with their parent company. It is therefore hard to predict whether the parent company will perceive their policies as the right way to go.

Regarding the limitations and prevention to implementation of future approaches and methods, it is indicated that a natural limitation and hinder can be caused as Wintershall Norway will, in the future, have to follow their parent company. However, as Wintershall has not come far in offshore activities there is still a lot of work to be done on company policies and safety requirements, and as the interviewee says it:

HSE personnel: *We still have a certain degree of freedom, but probably there will be more rules and requirements for us also.*

Furthermore, the informant emphasizes that quality of the work is another big challenge. From the interview it is emphasized that if Wintershall Norway wants to do hazard recognition or risk assessment by use of different models, it will not be prevented. However, it is important that quality is demanded continuously, by preparation or an extern facilitator. The second difficulty related quality, is documentation, where employees must think quality rather than quantity.

PSA

As the primary source for the origin of the Norwegian Framework Regulation § 15, the PSA indicates that current focus is given towards working well in all areas within the concept of HSE. This message is first and foremost reflected through the PSA's culture pamphlet, taking hold of all three aspects (HSE) and serves as the main guidance for the organizations related to HSE culture. Furthermore, the respondent also indicate that the PSA has here chosen to draw on the research of James Reason, indicating that a sound HSE culture is a reporting, just, flexible and a learning culture, (described in chapter 4).

Regarding their current approach, the respondent signals that this is the way to go. From the interview it is mentioned that the regulations is a functional regulation, which do not specifically define what the concept of HSE entails. As such, there has since 2001, been an interpretative diversity when it comes to HSE culture. Furthermore, the HSE culture pamphlet provides approaches to understand the concept together with suggestions on how such culture can be created. The informant highlights that this is because they want companies to develop their culture relational, and as the respondent put it:

Chief Engineer: *Companies spend too much time trying to find out the expectations of the authority, hoping we will reach a kind of recommendation or approach for them. We have not done that, but we expect the companies to work qualitatively well with HSE management systems.*

The PSA is well aware of the limitations and preventions this approach may bring along. The respondent indicates that due to the interpretative diversity, the actual regulation can be hard to manage. This provides a hindrance as there are several ways to interpret HSE culture. However, the respondent signals that this broad meaning does not give any limitations. A second hinder is highlighted, as one cannot put all responsibilities on the leaders, as everyone has to contribute, and as the informant says it:

Chief Engineer: *It has to be a holistic approach, where top management, middle managers and workers must see they are important parts in it.*

Industri Energi

As the link between company and employees, Industri Energi has a continuous focus on the employees' safety. Seen from a historical perspective, the interviewee highlighted that safety has been on the agenda, more or less, since the American companies came to the North Sea.

Moreover, it is indicated that this focus is the foundation pillar of their work, conducted through various ways in the company, e.g. feedback, courses, negotiations, and as the respondent put it:

Union representative (ABC): *If something happens and we get feedback from one of our members, we straight away take it up with the top management.*

Concerning the path the various companies in the oil industry have today, the informant indicates that Industri Energi sees it as positive. However, it is highlighted that if too many tools and procedures are developed, they can work against their intention, and as the informant put it:

Union representative (ABC): *It ends up being a whirl of documents and routines to follow, and it gets hard to navigate what is actually needed to conduct the job safely.*

As to the limitations and preventions for these approaches and methods, Industri Energi are rather critical, as they indicate there are several hindrances. From the interview it is indicated that as Norway has a culture upon safety with its set of own routines, Industri Energi sees it as confusing, when we additionally also get routines and cultures from abroad. Additionally, OLF, Sfs and other organizations, also come in with their approaches, and as the respondent say it:

Union representative (ABC): *It all piles up. We basically believe it is a weakness if there is too much to deal with. It just is too much.*

Furthermore, the informant indicates that another limitation is connected to attendance at meetings. Though, it is indicated that Industri Energi are mostly welcome to attend those meetings they desire, they are not able to attend every meeting. This provides some limitations to what the union are able to grasp. Nevertheless, the respondent informs that in the companies where there are a few people from the union, or where they work closely with the safety representative, this usually is not a big problem.

Samarbeid for Sikkerhet

From the interview it is indicated that Sfs does not have any special focus on any area. However, related to HSE culture, focus is directed towards competence. This is mainly presented through various courses and curriculums, where Sfs believes there are some weaknesses. The interviewee specially emphasizes that recent focus areas have been the use of personal protective equipment (PPE) and fall protection of dropped objects. However, right now there is given some importance to investigations and how to learn better, and as the respondent says it:

Head of committee: *There is always something on competence. And on several of these issues we provide best practices for the industry, e.g. safety job analysis (SJA).*

Furthermore, Sfs are relatively aware of the different limitations and preventions. From the interview it is stressed that the main hindrance is related to the number of companies, and as the interviewee put it:

Head of committee: *In theory each company should develop their own culture. That is a dilemma.*

A second prevention is related to focus. Here, it is indicated that the focus given on HSE-courses are rather wrong, as focus is more directed on banalities, e.g. holding the hand rail. The respondent further highlights that Sfs believe the focus should be more on the serious accidents, and that due to these banalities there is yet to find the right balance.

Overview

The following table gives an overview from the previous results regarding the different organizations views on the approaches and methods at the workplace.

Table 8 Organizations thoughts towards their own approaches and methods.

	BP	ConocoPhillips	Wintershall	PSA	Industri Energi	Sfs
Where is the focus on HSE culture	no harm to people, change in attitude	Individual contribution	Totality of work, not be conceited	Holistic thinking	Employees safety	competence
What is done to get a good HSE culture	Safety culture program, various tools and culture models	PSI-academy, various workshops and courses	Revising management system, no explicit approach or method	HSE culture pamphlet, James Reason's 4 points	Link between the employees and company, provide feedback, courses etc.	Courses and curriculums, best practices
Is this the right approach	It may not be the right approach, one attendance at HSE-basic not enough,	Yes, why else would we choose it, new strategy plans each year	Rather vague opinion, parent company still to decide current policies	Yes, interpretative diversity, the companies must develop their culture relational	It is seen as positive, some issues related to the number of tools, documents and routines	No opinion
Are there limitations or preventions	Too many tools is overkill, complexity	No limitations, the culture would have been only commercial if such	Parent company may give limitations and preventions, quality	Regulation can be hard to manage, does not provide limitations, responsibility	Additional cultures and routines from abroad and other organizations	Too many companies, focus on banalities

5.2.2 Safety culture programs

BP Norway

In relation to BP Norway's safety culture program, HSE-basic, the informants indicate that this is a mandatory course. This course must be passed in order for employees to travel offshore. However, from the interviews there is a rather pessimistic attitude towards safety culture programs. The informants emphasize that it is ok to have such a course, but are unsure whether it gives the long term effect desired, and as one respondent put it:

Safety representative: *To be honest, I don't know whether this is the thing that is closest to my heart.*

Furthermore, it is also highlighted that the safety culture program is advantageous to have, as employees need some kind of foundation. However, the informants stresses that it is important to build further on this foundation in order to actually improve, and as the respondent says it:

HSE advisor: *I don't think it is the right approach alone, as I believe continuous reminders and training is the essential. I believe follow-up offshore is alpha omega.*

Moreover, the respondents indicate that BP Norway's safety culture program has been present for 5-6 years, where the focus is somewhat different each time. This is due to the fact that the courses are frequently evaluated and causes a change when taking feedback into consideration. These, however, are mostly cosmetically changes, whereas the essence in the course has mostly remained the same.

With regards to research on safety culture programs not being effective enough, BP Norway's respondents clearly indicate that they are in agreement. Here it is pointed out that they feel the safety culture programs can be a type of a camouflage in order to say that a company is doing well, and as the respondent put it:

Safety representative: *I don't have the belief, as it feels more like market value, rather than getting the desired effect. We say it can't get any better, but suddenly an accident occurs, such as in Gulf of Mexico. Same happened in Texas City, and Gyda platform.*

Related to the challenges that can occur with safety culture programs, the informants indicate that BP Norway believe the biggest challenge is to get employees to remember the essence of the safety culture program together with creating a sense of feeling that it has been useful. Secondly, it is highlighted that taking the HSE-basic one time does not make too much difference, and that there will always be a challenge to follow-up properly. Here it is believed that getting HSE personnel offshore will give an idea of what is happening. However, the informants indicate that BP Norway does not give this too much importance, as it is a question of cost/benefit. Thirdly, the informants lay emphasis on the introduction to new tools. As many tools have the same essence, BP Norway's informants indicate that the constant introduction of new tools will annoy the employees, as employees normally are reluctant to change.

As to whether the safety culture program has given the desired effect, the informants indicate that for BP Norway this is not the case. From the interview the respondents highlight that they are unsure whether employees actually learn what is presented. However it is believed that the HSE-basic course will vary from individual to individual, the informants assume that it attaches a greater importance and benefit, than it actually gives, and as one respondent put it:

HSE advisor: *If we look at our parameters, we can certainly improve, as we have had several incidents and personal injuries.*

Furthermore, it is highlighted that in order to improve the effect, BP Norway should take a look at the rotation system offshore, as it is important with refreshing their employees' memories towards safety each time they come back after four weeks.

Regarding the aspect of change in behaviour after attended safety culture program, the informants indicate that BP Norway's employees do not show a significant change in behaviour after attending HSE-basic. However, the author's observations at the HSE-basic course gives a somewhat different opinion, as employees and contractors seemed very satisfied with the content. The informants indicate that the reason for them indicating as such is based on what they observe after employees have attended the course. Here, the same groups manage to stay injury free, while some groups are more injured, even though they have had the same training, and as one informant put it:

Safety representative: If we think everything is safe after watching some PowerPoint, where it says use "eye protection", it will not work. Employees need to see the relation and then build this into each other. Right now, the HSE-basic is too much "pop-up".

Related to follow-up, BP Norway's respondents indicate that this is an area with a lot of room for improvement. From the interview it is pointed out that follow-up is only conducted in relation to incidents, accidents and like. Furthermore, BP Norway's respondents indicate that it is hard to measure culture without being present in the "sharp end". However, it is highlighted that once each 2-3 year a questionnaire is sent out in order to map their safety culture. Nevertheless, the respondents feel it is important with visible leadership, and as one respondent says it:

HSE advisor: If we can get out more, we can then be able to ask questions directly, and actually ask how they are doing. Then we can easily assess how much they know.

Moreover, the respondents say that in the year of 2010, there has been a great amount of people that have taken the HSE-basic and the newly introduced hazard recognition course. Even so, the informants indicate that BP Norway has to look at the cost/benefit of these attendances, as 60% of the workers on BP Norway's platforms are not BP employees. They further emphasize that it might be better for BP Norway to focus more on follow-up approaches.

ConocoPhillips Norway

Today, ConocoPhillips Norway has no safety culture program implemented and uses the PSI program as the main behaviour based safety tool. From the interview it is indicated that this is because ConocoPhillips Norway do not believe safety culture programs effective enough in comparison, and as the respondent put it:

HSE director: We do not believe in just one big happening such as 1-2 day programs. We have the PSI-academy which is integrated into daily activities and built in gradually, step-by-step, so people can mature.

The respondent indicates that the PSI-academy shows some resemblance to Statoil's "kollegaprogram", reminding more of a BBS approach. However, the PSI-academy is at present time, not mandatory and as the informant highlights, employees, leaders and contractors do not have to be introduced to it before travelling offshore.

Furthermore, the informant highlights that the recent increase in activity around the PSI-academy has now resulted in an internal discussions, where ConocoPhillips Norway will make the program mandatory. The informant further highlights the positive aspects with the PSI, as it is conducted both onshore and offshore. Here, hired instructors and actors go out offshore and have role plays, in order to enhance the safety thinking at the offshore worksite.

Concerning recent research, the informant indicates that ConocoPhillips Norway is in total agreement. From the interview the respondent emphasizes that ConocoPhillips Norway does not only have one course or workshop embedded in their program. As such, the informant highlights that ConocoPhillips Norway also has personnel called PSI-ambassadors, introducing and supporting the program offshore. In this sense, ConocoPhillips Norway contradicts research, and gives various courses, frequently. The respondent further indicates that this helps ConocoPhillips Norway finding out what happens in the “sharp end” and makes it easier for them as a company to develop new tools. This in turn, develops the PSI-academy further, and is as the informant points out different from the research conducted.

Related to the challenges of such programs, ConocoPhillips Norway indicates that they believe the biggest challenge is connected to the larger environments, present at the workplace. From the interview it is highlighted that it is the environment around workers that can affect their behaviour, as people come from various backgrounds and cultures and are not familiar with the Norwegian approach and expectations. Furthermore, ConocoPhillips Norway indicates that no limitations are provided when it comes to the development of the PSI, as the global ConocoPhillips does only provide functional requirements, and as the respondent says it:

HSE director: *ConocoPhillips only say what we need to have, but not how to implement it. As such, we are able to adjust ourselves to the Norwegian conditions.*

As to whether the PSI program has given the desired effect, ConocoPhillips Norway indicates that the results have shown a positive trend. The informant further indicates that due to these trends, ConocoPhillips Norway is continuously developing the PSI program in order to further enhance their results. However, ConocoPhillips Norway indicates that the trends are only based on statistics, and points out that it can be hard to see whether the PSI program gives any difference in behaviour, and as the interviewee put it:

HSE director: *It is hard to detect behaviour change, but by observing people within the office building, both inside and outside, it is easily detected if an employee has good culture or not.*

Regarding the follow-up activity in ConocoPhillips Norway, it is indicated that the main responsibility lies with line management. HSE personnel are embedded in various areas to provide support and HSE expertise to line management e.g. within operation, drilling etc. The informant further indicates that these HSE employees then have the responsibility to provide independent continuous updates to the HSE director. With this approach, ConocoPhillips Norway believes HSE is well integrated in the work process, and as the respondent put it:

HSE director: *HSE personnel provide continuous inspection offshore, and as a result we get the desired feedback.*

Wintershall Norway

From the interview it is highlighted that Wintershall Norway does currently not have any safety culture programs, but will launch a new program this year, 2011. The informant highlights that Wintershall globally has had programs called HSE awareness. This has not been conducted in Norway, but the informant points out that the purpose of this program is based on the individual's ability to handle safety. The plan is to integrate "HSE awareness" into the new HSE culture program. However, it is indicated that Wintershall Norway has had a rather sceptical attitude towards safety culture programs. As such, they have a local HSE culture plan, and as the informant say it:

HSE personnel: *We will tell Wintershall about our plan, and hope they find it exciting. A safety culture program, will however, have to be discussed further when we become a larger company.*

As to research on safety culture programs, Wintershall Norway's respondent indicates that the perception in Wintershall Norway corresponds to research. The scepticism of having a one day safety culture program as the only answer is related to the belief, that having such a "happening" cannot give the long term effects wanted. However, Wintershall Norway does believe setting aside time, giving focus on HSE is helpful, and as the respondent put it:

HSE personnel: *There is nothing wrong with doing a "big happening" as long as you don't believe that this has fixed the culture.*

Regarding challenges towards the safety culture programs, Wintershall Norway believes the biggest challenges are related to just having a program, saying a company should be a certain way, based on 1-2 days. From the interview the informant points out that this can in turn create a bad practice which the companies are not aware of. Furthermore, Winterhall Norway believes a second challenge can occur if focus is directed on small banalities, and as the respondent put it:

HSE personnel: *If holding the hand rail is given too much attention, it will become the dominating factor for where focus on HSE lies. This can easily ruin a good culture.*

As Wintershall Norway does not have any safety culture program, the informant indicates that they cannot state whether such programs give the desired effect. However the general perception indicates that safety culture programs alone cannot give the desired effect.

PSA

As the governing authority, the respondent admit that they have not attended many safety culture programs in recent time, as it is pointed out that this is due to shortage of time. However, the informant signals that the PSA keeps an open mind to various approaches, as there is not any required approach referred in the regulations or the HSE culture pamphlet.

In relation to research on the topic, the PSA are not fully in agreement. From the interview it is signalled that if a company wants to change the culture, they will have to change more than the employees' behaviour. It is indicated that the reason for this is because the part missing from such programs is related to the ability to change the employees' risk perception, and as the respondent put it:

Chief Engineer: *For instance, if we take away the personal protective equipment from employees, they will react negatively. This is because it is a part of their risk perception. Correspondingly, a statutory requirement will change our risk perception.*

Industri Energi

From the trade unions perspective, the informant indicates that implementation of safety culture programs is regarded as the right approach. This is because Industri Energi believes safety culture programs give focus on safety outside the working period, and as the informant says it:

Union representative (ABC): *It gives the opportunity to take distance from your work, and look at safety from the sidelines. In turn, it may give a new view on how to do things more safely.*

However, the union shows some scepticism towards safety culture programs as these programs are, in most cases, only given once. This indicates that employees are not able to remember, and can easily forget the essence after a while. Further repetition is therefore emphasized, in order to ensure a gradual learning curve, and as the interviewee put it:

Union representative (ABC): *An idea can be to have the program once, and then have quarterly follow-ups, where employees during these meetings can reflect how things have gone. This ensures repetition so employees can be trained.*

As to the research on safety culture programs, the informant indicates there is a divided opinion on the topic. It is from the interview highlighted that the union believes a safety culture program is, from their side, a good approach. However, they agree with research upon safety culture programs not giving the desired effect, if it is only given to employees once. Nevertheless, the informant underlines that this is not the primary focus for Industri Energi.

As to challenges with safety culture programs, Industri Energi believes the biggest problem is related to practical work, and as the respondent put it:

Union representative (ABC): *Those who have been working offshore for several years have their way of doing things, and not matter what is introduced, it can be hard to change that attitude.*

Another challenge the union points out is related to the employees' own perceptions of safety programs, and whether the presenters can keep the employees' attention through the whole day. If not, the interviewee highlights that this will work as a negative factor on the employees, as they will not learn because their attention is not where it should be.

As Industri Energi has pointed out, the unions believe a safety culture program can give the desired effect, if follow-ups are present. However, the informant indicates that this is not yet clear. Furthermore, the informant highlights that at the present time, there are almost too many courses and projects all the time. This has made the programs just a part of the daily life, hence, it does not give any idea of whether such a program has been effective enough, and as the respondent put it

Union representative (ABC): *If this course had been conducted a couple of times, with even intervals, it would have given the desired effect. However, know it is just one of many.*

Change in behaviour after attended course, is however, not seen by Industri Energi. From the interview it is stressed that only having the safety culture program once, does not ensure much change, and as such, Industri Energi does not see the effect. Furthermore, the interview indicates that the union do not use much time on follow-up approaches, as time is spent on other areas, which are equally important.

Samarbeid for Sikkerhet

According to Sfs, the main focus of safety culture programs should be related to the “bigger picture”. From the interview it is indicated that Sfs do not believe that employees perceive a cut in the finger or a crushing injury as dangerous. As such, Sfs believes focus is on the wrong areas and should rather look at more serious incidents, e.g. falling objects or falling from heights etc. Furthermore, the informant highlights that it is, in Sfs, seen as an absurdity that the first thing a person sees in a company related to safety, is their injury statistics.

However, the respondent indicates that Sfs’ attitude towards safety culture programs is rather positive, as they do believe safety culture programs is the right approach. It is indicated that this is due to the fact that focus on safety culture takes hold of being able to stop unwanted incidents, and hence, serves as a vital barrier to prevent serious accidents. Furthermore, it is indicated that safety culture programs are seen as positive, as they are able to clarify the company’s expectations towards safety, and as the respondent put it:

Head of committee: *When we get feedback from personnel working offshore, who have had these courses, they say it makes a difference. And that is important.*

Regarding research on safety culture programs, Sfs indicate that they are to some extent in agreement and as the informant says it:

Head of committee: *Often companies can drive a program, and think they have reached the goal of safety culture.*

However, the informant indicates that if follow-up is provided, this will provide a significant effect, compared to what research suggests. Furthermore, it is highlights that these follow-up approaches do not have to be big and expensive, but they have to be useful.

As to the challenges presented through safety culture programs, Sfs believes the biggest problem is connected to the Norwegian culture. From the interview it is emphasized that

Norwegian people are generally bad at giving good constructive feedback together with taking things to heart. This combination is, as such, highlighted as a huge problem. Secondly, the respondent also indicates that safety culture programs are expensive, thus, may present a challenge regarding the cost/benefit effect.

Concerning the desired effect from the safety culture program, SfS indicate that they are not sure about the injuries, but think it has paid off for those companies that have implemented such programs. From the interview it is pointed out that SfS do not believe one should have too many injuries, before it becomes a negative business out if it, and as the respondent put it:

Head of committee: *Not many companies think about the business aspect of it.*

From the interview SfS indicate that change in employees' behaviour is seen after attended safety culture programs. Even though mostly everyone indicates that the first safety conversation has a fairly high threshold, the informant highlights that once it has been done, the feedback they get, indicates that it gets easier the next couple of times. SfS are big fans of such form of training, and as the respondent put it:

Head of committee: *It's an issue of training. I myself, now take these conversations more easily, and do not feel afraid to speak out to others.*

Overview

The following table gives an overview from the previous results regarding the different organizations views towards the safety culture programs.

Table 9 Organizations thoughts towards safety culture programs.

	BP	ConocoPhillips	Wintershall	PSA	Industri Energi	SfS
Are safety culture programs the right approach	Not sure if it gives desire affect, not effective alone,	No, do not believe in big happenings or 1-2 day programs	Rather sceptical, big happening as the only answer cannot give long term effect desired	No special attitude, open mind, companies want to be visible	Yes, gives the possibility to see safety from the sidelines	Yes, stops unwanted incidents, is a barrier, clarifies companies expectations, focus is on wrong areas
How is the perception of research on safety culture programs	Agreement, feels more as a camouflage for saying a company is doing good	Agreement, one program does not give desired effect, must provide various courses and workshops	Agreement, one can have a big happening as long as you do not believe it is enough	Not fully in agreement, only missing part is the ability to change risk perception	Divided opinion, programs are a good approach, cannot only be done once	Not fully in agreement, follow-up need to be in place
Are there challenges	Make employees remember, cost/benefit, new tools	Larger environments introduces new cultures, no limitation to development of PSI	Just having a program and indicating that people have to be a certain way, focus must not be on banalities.	No input given	Once does not give any effect, experienced workers, employees' attention	Norwegian culture, constructive feedback, take things to heart, expensive
Do safety culture programs give the desired effect	No, it attaches greater importance and benefit than it gives	The PSI-program shows a positive trend	No, not alone, however they do not have any such program and can only present their perception of it	No opinion, as they have not attended many programs in recent times	Can give the desired effect if follow-ups are present,	Not sure, paid off for those companies that have it, business aspect
Is there any change in behaviour after attendance	Not seen changes, they need to build on the relations between safety and work	Not seen changes, hard to measure, believe it is possible if they do an inspection	No input given	No input given	Not seen, attending program once does not ensure change	Yes, first conversation has high threshold, easier to do after
How is it followed-up	No follow-up, measures only taken according to stats, desires more offshore presence	Responsibility in line management, HSE personnel offshore, give feedback and do inspections	No input given	No input given	No time used on follow-up, time used on other areas	No input given

5.2.3 Safety culture indicators

BP Norway

According to the informants in BP Norway, they indicate that safety culture is very hard to measure directly. As such, the informant's points out that it can be hard to say that safety culture has gotten any better, during the last 2-3 years. However, it is believed that safety culture has not worsened when taking into consideration the development over the last decade. The informants highlights that the main reason for this comes as BP Norway has had an increased use of procedures and standards, compared to a decade ago. It is believed that due to these procedures and standards there are now fewer shortcuts taken. The employees' attitudes have also changed together with increased knowledge about consequences related to taking shortcuts in work processes.

With regards to measurement of safety culture in BP Norway, the respondents highlight the use of statistics. However, the informants also indicate that observation is a much better approach, and as such, BP Norway has implemented a tool that enhances the management's ability to observe the employees. Furthermore, it is indicated that though this tool is implemented, it is hard to measure the safety culture, and as the respondent put it:

HSE advisor: *The best would have been to travel offshore, and qualitatively reveal our culture. Then we can observe, rather than use questionnaires which are too easy.*

The informants further indicate that statistics cannot be seen as sufficient when working with safety culture. From the interview it is highlighted that the informants do not believe statistics can reflect a safety culture, and as one interviewee says it:

HSE advisor: *When an accident has occurred, it is already too late.*

The overall feedback received from employees, are in BP Norway considered as good. From the interview it is highlighted that sufficient feedback is received from conversation all over the company, e.g. during lunch, breaks and meetings etc. Furthermore, it is indicated that top management are always behind their HSE personnel, if they want to implement measures for safety culture improvement, and as the informant put it:

HSE advisor: *The information we receive is good, then measures are taken, and we are backed up by the management.*

ConocoPhillips Norway

From the interview at ConocoPhillips Norway, it is indicated that when analyzing the results from the recent years, safety has constantly been improved. It is emphasized that this is in regards to all areas including, major accidents, gas leakages and all other parameters, showing a constant improvement. However, the informant points out that ConocoPhillips Norway is not sure whether this is only due to the HSE culture and the PSI program, or if it has to do with the use of other initiatives such as procedures. Nevertheless, the informant in ConocoPhillips Norway indicates that the totality has gotten better, e.g. behaviour, doing work properly and taking time to do a job safely.

As to measuring safety culture, ConocoPhillips Norway carries out an employee opinion survey. This questionnaire is conducted by an independent firm, who collects and analyzes the data. Here it is highlighted that HSE is always a part of the survey, where safety related issues are represented. Furthermore, ConocoPhillips Norway uses these results, to obtain an understanding of whether the focus on safety is present or not, and as the respondent put it:

HSE director: *A question can be, “do you get sufficient time to do your job safely?” If a percentage answers no, we assess if we need to take an action. Our current HSE results show we have things in order.*

Regarding whether such indications are sufficient enough to mirror the safety culture, the informant highlights that such is not the case. From the interview it is pointed out that the ultimate goal for ConocoPhillips Norway will always be zero injuries, illnesses and incidents, and as the interviewee says it:

HSE director: *We take all feedback into consideration in order to improve our safety performance, e.g. from authorities, customers, customer surveys etc. So it is not only statistics.*

Wintershall Norway

From the interview at Wintershall Norway, the informant highlights that looking at improvement for safety culture has not been an issue, since Revus Energy was recently acquired. However, the respondent indicates that during the last year Wintershall Norway has had a couple of serious incidents. Wintershall Norway believe that no matter how well a company works with safety and HSE culture, there is no guarantee that accident will not occur, and as the respondent put it:

HSE personnel: *The only thing we can hope for is that there won't be big consequences, when an accident occurs.*

Regarding how to measure a safety culture, Wintershall Norway is rather sceptical to quantitative measures. As such, the respondent indicates that no such indicator is in place, as Wintershall Norway believes one should look to do things qualitatively, rather than focus on statistics. The respondent further looks back at the time when the culture paragraph came in 2002, and as the respondent put it:

HSE personnel: *I remember when I worked with the culture paragraph. We got many inquiries presented, from different companies with various measurement tools. I'm not against for example questionnaires, but one can only use them as pointers to focus at.*

From the latter statement, the interviewee stresses that quantitative measures are not a good enough approach to mirror a good safety culture. As such, the informant highlights that this is the main reason for the qualitative thinking in Wintershall Norway. Furthermore, the respondent highlights that HSE personnel are sent offshore and communicates Wintershall Norway's HSE message. These messages are, hence, a summary of the assessed HSE statistics, which indicates where the focus should lie, and as the informant put it:

HSE personnel: *We look at statistics once a month, and see if we can learn something.*

Regarding feedback from employees, Wintershall Norway believes they have an excellent feedback system. From the interview it is indicated this is because Wintershall Norway are unique when it comes to organization of the HSE personnel, and as the respondent put it:

HSE personnel: *Here, HSE personnel are organized as an integrated part of the operational team. This ensures that we, HSE personnel, are an integrated part and get a lot of feedback when talking across the borderlines.*

PSA

From the interview, the PSA indicate that there are no concrete requirements for assessing what a good safety culture is. Furthermore, it is signalled that the PSA believe it is important with qualitative measures, and as the respondent put it:

Chief Engineer: *This is what the PSA have tried to problematize through the regulation.*

As to safety indicators being a good way to mirror the companies' safety culture, the PSA signals it can serve as a contributive factor. The informant further indicates that the PSA see indicators as important, as indicators give the possibility to see trends in development. However, the respondent points out that this must be supplemented by interviews, observations and field work, in order to triangulate cultural relations.

According to the respondent, the PSA themselves use the RNNP-report to show recent trends. This report serves as a very important document both on company level and industry level, and as the respondent put it:

Chief Engineer: *RNNP is a methodical approach, where we triangulate cultural relations by use of different methods of data collection.*

Furthermore, the informant highlight that the explanation of how the RNNP is used is introduced in the HSE culture pamphlet. The informant indicates that the PSA, here, uses questionnaires, interviews and observations to map the current trends in the Norwegian oil industry, and hence, represents a rather thorough feedback from the employees working in the North Sea.

Industri Energi

With regards to indicators on safety culture, the informant stresses that Industri Energi does use these indicators directly. From the interview it is indicated Industri Energi believes there are some risk attached to use of such indicators, and as the interviewee says it:

Union representative (ABC): *The danger with these indicators is that employees might get scared to contact offshore nurses, because they do not want to increase the injury statistics.*

Furthermore, the informant highlights that if too many injuries are present, and statistics show a negative trend, even more focus will be given to safety. As such, Industri Energi believes

employees can see this as an increased effort, as they want to work with their own assignments, rather than going through more HSE and safety training.

As to using indicators as a measure for showing a good safety culture, the informant indicates that Industri Energi sees such indicators as the word implies. It is here perceived as something that indicates and can present dangers. As such, the informant points out, that such indicators cannot be used to say whether a company has good or bad safety culture. Furthermore, the respondent indicates it can be hard to describe what a culture is, as it is shared between everyone, and hence, Industri Energi believes it would be wrong to quantify this relation.

Concerning sufficient feedback to the companies, Industri Energi feels that they easily can come with suggestions and initiatives. From the interview it is highlighted that the perception in Industri Energi, towards the various companies' ability in taking into account the union's suggestions, are rather good. However, the informant stresses that a general concern is related to the fact that the various companies pay more attention to theory than the reality happening in practice. As such, the Industri Energi believed in involving everyone, and as the respondent says it:

Union representative (ABC): If we took 10 employees from offshore, a couple from the HSE division when preparing something new, it would have given a more realistic package.

Finally, Industri Energi indicates that the recent accident in the Gulf of Mexico has been a wake-up call for many. Though, it is far away from here, the informant indicates that with lacking feedback and communication, it can happen anywhere, even in Norway. With regards to safety culture, the respondent highlights that this can be seen as positive, as there is an increased focus.

Samarbeid for Sikkerhet

From the interview Sfs believes there are several indicators on safety culture, with the most important of them being the RNNP-project. The informant highlights that this gives many different measuring points, and as such, Sfs believes there is quite good and adequate control on the topic. However, the informant emphasizes that not all statistics are as relevant and sufficient to measure a safety culture. Sfs believes there are several indicators that shows the recent trends in the company, but does not focus on the proactive measure points, and as the informant says it:

Head of committee: Measurement will always be a vital part as it represents real numbers, but despite this we want to be in front of the problem.

Regarding safety culture indicators being sufficient enough measurement of a company's safety culture, Sfs has a clear opinion pointing out that indicators cannot do this alone, and as the respondent put it:

Head of committee: You cannot trust indicators even though they show positive results, and likewise negative results are not always too bad. It depends on how you look at it. Injury statistics is an indicator, but is not a summary of the safety culture.

Furthermore, the respondent indicates that this latter statement is related to reporting of accidents. From the interview it is highlighted that SfS believe positive results may not always represent a good safety culture, and vice versa. The reason for this is related to the possibility of under reporting. The SfS stresses, that in a company with a rather positive injury statistics one also has to look at how much is reported, as in some cases it can mean that employees are afraid of increasing the injury statistics, as they might face a negative consequence.

Regarding whether there is enough feedback in order to take decisions, the informant indicates that SfS do in fact believe so. The SfS believes there is good communication between the onshore personnel and the offshore personnel. However, they highlight that it might have been even better if HSE leaders and personnel had gone out offshore even more and not only during investigations, and as the respondent put it:

Head of committee: *Management will then catch more of the culture, and gain more understanding of what employees do offshore.*

Furthermore, the respondent indicates that feedback is also received from what is reported. As such, SfS believes too much reporting is not always negative. Even though this may give higher incident statistics, there is a better possibility for learning present.

Overview

The following table gives an overview from the previous results regarding the different organizations views towards the safety culture indicators.

Table 10 Organizations thoughts towards safety culture indicators.

	BP	ConocoPhillips	Wintershall	PSA	Industri Energi	SfS
Has safety culture gotten better or worse in the company	Hard to detect if it is better, not worsened, fewer shortcuts taken	Result have improved, not sure if this is due to safety culture and PSI program, totality gotten better	Recently acquired, to short time to give such indications	No input given	No input given	No input given
How is this measured	Statistics, SOC, should observe offshore	Employee opinion survey	Rather sceptical to quantitative measurement, no such indicator	No concrete requirements for measurement, qualitatively, problematize through regulation, RNNP	Not used directly, risks related to measurement of safety culture	RNNP, several indicators, not all relevant
Can indicators mirror a safety culture	No, indicators show the past, it is too easy	No, must use feedback also	No, can only give pointers to focus at, qualitative thinking	Contributive factor, must be supplemented by interview, observation, field work	No, it can indicate, culture cannot be quantified	No, it can indicate, cannot be trusted, reporting is important
Is there sufficient enough feedback	Good, conversation all over the company, e.g. lunch, breaks, meetings	Yes, feedback from many sources, e.g. surveys, authorities, customers etc	Yes, HSE personnel a part of the operational team, feedback when talking across borderlines	RNNP-report presents recent trends in oil industry, represents a thorough feedback from workers	Unions can easily give suggestions, concern about use of theory than practice, involvement of everyone, Gulf of Mexico increased focus	Yes, good communication between onshore and offshore, HSE personnel should be more offshore, reporting gives good feedback

5.3 Present views in the oil industry

Here the results of the organizations present view of the oil industries will be given. In the first section, the analyzed data presents the current views of the relationship between management and employees. The second section takes hold of the relationship between permanent employees and contractors, and looks into whether there is any noticeable difference with regards to working with safety. The third section presents the organizations views on the Norwegian Framework Regulation, and gives an idea of how much the companies think about the regulations before implementation

5.3.1 Management vs. employees

BP Norway

From the interviews in BP Norway, there is a clear opinion about management having the bigger responsibility to enhance the safety culture in the company. The interviewees highlight

that it is the management's job to bring along the rest. BP Norway believes that if management possesses a bad HSE culture, this will effect downwards to the employees in the "sharp end". However, the informants emphasize the importance of adaptation, as many of the workers on BP Norway platforms are not just BP employees. As such, the respondents indicate that it will also be important to trust employees and their judgement, as they also have responsibility to act safely. BP Norway therefore believes it can be risky to talk about responsibility, as management having the bigger responsibility does not mean that employees do not. As such, it is stressed that the biggest responsibility should lie on involvement.

Regarding a common HSE perception in the company, the respondents indicate that such is not the case in BP Norway. From the interviews it is highlighted that top management have a relative strong standpoint and attitude towards HSE culture. However, the informants indicate that a lack of culture can be seen in the middle managers, regarding stopping a working process. The informants highlight, that this might be because of production goals, bonus and like. As such, BP Norway has a clear perception that the top management's commitments to HSE culture are not seen in the "sharp end", and as one respondent put it:

Safety representative: *It's all about communication from top to bottom.*

The overall perception of the informants indicates that top management, in BP Norway, are good role models. The informants highlight that the management are here measured up against bonus schemes and like, and as such, is perceived as good. However, from the employees' perspective, the informants indicate that this might not be the case, as many employees do not recognize the commitments from top management and as the informant say it:

HSE advisor: *Middle managers have a great responsibility and employees look at them as front figures for management. The problem arises when they do not follow top management commitment, and employees experience the opposite.*

Regarding the commitment to safety before production, the interviewee's underline that BP Norway has a strong focus on safety, even though, it in some cases is an issue in order to reach a goal. Furthermore, BP Norway indicates that a large amount of money is spent on keeping the workplace injury free, and as one respondent put it:

Safety representative: *The goal is to make sure that everyone returns back in the condition they went out.*

As to the acceptance requirement, the informants highlights that BP Norway has incorporated tools with the purpose of being comfortable to stop an unsafe act. As such, it is comprehended that this is not a problem in BP Norway, and as one interview says it:

Safety representative: *STOPP has goodness in it. It legitimizes the possibility to say stop, in order to ensure that a work process is done safely.*

However, the informant emphasizes that an area to look at are the new employees, who might not feel they have the same authority, and can as such be reluctant to speak out.

Concerning whether employees perceive this as culture or compliance, BP Norway believes this has to do with being good role models. If things are not done accurately, the informant indicates that it will not give a good result. As such, the respondents hope employees perceive BP Norway's measures as culture.

ConocoPhillips Norway

In order to establish a good safety culture, ConocoPhillips Norway believes the main responsibility is in the line management. These requirements are, however, set by the top management, on corporate level, and go downwards to each individual who drive this forward. As such, the individuals constitute a vital part to ensure that work is completed safely. The informant further highlights that a key issue is related to how this is communicated.

As to management and employees having the same understanding to HSE culture, the informant indicates that employees have the same perception as far as the policies go. However, the informant points out that ConocoPhillips Norway does not believe all members have a common understanding of the HSE culture concept, and as the respondent put it:

HSE director: The definition of what HSE culture is varies, as employees have different attitudes.

Regarding management being good role models, the informant indicates that this is neither good nor bad in ConocoPhillips Norway. The informant highlights that there can come occasions where employees forget to i.e. hold on to hand rail. Furthermore, it is indicated that one therefore has to be aware of what position one has, and as the respondent says it:

HSE director: The leaders will have to "walk the talk". If we do not act accordingly, it will be noticed, i.e. posted in the internal newsletter, "leader did not hold hand rail".

With regards to the safety as a priority, ConocoPhillips Norway has HSE as a part of the yearly bonus program to drive HSE improvement. Their philosophy is safety, health and environment, before production. From the interview it is indicated that ConocoPhillips Norway will always prioritize safety and reduce production if deemed necessary, and as the respondent put it:

HSE director: When I talk to my colleagues, there is no doubt that it's safety before production.

The acceptance requirement is, however, not perceived as 100 % in ConocoPhillips Norway. The informant indicates that ConocoPhillips Norway believe that this is related to the Norwegian culture, as Norwegians are generally somewhat "shy" and do not want to intervene. In result, employees might not speak out because they might be afraid that others take it to heart too easily and react negative. As such, the informant indicates that ConocoPhillips Norway has more belief in the PSA program, enhancing and encouraging employees' ability to speak out and intervene when necessary.

Concerning the employees' perception of culture and compliance, ConocoPhillips Norway indicates that this can be a challenge to detect. As ConocoPhillips Norway is a large company, the informant highlights that it can be hard to tell what an individual believes is culture or if the individual only does things because it is required.

Wintershall Norway

As a recently acquired subsidiary company, Wintershall Norway believes both management and employees are responsible to drive a healthy HSE culture. The informant highlights that it is, however, management that has to set the premises. As such, Wintershall Norway believes that if the message is not communicated in a right way, the premises for a good HSE culture will not be present, and as the respondent says it:

HSE personnel: Companies have the responsibility to lay down the framework conditions. It is first when a company and management have done so, that we can expect the individual to act correct and follow procedures.

As the HSE personnel are incorporated in the operational teams, Wintershall Norway indicates that there is a common understanding of the HSE culture concept. However, the respondent highlights that some uncertainties are present, as a new German leader has arrived, bringing a new culture into the picture. Furthermore, the informant indicates that as the new leader bring in new cultures and thoughts, it is hard to tell whether management will be perceived as good or bad role models. Nevertheless, the overall perception indicates that management, currently are good role models.

From the interview, Wintershall Norway indicates that commitment to safety over production is perceived as good. The informant highlights that, as such, Wintershall Norway have not met production requirements for this year. They believe a job should be done properly without putting pressure on employees, and as the respondent says it:

HSE personnel: We are proud that it is so well integrated, even though it might cost us some money.

As to the acceptance requirement to speak out, Wintershall Norway highlights that this is somewhat different from employee to employee. As such, Wintershall Norway is not sure whether the acceptance requirement is good or bad. However, the informant emphasizes that in order to get new employees to dare to speak out they are assigned a godparent who takes them through these issues, encouraging them to tell others if things are done wrong or unsafe.

Regarding employees' perception of culture or compliance, the informant indicates that this can be an issue. Here, Wintershall Norway believes talking holistically about concepts, major accidents, and why follow-up is important is vital in order to increase the employees' understanding of having good barriers in place, and as the respondent put it:

HSE personnel: It is important to motivate and explain employees why. The rules may seem rigid, but they are there for a reason. Hopefully this will create a culture, when they realize.

PSA

According to the regulation, the PSA indicates that everyone is responsible to drive a healthy HSE culture. However, the informant signals that it is the top management that has the paramount responsibility. The informant further highlights that this is a noteworthy change in the regulation, as the companies felt the previous regulation was more directed towards employees in the “sharp end, Norwegian Framework Regulation § 11:

“The party responsible shall encourage and promote a sound health, environment and safety culture comprising all activity areas and which contributes to achieving that everyone who takes part in petroleum activities takes on responsibility in relation to health, environment and safety, including also systematic development and improvement of health, environment and safety.”

As such, the PSA see this as less adequate, and have now directed focus towards a more organizational level, in the new paragraph, Norwegian Framework Regulation § 15:

“A sound health, safety and environment culture that includes all phases and activity areas shall be encouraged through continuous work to reduce risk and improve health, safety and the environment.”

Furthermore, the informant signals that everyone does not have to learn about the culture concept. From the interview it is exemplified that the PSA have sought after hiring people into a company, who understand the culture concept. With this the informant signals that the companies will get a better understanding of how to create a culture and how it should be done.

From the PSA’s culture pamphlet is mentioned that management play a key role as the provider of the companies’ values and visions in the HSE area. As such, the informant signals that if management conveys these in a well-considered manner, observed on a day-to-day basis, they can strike as good role models. Moreover, regarding safety over production, the PSA indicate in their RNNP survey that 40 % of the respondents agreed fully or partly with the statement: "In practice, production considerations take priority over HSE considerations".

Industri Energi

From the interview it is indicated that the trade union believes responsibility lies in the management. The interviewee highlights that if management does not implement measures, and act accordingly, employees most certainly will not follow. However, the informant stresses that Industri Energi is aware of the fact that employees must contribute in order to ensure a good safety culture.

With regards to a common HSE culture understanding, Industri Energi indicates that it can be hard to create such a mutual understanding. The informant highlights that for the management there can, in some cases, be too much focus on numbers without considering the cause behind. As such, Industri Energi believes employees can feel in the line of sight, as they feel they cannot do something wrong, and as the respondent put it:

Union representative (ABC): *The fact that management will come with harsh feedback seems higher than the desire to ensure their own safety,*

Management is in Industri Energi seen as good role models. The informant indicates that such is at least the case compared to the past. However, from the interview it is highlighted that management being the core of it all, should take in employees with offshore experience. As such, Industri Energi believes it is important to have a balance of those who have a practical understanding, and those with a theoretical understanding.

Concerning the commitment to safety over production, Industri Energi believes it is important with a balance. The respondent indicates that it is related to the individual and what is perceived as important, whether it is producing on more barrel, or stop to be 100 % sure. Industri Energi believes this is different from individual to individual and as the respondent says it:

Union representative (ABC): *This is the biggest challenge, to find out what occupy people and which attitude they have.*

As to the acceptance requirement, the informant indicates that there is an overall positive perception in the trade union. The informant emphasizes that Industri Energi believes the use of relevant tools have increased the focus on stopping unwanted incidents, and as such, employees have gotten better to speak out. However, Industri Energi indicates it is hard to map whether employees believe measures and procedures are seen as culture or compliance. Nevertheless, the respondent stresses, that even though these procedures are bothersome they have in turn increased safety.

Samarbeid for Sikkerhet

With regards to the responsibility of driving a healthy HSE culture, Sfs indicate that management must be the front runners. It is here believed that if a company is supposed to have a strong culture, management will have to take initiative to go out and tell employees what is tolerated and not, and as the respondent put it:

Head of committee: *It is good safety culture, if employees are immediately told when something is not followed.*

As to the perception of HSE culture, Sfs believes there is no common understanding between management and employees. The informant highlights that when management implement new procedures or like, it is often argued by the employees in the “sharp end”. As such, Sfs believes there is too far of a gap between management and the employees in the “sharp end”, and as the respondent says it:

Head of committee: *Some platforms have had a lot of corrosion. If management talk about safety culture and things fall around you, it most certainly is wrong.*

Furthermore, the informant indicates that due to this fact, the employees might see this as an exclusion of liability from the management, and hence, they feel like scapegoats.

The commitment to safety over production is in Sfs perceived as a conflict. The respondent highlights that one cannot focus on neither one nor the other, as these aspects go hand in hand. Furthermore, the informant points out that Sfs believe planning is a vital part of any project. However, such planning increases usage of time and as the respondent put it:

Head of committee: *The more time we use, there will always be a certain conflict in the background.*

Regarding employees' perception of culture and compliance, the respondent emphasizes that this is rather unclear. However, the greater parts in Sfs believe there are too many rules and regulations, and as the interviewee put it:

Head of committee: *By too many rules, some rules will get violated. This is a dilemma*

Overview

The following table gives an overview from the previous results regarding the different organizations views towards the management and employees.

Table 11 Organizations thoughts towards management and employees.

	BP	ConocoPhillips	Wintershall Norway	PSA	Industri Energi	SfS
Who has the responsibility – management or employees	Management have bigger liability, involvement a key factor	Line management, individuals are important	Management set premises, individuals follow procedures	Change in regulation, both have liability, management plays a key role,	Management have bigger liability, individuals must contribute	Management has the liability, need to go out and tell employees
Do management and employees have same perception	No, middle managers do not communicate top management commitments	Same perception to the policies, variety in HSE culture concept	Yes, HSE personnel in operational teams, slight concern to new leaders from Germany	All people do not have to learn, can have people who understand the culture concept	No, management can focus on statistics, employees are in “sharp end”	No, management introduces new things, employees feel like scapegoats if something goes wrong
Are management good role models	Yes and no, middle management is key	Neither good nor bad, “walk the talk”	Yes, can change dependent on new culture and thinking from Germany	Convey HSE values and visions in a good way, need to be observable in a day-to-day basis	Yes, compared to the past, need a mixture of offshore and onshore personnel	No input given
How is safety vs. production	Safety prioritized, keep employees in same condition	Safety prioritized, reduce production if necessary	Safety prioritized, production not met	In RNNP survey, 40% of respondents: "In practice, production prioritized over safety"	Balance, up to the individuals perception	Two aspects go hand in hand, always a conflict in the background
How is the acceptance requirement	Good, STOP-cards, might be hard for new employees	Not 100 %, blame the Norwegian culture, do not want to intervene, can cause negative reactions	Different from employee to employee, new employees are assigned godparents	No input given	Good, relevant tools increase focus	No input given
Do employees feel safety culture is compliance	Not sure, but hope they do	Hard to detect, large company	Can be an issue, important to talk and motivate, becomes culture when they realize why	No input given	Hard to indicate, procedures are bothersome, but increased safety	Rather unclear, too many rules and regulations

5.3.2 Permanent employees vs. contractors

BP Norway

From the interview it is indicated that on BP Norway platforms only 30 % are BP Norway employees. With regards to permanent employees and contractors, BP Norway indicates that the difference in work ethic is not so evident. However, the informants do indicate that, though the difference in work ethic is not so noticeable among various age groups in BP Norway, this is different among the contractors. Here, the informant highlights the use of HSE in the contract between the company and contractors. As such, the respondent points out that they are afraid that contractors might, e.g. under report. The respondent further emphasizes that this concern is directed towards the younger contractors.

Furthermore, it is indicated that BP Norway believe the biggest difference related to permanent employees and contractors is the fact that permanent employees have received the same training for years, and as such, it is in their spinal cord, where they are used to do the same things everywhere. This is however not believed to be the case for the contractors, and as one respondent put it:

Safety representative: Contractors work at many places and picks up a best practice for them. When we change a contractor, something happens which is not so positive.

As to the different culture, BP Norway indicates that new cultures may bring some challenges. The respondent highlights that the challenge arrives, when there is a clash between cultures. As such, the informant stresses that BP Norway tries to adapt to the Norwegian culture as much as possible.

ConocoPhillips Norway

As to the difference between permanent employees and contractors related to safety, ConocoPhillips believe there are variations between contractors. The informant indicates that some contractors are good, and give good results. However, they have also had contractors who say they have good safety culture, but have had more injuries. Nevertheless, this is also the case with employees within ConocoPhillips, and as the respondent put it:

HSE director: I don't think in general that we will find contractors that are much better or much worse than our own employees.

Wintershall Norway

From the interview, Wintershall Norway indicates that they at the moment just operate one drilling platform. As such, this is not an issue. However, the informant highlights that as Wintershall Norway will increase capacity, this will be different. Looking at the Songa Delta consortium, the informant points out that Wintershall Norway and Det Norske were the two companies in the beginning. This has further expanded and has now several other companies onboard, and as the interviewee says it:

HSE personnel: A year before we started we carried out a HSE workshop in order to be as coordinated as possible.

PSA

From the interview, the respondent signals that the general perception to difference between permanent employees and contractors related to operating safely is an area where there can be seen differences, and as the respondent put it:

Chief Engineer: *Different sectors work different. There are big differences between the companies and contractors within HSE, specially related to working environment.*

Industri Energi

From the interview, the respondent indicates that differences among the workers in the North Sea are present. Here, different contractors bring in cultures from other companies, which in turn can affect both positive and negative for the company internally, and as the respondent put it:

Union representative (ABC): *Employees are always in contact with various tools on different platforms. Even though they are taught a specific tool in a company, they bring other methods along, and culture differences arise.*

Compared to the permanent employees, Industri Energi believes contractors have a different starting point, as employees working permanently for an oil company are drilled in the same tools from the beginning. As such, the informant indicates this has to be taken into consideration.

Samarbeid for Sikkerhet

There is a clear opinion in Sfs that contractors and permanent employees act differently regarding safety. The informant indicates that Sfs believe permanent employees and contractors have different methods for doing things. Furthermore, Sfs indicate that contractors are also more exposed than permanent employees, and as the interviewee say it:

Head of committee: *If there is under reporting, I believe contractors and suppliers get the blame more often, because they have HSE in their contract.*

Overview

The following table gives an overview from the previous results regarding the different organizations views towards permanent employees and contractors.

Table 12 Organizations thoughts towards permanent employees and contractors.

	BP	ConocoPhillips	Wintershall	PSA	Industri Energi	Sfs
Is there any difference in how permanent employees and contractors work with safety	Not to evident, permanent employees have training in spinal cord, contractors develop their best practice	Not too much difference, both good and bad contractors as there are employees	Not an issue, conducted an HSE workshop to coordinate several companies in the Songa Delta consortium	Generally big difference between companies and contractors, especially in working environment	Yes, different starting points, contractors bring other cultures	Yes, different methods of doing things, contractors more exposed, HSE in the contracts.

5.3.3 Views on the Norwegian Framework Regulation

BP Norway

From the interview it is indicated that BP Norway has not seen thoroughly upon the Norwegian Framework Regulation §15. However, they have implemented many measures on the base of the previous paragraph, and as one respondent say it:

Safety representative: *In our regulations there are references to standards that are relative specific, so specifications on different things are given.*

ConocoPhillips

With regards to the regulation, ConocoPhillips believes the regulation is the key to manage HSE, but is not the whole solution to obtain a good HSE culture. From the interview the respondent indicates that ConocoPhillips will always do what they believe is the best way to improve performance, however, within regulatory and company requirements of what is accepted. Furthermore, the respondent highlights that ConocoPhillips Norway's HSE culture will most likely never meet all the requirements as the regulations are too comprehensive, but indicates that they work with this all the time, and as the informant says it:

HSE director: *I think it is a challenge for all of us (industry) to meet all the requirements, but we are working on it, as is the other companies.*

Wintershall Norway

Concerning the change in the regulation, the informant highlights that Wintershall Norway is aware of the change, but has not gone through the new paragraph orderly. The interviewee indicates that from the previous regulation, mentioning contribution from each individual, Wintershall Norway has conducted a HSE assembly, were focus has been on including every employee in the HSE thinking. This includes all departments, e.g. accounting, personnel and like, and as the respondent says it:

HSE personnel: *Here we included everyone, and we believe this is what the regulation points to.*

In addition, the informant indicates that if the new regulation is able to make the companies think that HSE is not something that should be on the sidelines, it can give a positive effect. However, the respondent highlights that Wintershall Norway believes it can be a challenge to conduct oneself to this.

As to the broad understanding, the informant highlights that it would have been easier to have something concrete for the companies and individuals, if the regulation was more specific. It is further emphasized that as the regulation is such widely formulated, it requires more qualitative work to understand the purpose of the culture paragraph and as the respondent put it:

HSE personnel: *I think the important thing is here to understand that it is not either or, but both.*

In addition, the respondent further indicates that Wintershall Norway believes a concrete regulation would have given too many conditions to relate to, and hence, it might have not been as good of a barrier as intended. As such, Wintershall Norway indicates that it is the qualitative assessment that is the most important aspect and will give the biggest effect.

PSA

As to the development of the HSE culture paragraph, it is indicated that the PSA agree that this can be seen as rather unclear. However, the PSA highlights that there is an accessible guidance describing what should be thought of, and as the respondent put it:

Chief Engineer: *With this guidance, we believe it helps making the regulation clearer.*

The informant further highlights that in this guidance, the PSA has described a little bit of each area, which the PSA talks about in new HSE culture paragraph (Norwegian Framework regulation § 15). As such, it is pointed out that the PSA believes the part of critical reflection has been important, as it is directed to large organizations with much information and a lot of training. Furthermore, with this new regulation the PSA signals that they do not require organizations to implement new activities, but highlight that is an opportunity to look through what is already there and assess it in a different way.

Regarding the intention of such a broad paragraph, the informant indicates that this regulation is a functional regulation. As such, the PSA perceive this regulations as an improvement for discussing cultural conditions, major accidents and that it gives an another legitimacy. From the interview it is signalled that the PSA does not think a concretization will help. The interviewee indicate that, however the PSA sees it as time-saving, it might “bite them in the tail” if they go out with recommendations.

With no standards in place, the PSA believes organizations will have to find their own personalized method. However, the respondent signals that there are no good answers, as the PSA believes no organization has only one culture or create a culture, and hence, subcultures and individual assessments will always create differences. Another advantage with the regulation is related to the characterization of the organizations, and as the informant says it:

Chief Engineer: *We are very careful with saying that organizations have good or bad culture. In that case we would have needed comparative opportunities, and as such, we keep ourselves out of this.*

In turn, the PSA believes this ensure good work with HSE culture, as no organizations are discouraged.

Industri Energi

From the interview it is indicated that Industri Energi has not seen too much at the regulation. The interviewee highlights that this is the companies’ job, to make sure requirements are met, and as such, the trade union does not have much focus on the culture paragraph. However, the informant indicates that a general perception in the trade unions, with regards to the culture paragraph, is directed towards the Norwegian and the foreign oil companies. The overall perception here indicates that Norwegian oil companies have a better chance to interpret the

culture paragraph, mainly because they have more knowledge about the regulations in Norway. Correspondingly, it is indicated that foreign oil companies have an extra culture to adapt to.

Samarbeid for Sikkerhet

Regarding the change in regulation, the general perception of SfS indicates that it has not been easy to interpret the change. As such, the respondent indicates that it has to be discussed, understood, and then make an assessment and follow up. However, SfS highlights that it is probably hard to find an easier way out, as finding something common is extremely difficult, and as the respondent says it:

Head of committee: I don't believe it is because of the regulation. It is more about the organizations thoughts about who they want to be, when they choose their path.

As to concretizing the regulation more, SfS indicate that it might not be a good idea. From the interview the respondent highlights that a positive aspect of concretizing the regulation means that things will get easier together with having the same approach all over the industry. However, with such requirements, this might not correspond to foreign companies' cultures and excludes the possibility of new thinking and own assessments.

Overview

The following table gives an overview from the previous results regarding the different organizations views towards the Norwegian Framework Regulation § 15.

Table 13 Organizations thoughts towards the Norwegian Framework Regulation § 15.

	BP	ConocoPhillips	Wintershall	PSA	Industri Energi	SfS
Is it easier to interpret the regulation after the change from § 11 to § 15	Not seen too much at it, included much from earlier (§ 11)	Regulations are key to manage HSE, but not solution to obtain good HSE culture, no one will meet requirements as it is to comprehensive	Not easy, Regulation must emphasize that HSE is important, include all employees in HSE thinking	It is unclear, guidance helps clarify, critical reflection, do not have to implement new activities, but assess what is already present	Not seen too much at it, companies' job	Not easy to interpret the changes, it must be discussed, understood and assessed
What is the purpose of an broad regulation	No input given	No input given	To work qualitative and understand, it is not either or but both,	Improvement for discussing cultural conditions, major accidents,	No input given	Probably hard to find an easier way, allows organizations to choose who they want to be
Is it better or worse if regulation is concretized	No input given	No input given	Worse, it would have given to many conditions, might not give intended effect	Worse, time-saving, but "bite them in the tail" if they give a recommendation	No input given	Overall it is worse, time-saving and one approach in industry, but excludes new thinking and own assessment
How does § 15 ensure a better HSE culture	No input given	No input given	No input given	Organizations must find their own personalized method, PSA does not characterize the organizations, no discouragement	Increased knowledge, however Norwegian companies have better possibilities	No input given

5.4 Approaches and methods for the future

Here the results of the interviewees thoughts about the future given. In the first section, the analyzed data will be presented, grouped in the parts of development of approaches and methods, best practice and common understanding.

5.4.1 Views on the future

BP Norway

As to approaches and methods for the future in order to establish a superior understanding of a good safety culture, the informant are rather in agreement, that no such approach or method can create a common understanding. From the interview it is perceived that this is because every company has developed their own tools, and as such, it can be difficult to make something common, and as one informant put it:

Safety representative: *I'm not even sure if it's that important.*

Furthermore, the informant indicates that if such an approach or method is to be established, it can only be on a superior level. However, it is highlighted that some of BP Norway's tools are perceived as good, and as such, the concept can be taken further:

HSE advisor: *To get something like SOC would probably be the best.*

Nevertheless, the informant emphasizes that this is also needed to be in line with the development in technology. The informants highlight that it has now moved from a more "hands-on" situation to automatically handling systems. This takes employees behind the screens, and as such, it affects the injury statistics, and as the informant says it:

Safety representative: *Maybe it is not so much culture as we want it to be.*

From the interview the informant's points out that development of a best practice can be difficult, as everyone has their own way of doing things. As such, the respondents indicate that one should just continue as it is now. The respondents further stress that in order to get a complete culture, it is extremely important to follow-up offshore.

As to a common understanding in the future, BP Norway's respondents indicate that there most likely is a common understanding at the present time. It is here perceived that HSE is a core point where everyone knows what the essentials are, and as the one informant put it:

Safety representative: *The objective is to avoid harm to human, material and society, but we have different ways of doing it.*

ConocoPhillips Norway

From the interview, the informant indicates that it is perceived as difficult to find an approach or method for creating a common superior HSE culture. The informant highlights that this is because all the companies have their own tools and programs, and as such, believes that the companies think their program is the best and have difficulties with implementing other companies' programs. However, it is stressed that the PSI-academy is something which is believed can be used, and as the respondent put it:

HSE director: *It will help the individual to take a conversation. Every company has similar tools, but this is why we have called it PSI because it is personal involvement. It is not we, but "I" in a way.*

With regards to a best practice in the industry, the interviewee highlights that best practice is in a way following something, whereas safety culture programs and other tools are related to understanding. As such, the informant indicates that it possible to use both, because the solution is not only the one thing. Furthermore, the respondent highlights that as HSE is driven onshore, offshore, meeting and like, a common understanding in the future will be possible if the companies sit down and discuss this when they meet.

Wintershall Norway

As to the development of different measures to create a superior HSE culture in the industry, the informant's perception is strongly related to qualitative thinking. The interviewee

indicates that the industry is, today, rather focusing on being quantitative and number fixated. In order to get something superior, the informant highlights that the oil industry needs to work more qualitatively. However, since this is yet not the case, the informant believes there cannot be created a common understanding unless there are more qualitative approaches in place.

Furthermore, the respondent indicates an uncertainty regarding the use of best practice. From the interview it highlights that the use of one simple document, one best practice or one safety culture program is not the solution, and as the respondent put it:

HSE personnel: I will only use one word, reflection. The ability to reflect is related to thinking qualitative. It highlights the different gradations, which best practises and quantitative indicators do not give.

With regards to a common understanding of the HSE culture concept, the informant indicates that this can be difficult, as the informant believes it is related to a “world wide” industry. With the presence of American, French, German companies and more, the informant highlights that it can be hard to create a mutual understanding due to cultural differences, thinking and safety culture programs, and as the interviewee says it:

HSE personnel: The best we can hope for is that the companies look at the culture paragraph and meet the Norwegian practice, and then hope it can give some effect.

The respondent further indicates that actually having something that can give an effect, e.g. SfS giving best practice, like safety job analysis (SJA), is fair enough, but it is extremely hard to get a common understanding on the organizational level. It may give common routines, but the HSE understandings will still vary from company to company.

PSA

The informant signals that in order to develop a common understanding in the industry, the approach will have to be holistically. The respondent indicates that the total HSE work and its quality will affect how employees in the organization perceive which values are the most important.

Furthermore, it is indicated that approaches that are more deliberate and where employees are more involved in the safety critical topics, joined together with management to draw up more concrete training, physical measures and like, are important to create a mutual understanding. However, the PSA are not convinced that a common approach or method is possible, and as the respondent put it:

Chief Engineer: As a main theme, it can work, but it has to be adapted in relation to each company.

The PSA signals it can be difficult to implement a best practice for HSE culture. The respondent indicates that change in cultural conditions should be based on the individual company, adapted to them. From the different indicators, the companies should identify the different risk factors which they further should handle. As to a common understanding of the HSE culture concept with regards to the culture paragraph, the PSA does not believe there is

enough foundation to say. From the interview the respondent indicates that a general perception indicates that management and employees seemingly have a stronger attachment. However, the respondent is convinced that there has been a stronger organizational increment with regards to culture, where organizations are much more involved in culture.

Industri Energi

From the interview it is indicated that Industri Energi generally believes there are too many forms and routines. As to developing an approach or method which can create a superior HSE understanding in the industry, the informant believes one should look at already implemented measures. The respondent highlights that the companies need to look at the possibility to merge several tools, procedures and like, and then use employees who daily use these measures, in the development of a more suitable measure.

With regards to a best practice in the industry, the informant highlights that a combination of both best practices and safety culture programs should be the way to go. The informant emphasizes that the positive aspect of a best practice is that the focus will be narrowed down, making it less comprehensive. However, there must be some room for own thoughts, and as the respondent put it:

Union representative (ABC): *Having safety culture programs will make employees think.*

Concerning a common understanding with regards to the HSE culture concept and the culture paragraph, the informant highlights it can get too complicated. The respondent indicates that due to the number of multinational companies, with own tools and methods, creating a common culture is difficult. As such it is pointed out that the authorities will have to be more present, and as the informant put it:

Union representative (ABC): *Either we cannot have foreign companies, or the companies cannot make their own culture, which is a problem in itself.*

Samarbeid for Sikkerhet

In order to develop a common understanding in the industry, the informant indicates there should be some sort of start which is common for everyone. As such, the informant highlights that a safety culture program, e.g. HSE-basic in BP Norway, would be the ideal. The informant highlights that Sfs earlier tried to implement such a culture program, taking hold of basic training related to safety thinking and where it comes from. From here, Sfs believes the companies need to take it further, maintain it, and as the respondent says it:

Head of committee: *This should be the start of a series of measures to establish a good safety culture.*

Furthermore, the informant indicates that however this is a way to go the problem arises when the companies have different aspects they believe are more important than others. As such, the informant highlights that one can have a main theme, but that it is specified after which platform employees are working at. This will in turn make it easier for everyone, and as the interviewee says it:

Head of committee: *It will not just be easier for contractors, but also employees changing companies all the time. Employees bring along their experience, and hence, have an attitude and culture. So if basis was similar, it could have built on each other.*

As to best practice in the industry, SfS perceives it as a possibility. However, the informant indicates that some people learn more, while others learn less. As such, the respondent highlights that there probably is not a best practice that fit all. Nevertheless, the informant believes there should be some fundamental things that should be present. Concerning a common understanding in the oil industry with regards to the regulations, the respondent indicates that it seems optimistic. It is here highlighted that the chance is not perceived as less to implement a common system, and as the respondent put it:

Head of committee: *Why not try to get a common safety culture, when there are other common things. If we made something that became known, it could have worked.*

Overview

The following table gives an overview from the previous results regarding the different interviewees' opinion about the future.

Table 14 Interviewees' opinion about the future.

	BP	ConocoPhillips	Wintershall	PSA	Industri Energi	SfS
Which measure can create a common understanding of HSE culture	No measure, not sure if it is important, SOC can be developed, technology is important	Difficult as companies have different tools and programs, PSI can be used	Qualitative approaches	Holistic measures, employee involvement, main theme superior, but further adapted	A suitable measure, created from merging already implemented measures	A common start, safety culture program, a main theme but further specified
Can there be defined a best practice	No, each company has different tools, follow-up offshore	Mixture of best practice and culture programs, solution is not only the one thing	No, reflection is key	Difficult, cultural change based on individual company	Mixture of best practice and culture programs, narrows down yet includes own thoughts	Possible, not a best practice can fit all, some fundamental things should be present
Will there ever be an common understanding	Already is, everyone knows the essentials, objective is to avoid accidents and incidents	Companies need to meet and discuss with each other about HSE	Difficult, many foreign companies introduce new cultures, regulation can effect, tools may give routines, but do not create a common understanding	Not enough foundation to say, seemingly closer attachment between management, employees, organizations more involved	Complicated, too many multinational companies and cultures	Optimistic, change is not less, there are other common things

6 Discussion

The purpose of this chapter is to answer the research questions that were presented in the introduction. The discussion will be carried out by using the empirical results (chapter 4 and 5) together with the relevant theory presented.

6.1 Safety culture approaches – do they match regulation?

According to the Norwegian Framework Regulation § 15, a “good” safety culture approach must include:

“...all phases and activity areas...encouraged through continuous work to reduce risk and improve health, safety and the environment.”

As such, it is important that the approach chosen to establish a “good” safety culture must contain different elements, carefully chosen, in order to target the different activity areas within safety culture, e.g. do the companies match a “good” safety culture according to Hale’s (2000) eight elements, made as rationale for the regulation. Looking at the three different oil companies, two of the three companies are running different programs in order to enhance their safety culture, while the third company is on the verge of implementation of a new culture program. However, even with all the good intentional approaches and methods developed in the Norwegian oil industry, the common consensus indicates it is difficult to develop an approach suited to establish a “good” safety culture according to the Norwegian Framework Regulation § 15. Nevertheless, some common trends and diversity is seen through the various safety culture approaches and methods, together with the views from the assisting organs (PSA, Industri Energi and Sfs).

Commitment to safety goals

In relation to what research has shown, strong commitment towards safety from management should be present when successfully implementing a safety culture measure, by giving importance to safety goals (Hale, 2000; Mearns et al., 2003). In all three companies the common consensus shows that safety is given high priority, e.g. BP Norway want to ensure a safe working environment for their employees, to secure an injury free workplace:

Safety representative: *The goal is to make sure that everyone returns back in the same condition they went out.*

This counts also for Conoco Phillips who mentions that strong commitment to safety goals always starts at the corporate level, by setting requirements for their employees. However, this can be perceived as rather vague, since Conoco Phillips has chosen a BBS approach. Here, employees might not feel commitment from management is that strong, given the strong focus on individual contribution, as it all comes down to the individual when conducting an operation. This highlights some of the strengths of using a cultural approach, proposed by DeJoy (2005).

Furthermore, a common consensus in the industry shows a strong focus towards another important aspect, namely, safety in relation to production. Informants highlight that if safety is under strain, safety will always be prioritized before production. This allows the employees

to stop their work and consider the safety aspect in order to avoid accidents. This can be seen in the different companies as Conoco Phillips Norway includes this safety goal in the yearly bonus to create a shared understanding of its importance, whereas Wintershall Norway clearly shows this from their annual reports. They believe employees should take time to do work properly, and hence, it has worked as a contributive factor for their negative operating result. This is in accordance with other research on safety theory, related to Brownian movements, where management provide workers with the proper amount of work load, giving them time to operate safely, minimizing risk for an accident to take place (Rasmussen, 1997).

Even though BP Norway also prioritize safety over production, they highlight that there can come occasions where it causes a dilemma. This count also for the PSA, who shows a concern related to this commitment. Even if safety is prioritized in theory, 40 % of respondents in the RNNP-report have said that production is prioritized before safety in practice. As such, their indications show resemblance to other studies on the topic of rule compliance (Hopkins, 2011). The trade union, therefore, highlight that there should be a balance in the issue of safety and production, where this should be seen from the individuals' point of view, as they are in the "sharp end".

Understanding of the concept

In order to get good value from the safety measures taken, it is important to share a common framing related to which aspects of safety, in the broadest sense, are involved in the concept. In relation to theory, it is therefore important to understand the priorities given to the concept of safety (Hale, 2000). As such, it provides the possibility to identify the starting point in the organization towards safety culture and thereby work accordingly to create a common perception of the purpose.

A common pattern shows that respondents to a large extent believe safety has to do with a safe work environment. However, only BP Norway and Wintershall Norway explicitly highlight that this should be done by providing sufficient equipment and adequate arrangement in order to operate safe. With this the organizations main purpose is to reduce the possibilities of hazardous incidents. This is in accordance with my initial clarification of the concept of safety, highlighting that safety has to do with minimizing risk. As such, providing a safe working environment by bringing in sufficient equipment and adequate arrangement corresponds to other safety research, in relation to organizational redundancy (LaPorte & Consolini, 1991; Rosness, et al., 2010). Furthermore, sufficient equipment also provides barriers of accident prevention, hence, working as a layer in the defence-in-depth strategy (Reason, 1997).

Another pattern shows that organizations relate safety culture to the bigger picture, e.g. safety culture is a part the HSE notion in Wintershall Norway, talking about the wholeness in Conoco Phillips Norway and by having the HSE-basic in BP Norway. This also counts for the PSA and SfS, emphasizing that safety must be seen related to HSE, as everything is integrated. This shows strong resemblance to my initial clarification between the HSE and safety culture concept being one, based on other HSE culture studies (Petroleum Safety Authority Norway, 2010; Karlsen, 2010). This is an interesting finding, as it clearly shows a

shift in the understanding of the safety culture concept, going more from a safety aspect, to focus on the whole HSE notion. An explanation for this can be the demand in the regulations from January 2002, directing focus more to the HSE aspect (previously never expressed so directly) (PSA, 2010).

Finally, BP Norway highlighted that safety culture is related to mutual understanding and the way that all things are practiced in all parts of the organization, whereas Wintershall Norway emphasize that culture is the key factor. This is in accordance to research on culture, related to common values and beliefs (Schein, 2004). In turn, this means that BP Norway and Wintershall Norway sees this as a cultural aspect affecting safety (Warring 1992, in Glendon & Stanton 2000; Guldenmund, 2000). As such, a downside with the BBS approach in Conoco Phillips Norway is present. This is because a common understanding is not easily created when focus is on the individuals behavior. Furthermore, with the focus on BBS it can be hard to identify the starting point in the organization. This clearly highlights the strengths shown with a cultural approach as it can produce change at an organizational level (DeJoy, 2005).

Involvement

According to research an important aspect in development of a culture relates to including every member in a decision, so all parties in an organization can share a common purpose. This especially relates to safety as employees in the “sharp end” are those exposed to the bigger hazards, and therefore, needs to create a sense of ownership in order to act accordingly (Hale, 2000). Furthermore, other studies emphasize that this can be done whether one has a culture approach or a BBS approach as both approaches see the importance of including employees in managing safety (DeJoy, 2005).

Looking at the three oil companies, a common pattern show that management has the biggest involvement. This is most visible in Conoco Phillips Norway, and Wintershall Norway who emphasize that individuals must comply with the safety strategy and procedures set up by management. However, it is strange that only BP Norway mentions that involvement of their employees are a key factor. These findings relate to other studies on management and employee influence (Hovden and Larsson, 1987; Mearns et al. 2003). This involvement is mostly from conversations during lunch, breaks and meetings. Even though, informants in BP Norway have mentioned that a challenge is present with regards to involvement of their employees when implementing different culture modules and tools:

Safety representative: There are many tools for the end-user which are good, but then there come different statements or golden rules, which employees have not been involved in and do not feel any ownership to.

This is also confirmed by the trade union, who mentions that the companies pay more attention to theory than the reality happening in practice.

Moreover, it should be mentioned that Conoco Phillips believes their measures are good, as each individual are set to contribute through the PSI-program. This can be seen in accordance with research on strengths and weaknesses to a safety culture program, as a benefit with Conoco Phillips Norway’s BBS approach (and a weakness with the safety culture approach)

emphasizes that it is easier to detect the behaviour of employees in the “sharp end”. Hence, it is easier to record the espoused values and beliefs and basic assumptions, giving Conoco Phillips Norway the opportunity to make concrete changes (DeJoy, 2005).

Finally, it is important to mention that, though, the different organizations agree that management have strong involvement and that employees in various degree are involved, none of the oil companies have reflected much upon the involvement from contractors. This is a very interesting finding as the remaining three organization are in consensus, that there can be seen a big difference in how permanent employees and contractors work related to safety. For instance, different starting points mentioned in Industri Energi, different methods and exposure highlighted in SfS or in the working environment mentioned in the PSA. As such, the oil companies contradict my initial argument on involvement of contractors, based on other studies (Rundmo & Hale, 2003; Henning et al., 2009). It is strange, that the different oil companies have not recognized that involving the companies’ employees might increase their employees’ ownership towards safety cultural approach, but it is not given that this will create the same feeling towards the employees hired as contractors. In result, the oil companies are yet to involve every worker and stakeholder in a decision-making process in order to share the purpose of safety in all areas.

Creative mistrust

When working with safety it is important to acknowledge that it always is a working progress, e.g. if members are convinced they have an ideal safety culture, they are mistaken. As such, members in an organization must never get conceited, and as research shows, the creative mistrust relates to employees always expecting new or old problems to arise (Hale, 2000). Looking at the different oil companies, a common pattern shows that this is covered, however, in various degrees. In BP Norway many tools are built with the purpose of increase risk awareness, enhancing their employees’ ability to observe hazardous events and situations. Through their safety culture program, BP Norway have come far in training their personnel and contractors to be more observant, e.g. HSE culture modules, TOFS, STOP and 4 point check. Furthermore, management are also involved through the use of SOC, in order to systematically observe their employees’ work in order to safeguard work conducted. This counts also for Conoco Phillips Norway, who has implemented some measures like those in BP Norway. In addition, the trade union also emphasize that it is seen as positive with the various tools implemented.

In relation to Conoco Phillips Norway’s measures towards employees risk awareness, the PSI-program has introduced many different courses, e.g. PSI training school and PSI awareness. These courses teach employees to use the different tools. Here, the PSI-conversation cards create an open dialogue with employees, reminding of the SOC in BP Norway. However, it is also conducted by employees, extending the use not only for management. Furthermore, the 5 PSI-questions used during the PSI-conversations, are meant to encourage employees to deal with hazardous events taking place. As such, these two companies show that both the safety culture program and the BBS approach can create risk awareness. This is also in accordance with the similarities posed by DeJoy (2005) emphasizing that BBS will also in later stages

lead to a cultural change. Wintershall, on the other hand, have not come far in implementation of such tools. However, they are aware that this is important, and as the respondent says it:

HSE personnel: *We are very conscious of not being conceited, and that we keep the balance of being humble, but also proud that we work safely.*

Another important aspect of the creative mistrust in the different companies relate to the possibility of reporting. Here, BP Norway is the company with the most comprehensive tools and systems. Through the STOP-cards employees are able to report more dangerous events than the systems that are currently used for reporting unwanted incidents. However, a challenge is observed related to the number of STOP-cards written, as it poses an uncertainty towards its quality. This is also confirmed by one of the respondents:

Safety representative: *I found it strange that we want employees to write that many STOP-cards. I understand it helps to get training in writing these cards, but the quality can be very poor.*

Furthermore, these cards are assessed and put into systems, where selections of the most serious events are put in electronic databases in order for the employees to learn, e.g. in traction and lesson learned databases. Conoco Phillips Norway has also correspondingly a reporting form, encouraging employees to report. This is also mentioned by the PSA, who emphasize the importance of a learning culture. As such, these two companies match what research on a sound HSE culture has shown, by having a reporting culture (from Reason's four elements) (PSA, 2010). It is, however, strange that Wintershall Norway do not have any reporting system running of their own and mention that they currently are using Oddfjell Drilling's safe card. This allows Wintershall Norway's employees to report colleagues' unsafe actions, giving them the opportunity to stay aware. It does, on the other hand, create a challenge concerning the commitment from employees, as they do not feel ownership to it.

Trust

In relation to what research has suggested an important factor in a "good" safety culture is the trust between each member doing their own part. Here, it is important that employees work together to handle the unwanted slip ups and actions that may occur (Hale, 2000). As such, key factors are related to shared responsibilities and the acceptance requirements in order to dare to speak out, intervene and by overlapping each other's work. In BP Norway, this research mostly matches what theory suggests, as informants emphasize the importance of shared responsibilities in a safety culture. This is also observed during the HSE-basic, where a common foundation is developed e.g. through slogans and 8 golden rules. In turn, it shows resemblance to the strengths of a safety culture program, offering a greater possibility to change the basic assumptions (DeJoy, 2005).

Furthermore, the various tools in BP Norway also highlight the strength related to the acceptance requirement to speak out, e.g. STOP and TOFS. However, overlapping each other's work is a present challenge which BP Norway have not implemented through any tool or measure and was additionally not observed as a topic during the HSE-basic course. As such, it contradicts the research that the PSA have taken basis in, on a sound HSE culture, as having

a flexible culture constitutes a vital part (in Reason's four elements) (PSA, 2010). In Conoco Phillips Norway the issue of trust is even more difficult. As Conoco Phillips Norway have a BBS approach, the focus on individual contribution makes it hard to see the shared responsibility. This is because each individual has his/her own responsibility to act in compliance with the strategy set by top management. The informant has also highlighted that the acceptance requirement to speak out is also not perceived as 100 %. As such, it has to do with the individual risk perceptions, as the BBS approach is related to the individual it may vary how individuals perceive risk and ability to intervene (Rundmo & Hale, 2003; Henning et al. 2009). Moreover, as Wintershall Norway is expanding, trust is rather hard to detect. The informant has highlighted that focus is directed towards shared responsibility, but mentions an uncertainty regarding the acceptance requirements to speak out. As no tools are in place, the ability to check this is not present. As such, it is mentioned that it varies from employee to employee.

Ability to communicate

In every informed organization communication is vital in order to learn about failures and exchange experience. This allows employees to reflect upon the work they are doing and cope with the different hazardous situations that may occur (Hale, 2000). Research on safety theory also is in accordance with this, as breakdown in flow and interpretation of information may lead to accidents (Turner & Pidgeon, 1997; Rosness, et al., 2010).

From the authority's point of view, the PSA mentions that Reason's four learning's will drive a responsible learning culture, by keeping every member informed. Looking at three oil companies a common consensus shows that this is perceived as good. In BP Norway and Conoco Phillips Norway communication with their employees is present through the use of different feedback channels, e.g. lunch, breaks and meetings in BP Norway and from surveys and in Conoco Phillips. Moreover, BP Norway also uses their safety culture program to communicate dangers, experience and learning. This is seen as a positive way of communicating safety, as common slogans and messages include every employee in strengthening the culture, by moving together, step by step (moving "½ mm"). However SOC and STOP are tools giving a direct conversation, informants in BP Norway mention that SOC-like follow-ups are only done when needed. Correspondingly, the STOP-cards are mostly in place for the employees themselves. As such, the communication in BP Norway is mostly indirect, not giving direct communication in relation to work performed offshore. A positive aspect is, though, presented through the PSI-conversations in Conoco Phillips Norway, where leaders go out offshore, and hence, can communicate the importance of safety better.

In comparison, Wintershall Norway stands out the most positive. Here, the aspect of communication is taken a step further, as it is mentioned that the HSE personnel are an integrated part of the operational teams. This means that a direct communication between employees conducting the work and the HSE personnel is always present. This involves the workers as a legitimate partner in relation to communication about the risks present at the worksite. However, the lack of a common culture program does not give Wintershall Norway the same opportunities as BP Norway, where common slogans and messages can create a positive factor for communicating safety. Nevertheless, Wintershall Norway corresponds to

the view of Sfs and the trade union, who mention that HSE personnel should be more in contact with offshore personnel, as direct communication will give better feedback where safety is better communicated. By going out offshore Wintershall Norway, therefore, meets the research by reducing the chance of breakdown in flow and interpretation of feedback. This constitutes a very interesting finding, as both the well established companies, with several tools, struggle more with their ability to communicate in comparison with Wintershall Norway. An explanation can, here, be related to safety research and a combination of two of the six perspectives. This is because the increased complexity in both BP Norway and Conoco Phillips Norway may cause difficulties in the flow of information (Turner & Pidgeon, 1997; Perrow, 1999; Rosness, et al., 2010).

Encouragement of ideas

According to research presented on an organizations safety culture expectation, it is emphasized that organizations need to act generative (Reason, 1997; Westrum 1998 in Hovden 2010). Organizations must, therefore, actively seek relearning to make sure genetic potential is present. In result, this means that organizations must encourage new ideas and believe new ideas can be found and expected from any member (Hale, 2000; Schein, 2004). In two of the three companies this issue has served as a rather difficult area, as management are given the paramount responsibility in each company. This has given less room for employees to come with new ideas and no measures are mentioned in relation to contribution from the “sharp end”. However, in Conoco Phillips Norway the BBS approach is highlighted, as it is mentioned that individual contribution is important. As such, Conoco Phillips Norway is the only company that specifically mentions that this is a somewhat integrated part in their company, and as the respondent put it:

HSE director: Employees send in various ideas and measures on specific work tasks they feel can be done better. With this, Conoco Phillips gets many good ideas. This can later on be used as best practices, provided by our own employees.

In this setting, this corresponds to acting generative by encouraging new ideas and actively seeking relearning (Reason, 1997). It should, though, be mentioned that this competition is not only for employees in Conoco Phillips Norway, but more broad in its scope, as employees from all Conoco Phillips offices provides different ideas.

Continuous improvement

A vital part of the understanding to safety culture is to understand that safety culture is always a working progress. Integration of safety thinking is, therefore, necessary to ensure that safety is seen as an inseparable part of every work practice, as the ultimate target is to reduce the number of accident and systematically work towards the company’s vision (Hale, 2000; Engen & Lindøe, 2008). This is also mentioned by the PSA through the regulations, presented at the top of this subchapter, encouraging work with HSE in all phases through continuous work in order to reduce risk. In result, a successful integration of safety thinking on a daily basis provides the opportunity to handle fairly complex technologies without generating major accidents. As such, it creates organizational redundancy, and hence, also matches what safety theory shows on high reliability organizations (LaPorte & Consolini, 1991).

To ensure that safety thinking is a part of the daily operations, BP Norway has integrated this through their concept of moving ½ mm. Here, the question asked is “what do we do when we are good”. Furthermore, to ensure that employees keep moving “½ mm” on a daily basis, BP has set up HSE modules to ensure continuous improvement of their HSE culture. Moreover, this is also presented through BP Norway’s vision of “no harm to people” as an integrated part in the HSE-basic. As such, safety thinking is put into every aspect of work practice, thus, making lasting changes, coming forward as an explicit part of the organization. These changes are hard to detect, but as research on culture shows, it creates changes in the espoused values and beliefs, seen in artifacts of the organization (Schein, 2004). These counts also for Sfs who previously attempted to implement such a culture program for the entire industry (as a best practice).

In comparison to BP Norway, both Wintershall Norway and Conoco Phillips Norway has not exerted a common slogan to enhance the safety thinking. Conoco Phillips Norway does through the PSI-program present the closest thing to introducing safety thinking on an everyday basis. As the BBS approach comes down to the individual, Conoco Phillips manages to enhance safety thinking by going out on the offshore worksite, by hiring instructors and actors conducting role plays. However, as these role plays are better in relation to involving employees compared to a safety culture program, it is narrower in its scope. This is as research has shown, as BBS role plays only provide employees with safety training to specific problems, whereas the strength of a safety culture program is that it has a more extensive scope (DeJoy, 2005). As such, the role plays only make it a proactive tool to increase risk awareness of each individual. It therefore does not give the continuous improvement desired.

In relation to the change in the culture paragraph, many of the respondents mentions that there has not been used too much time to assess the change. BP Norway mentions that much is, even so, included from the previous culture paragraph. This counts also for Conoco Phillips Norway mentioning that they are committed to follow the regulation, but emphasize that the culture paragraph is too comprehensive to fulfil all requirements. As such, the respondent in Conoco Phillips Norway has mentioned that they will always do things there way, but within the limits of the requirements. It is, however, strange that Wintershall Norway is the only company who has revised the change in regulation, and do from the regulation mention that it is vital to emphasize the importance of HSE. Even so, Wintershall Norway is in agreement to what the other two company’s ashow, as each company have to personalize their own approach or method. The trade union, on the other hand, emphasize that this is not their area, leaving the interpretations to the companies.

Summing up the companies approaches in relation to the evaluation criteria’s

The above mentioned views shows how the different organizations safety culture approach matches Hale’s (2000) eight elements, chosen as the criteria to evaluate the various safety culture approaches and methods as the reference for the Norwegian Framework Regulation § 15. To conclude, the main impression shows that all three companies have been able to cope with the different elements, however, to various extents. This can be seen from the chosen path that has been taken, as one can never be sure which path gives the best effect. In some cases the different companies have been able to cope with elements where other companies

have not, and vice versa. It is also important to remember the other three organizations approach, but it is vital to recognize that they can only be seen as assisting opinions, by providing supplementary opinions to the companies' approaches.

In all three companies, a common point shows that commitment from management is strong by focusing on safety goals. This has, though, been more noticeable through Wintershall Norway presenting a negative operation result, where safety goals, such as safety over production, have been a strong contributive factor. Related to the understanding of the concepts the common consensus also emphasize that safety has to do with a safe work environment, and that safety culture is related to the bigger picture. However a common understanding is present in the companies, the different paths chosen have given various explanations of their ideas. Both BP Norway and Wintershall Norway are more in agreement with research, whereas the BBS approach in Conoco Phillips Norway provides a downside. This is because the focus on individuals gives different starting points, making it difficult to share a common understanding.

Another common factor shows that management has the biggest involvement. This is most visible in Conoco Phillips Norway and Wintershall Norway as individuals must comply with the safety strategy and procedures set up by management. Furthermore, all three companies find it hard to involve their employees. However, in Conoco Phillips Norway some employee involvement can be noticed through the PSI-program, emphasizing individual contribution. This can be seen as a result of their BBS approach being a more direct approach, whereas the approaches in BP Norway and Wintershall Norway are more extensive and diffuse. The involvement of contractors, on the other hand, has not been mentioned to the same extent. This is nevertheless mentioned by the assisting organizations, who believe this is as much important as their own employees.

With regards to a creative mistrust, both BP Norway and Conoco Phillips Norway have come far, BP being somewhat more a head, by implementing many tools for being observant and for reporting, e.g. TOFS, STOP and SOC in BP Norway and PSI-courses together with the PSI-conversations in Conoco Phillips. Though, Wintershall Norway are lacking in this area, it can be explained as they have not come far enough in their merger with the parent company. This also explains some of the issues to the findings related to trust in the company. Trust is, however, greater in BP Norway as common slogans develop a common foundation through the HSE-basic. In addition, the acceptance requirement to speak out also is seen as positive by the number of tools. In comparison, Conoco Phillips Norway has more difficulties with the trust issue, as everything comes down to the individual's responsibility.

The communication is perceived as good in all three companies. However, in relation to driving a responsible culture, only Conoco Phillips Norway and Wintershall Norway can show to direct communication offshore. Wintershall Norway has especially come far, as HSE personnel are an integrated part of the operational teams, involving their employees as legitimate partners in communication. With regards to encouragement of new ideas, only Conoco Phillips Norway show signs of including this, and exceeds both BP Norway and Wintershall Norway with their BBS approach. As to continuous improvement, the HSE-basic

in BP Norway have managed to create safety thinking into every aspect of work practice, by the use of common slogans such as “½ mm” (“what do we do when we are good”) and their vision of “no harm to people”. In comparison, Wintershall Norway is yet to start their culture program, and it is therefore hard to detect. Conoco Phillips Norway tries to incorporate safety thinking through their PSI-program, by conducting role plays. However, Conoco Phillips Norway have yet to turn this into culture and must continue to enhance the safety thinking in every aspect, as the BBS role plays makes it hard to create the long lasting change.

To conclude, in relation to the Norwegian Framework Regulation § 15, all the companies perceive their safety culture as good. However, it is strange that only Wintershall Norway have assessed the change in the regulation among the companies. Nevertheless, there is a general consensus showing that it is hard to match all the requirements that the regulation encompasses. It is therefore believed that the companies will have to develop their own personalized approach or method.

Main points – safety culture approaches in comparison to evaluation criteria's

Hale's (2000) eight elements	BPN	CPN	WN
All the companies show strong commitment to safety goals, through their management, in order to keep the workplace injure free. Employees are encouraged to think about safety.	x	x	x
Information gathered shows that the all three companies have understood the aspect of safety and safety culture as the same. However, cultural approaches in BP Norway and Wintershall Norway have covered the aspect much better than the BBS approach in Conoco Phillips Norway, in relation to assistance and a common starting point.	x		x
Management has the biggest involvement in all three companies. Employees' and contractors' involvement in decision-making is generally left out in all three companies, however, the BBS approach in Conoco Phillips Norway brings in elements of involvement as individual contribution is seen as central.		x	
Both BBS and culture approaches have come far when it comes to creative mistrust, by implementing many tools for observing and reporting.	x	x	
Trust is greater in BP Norway through their culture program, as common slogans and tools create a common foundation. Here, Conoco Phillips Norway finds it more difficult, as focus is on individual's responsibility, working as a negative factor.	x		
Direct communication with employees offshore, stands out positively in Wintershall Norway, whereas the PSI-conversations in Conoco Phillips also provide a positive aspect. BP Norway's communication is more indirect, onshore, and not being offshore does not provide them direct communication when employees work at the specific worksites.		x	x
Only the BBS approach in Conoco Phillips Norway has managed to integrate encouragement of new ideas from their employees, since much is related to the individual's contribution. Both the companies with a culture approach, where management have the paramount responsibility, giving less ideas from the "sharp end"		x	
Both BBS and culture approaches can create lasting changes. However, continuous improvement and safety thinking is much better integrated in BP Norway's culture approach. The BBS approach in Conoco Phillips has a much harder road, but must continue to enhance safety thinking on a broader scope, to create lasting changes.	x		
To conclude, both BBS and culture approaches can establish a good safety culture, as BBS approaches will in turn create a culture. However, regardless of their approaches, the companies believe they have a good safety culture, but find it hard to match all requirements from the regulation.			

6.2 Present measures – are they effective enough?

When implementing various safety culture approaches or tools, it is important to carefully choose the right measures, e.g. what is necessary in a measure to get a desired result. However, effectiveness within safety culture can relate to many things, as organizations might look at the desired effect in terms of the business aspect and economy or social responsibility in terms of effects on the external society. As this assignment has focused on safety culture in relation to unwanted accidents and incidents in organizations, the desired effect will relate to a reduction in the possibility of an unwanted event taking place (Antonsen, 2009). Looking at the interview results there is a general diversity between the different organizations perception to whether present measures give the desired effect.

BP Norway emphasize that in order to reduce the number of unwanted events, changes in employees attitudes are important. As such, they have implemented the HSE-basic course seen as the right approach. The informants have highlighted that this is because the HSE-culture program is not directed towards the individual, and as such, creates a common sense making e.g. by use of common slogans. Furthermore, many tools like SOC, STOP and TOFS are highlighted as important since management are able to come in dialogue with the employees. This finding corresponds to other research on successful implementation of a safety culture program, engaging the upper management (DeJoy, 2005). However, the informants highlighted that too many tools would also work against their purpose, as employees would not see the intended purpose.

Moreover, safety culture in BP Norway is measured in relation to statistics, where it is highlighted that management only provide follow-ups when needed. The informants, however, are sceptical to this approach and believe observation is a much better approach to detect safety culture. This is because they believe statistics cannot prevent accidents as it only can be used to predict the safety performance. As such, it shows strong resemblance to what other researchers like, DeJoy (2005), Zohar (2008) and Tharaldsen (2010) have show on safety performance. Due to this fact, there is a general perception that the current measures in BP Norway do not give the desired effect as they do not observe their employees offshore.

In Conoco Phillips Norway it is highlighted that individual contribution is the most important aspect to get a desired effect, as it is the individual that constitutes the last safety barrier. Conoco Phillips emphasize that they have experienced a positive trend, taking a more bottom-up approach through their BBS tool and do so forth believe this approach will give them the desired effect. The respondent highlights the use of different PSI-courses and workshops as important, where actors are hired to conduct role plays in order to enhance the safety thinking. As such, leaders and employees participate in these role plays, ensuring a more dynamic and fun filled learning experience.

In order to map the effect, Conoco Phillips Norway carries out employee opinion surveys which they believe are able to show the current state in relation to safety. However, a general consensus in Conoco Phillips Norway highlights that quantitative measurement cannot alone mirror the company's safety culture. Conoco Phillips Norway emphasize that feedback from many sources (offshore observations together with surveys, authority, customers etc.) must

also be used in order to get sufficient information about the effect of their measures. As such, I see my initial argument on safety culture and climate based on shown research (Guldenmund, 2000; Zohar, 2008) as significant, where I argue that safety climate can only use statistical techniques to indicate safety performance and the problem areas.

At Wintershall Norway no present measures are available. However, a culture program is under development in 2011. They believe that in order to get the desired effect it is important look at the totality of the work. Wintershall Norway emphasizes that no culture program alone or one single measure, can give the desired effect, as totality of the work entails to work well in all areas. As such, Wintershall Norway shows strong resemblance to research conducted on a sound HSE culture (PSA, 2010). However, it is highlighted that much of their opinions at the moment are bounded to the fact that they are in discussions with their parent company, and hence, Wintershall Norway are not sure how this will affect their work on later stages.

Wintershall Norway is strong believers of qualitative methods and possesses rather sceptical thoughts towards quantifying culture. However, they believe quantitative methods can work as a contributive factor. As such, it is emphasized that statistics are recorded, but are not shown to their employees and as the respondent put it:

HSE personnel: *We do have statistics, but we purposely do not show it to our employees. With quantifying injuries and saying we are doing well, we do not want our employees to think it is ok to have a few accidents. We do not want to be conceited.*

In the PSA it is highlighted that the organizations need to take a holistic approach. As such, the PSA developed the HSE culture pamphlet, perceived as the right tool for assisting the organizations to develop a sound HSE culture. The PSA emphasizes that as the regulation is rather broad they keep an open mind to the various oil companies' approaches. They believe this is important because it makes organizations develop their own culture, and hence, managements need to be more visible. This is in accordance with research on safety management practice (Mearns et al., 2003). The PSA highlight that they are very careful in saying that the companies have good or bad culture. As such, the PSA have no concrete requirements for measuring the safety culture, but believe organizations must work qualitatively well in order to get a desired effect.

In Industri Energi, union representative emphasizes that safety culture programs is the right approach. This is because it gives the employees the possibility to see safety from another standpoint. Furthermore, in order to get the desired effect, they highlight the use of follow-up in all areas of the organization in order to ensure continuous training. As such, they believe all measures taken towards safety are positive contributors and serve as good approaches to reduce unwanted events. However, some issues are present due to the large number of measures. This is because there are too many courses and projects which have shifted the focus towards having different tools for various scenarios, rather than how good these tools are. The respondent also highlighted that safety culture indicators are not used directly as there are some risks attached to use of such indicators. The word indicator should, as such, be taken as the word implied.

In SfS it is emphasized that the most important thing is ensuring competence. Safety culture programs are, hence, seen as an important part to do so. The introduction of such courses, with focus on HSE, is identified as a significant aspect. Furthermore, it is seen as important that these programs clarify the company's values and goals stated through the management. However, carrying out such programs once will not give the desired effect as sufficient follow-up is needed. As such, SfS highlights that the companies have much to do in order to reach the desired effect.

Summing up common factors and challenges

The above mentioned measures are what the different organizations believe are important when trying to improve the safety culture. As they represent different aspects of the Norwegian oil industry it is natural that their views present a lot of variety in whether present measures are effective enough, and what they consider as necessary to get a desired effect.

A general consensus is that a company's safety culture approaches should engage the upper management, e.g. SOC/TOFS/STOP in BP Norway, PSI-conversations in Conoco Phillips Norway and the management's visibility in terms of exertion of values and goals from the PSA and SfS. This finding is in accordance with what other research as shown that management commitment towards safety is related to successful implementation of safety measures (Mearns et al., 2003). Furthermore, the research conducted by Rundmo & Hale (2003) also indicated that high commitment to safety was given in order to prevent accidents.

Another trend clearly shows that organizations do not believe that quantification can mirror a company's safety culture. Instead, the organizations believe statistics can only present an indication of a problem area. This shows clear relation to studies conducted on safety climate (performance) and culture (Guldenmund, 2000; DeJoy, 2005; Zohar, 2008; Tharaldsen, 2010). The results also demonstrate that the issue of quantification also supports safety theory, as quantifying risk will have the purpose of supporting all decision making in every company, hence, serves as a layer in the Reason's (1997) "Swiss Cheese Model".

It is, however, strange that the companies say they do not believe statistics can mirror the safety culture, but do, nevertheless, use these statistics to say they have a "good" safety culture. This is a very interesting finding, as the companies support my initial partition and clarification of the concepts in theory, but demonstrate difficulties in actually carrying this out in practice.

Even though many of the measures introduced are seen as good, there can be seen some challenges. One challenge is, here, related to the carrying out of HSE culture approaches. Informants at both Wintershall Norway and SfS mention that only having one HSE culture approach will not give a lasting change. This is also highlighted by Industri Energi, where it is highlighted that employees need follow-up approaches in order to maintain knowledge. However, BP Norway mentioned that they only provided follow-up when it was seen as needed. As such, it contradicts the shown research on wanting organizations to act generative, where it is important to actively seek relearning (Reason, 1997). This is seen as interesting, as the companies will have to follow-up continuously, even when performance is "bad".

Another challenge is presented through the number of tools. Informants in BP Norway and the trade union mention that even though these tools have good intentions, the existence of too many tools will work against its purpose as employees will end up not seeing the importance. This is because it can be hard for employees to extract the learning from each new tool when there are only small changes in their use, e.g. by having new culture modules presented several times in a year, can be seen as too much when trying to understand the small changes together with working properly during an operation.

Main points – What ensures a desired effect?

- Create ownership and engage the upper management together with leaders to exert the values that are set up, together with creating a dialogue. Employees will then feel that this is not only made for them and will get positive influence by following their leaders.
- Use indicators on safety performance only as a contributive factor and not as the final answer for safety culture. This will eliminate the possibility of feeling conceited and continuous work on safety culture will always be present, as the desired effect is related to continuous improvement, not quantifiable numbers.
- Working well in each area, not only safety, as each element within the HSE ultimately poses an effect on the other, e.g. safeguard employees' health as this can affect how they carry out an operation.
- It can be difficult to only have one HSE culture approach as it may not give a lasting change in attitudes. Employees need follow-up approaches offshore in order to maintain their knowledge, especially when they are rotation.
- Too many tools introduced in short amount of time is a challenge related to the employees understanding and the importance given. Rapid introduction to new tools will, hence, work against its purpose and the employees will see the tools as one of many and end up not seeing the essentials.

6.3 Shared responsibility or compliance?

As an important factor for a sound HSE culture the regulation encompasses that a sound HSE culture should be present in all areas of an organization. When implementing different approaches, it is therefore important to have a common understanding of the purpose, e.g. if management and employees have a common framing. This is important as one can implicitly understand that if no common framing developed within the organization, it can be hard to create a common understanding for the entire industry. Research has also suggested that it is vital to understand the importance of including all employees in managing safety, which in turn creates a shared purpose for safety (DeJoy, 2005; Engen & Lindøe, 2008).

In BP Norway there is a clear emphasis that management has the bigger responsibility in, e.g. by bringing along the rest. This is because if management has a bad representation of HSE this will affect the behaviour of the employees. However, informants mention that even though management are given the biggest responsibility, this does not apply that employees are exempted. This is in accordance with other research emphasizing that even though management hold a strong influence employees also affect themselves (Hovden & Larsson,

1987). Involvement is therefore underlined as the key factor. This, alongside with various tools, e.g. STOP-cards, have contributed to a better acceptance requirement.

BP highlight that they believe management are good role models, but informants mention that a challenge still lies with the middle leaders. This is because a lack in culture can be seen in the middle management where top management commitments are not reflected to employees. This contradicts the other studies on compliance to organizations safety policies, as compliance to these commitments are interrelated to safety culture (Hale & Borys, 2010). In result, BP Norway mentions that employees do not have the same understandings and are not sure whether employees perceive this as culture or compliance. Finally, BP Norway mentions that a best practice framework can, as such, not be created as there are too many different approaches in the industry.

In Conoco Phillips Norway it is emphasized that the main responsibility is in the line management, however, the safety strategies are set by the top management. The introduction of these requirements goes further down to each individual who drive this forward. This is because Conoco Phillips believes the individuals are a vital aspect where communication is considered the key factor. Due to this reason, Conoco Phillips Norway has highlighted that employees possess a common understanding. Moreover, Conoco Phillips Norway emphasizes that employees are not fully comfortable to speak out and intervene. In result, the many rules set up by management and the focus on individual behaviour has made Conoco Phillips Norway's approach a rather rule compliant culture. However, they emphasize that as a large company, it is hard to detect whether employees feel rule compliant or see it as meaningful. A mixture of best practice and the culture programs should therefore be emphasized.

In Wintershall Norway it is emphasized that both management and employees are responsible to drive a healthy HSE culture, where management set the premises. This is because employees cannot follow procedures correctly unless the requirements are put down. A general perception in Wintershall Norway is that management and employees have the same understanding. The present involvement of HSE personnel in operating teams is seen as a vital part in securing this. As such, it is emphasized that with this involvement, the culture can only be seen as culture if employees are motivated and explained why the requirements are not compliance. Reflection is therefore seen as a key factor, which Wintershall Norway do not believe a best practice can provide.

According to the PSA every employee in an organization has the responsibility in relation to HSE. Management is, though, given the paramount responsibility to set requirements, tried to problematize in the new culture paragraph (Norwegian Framework Regulation §15). The PSA emphasize that management must convey the organizations values and visions in order to be good role models. Observing this on a day-to-day basis is seen as important. This is because employees act according to their leaders and these actions can, thus, turn into shared values and assumptions. This is in accordance with other research where the espoused values and beliefs are the shared values that predict the behaviour in an organization (Schein, 2004).

Industri Energi highlight that the main responsibility is with the management. It is perceived as important that employees also contribute when management have set the framework

conditions for safe operation. If management do not implement measures and act accordingly, employees will not be compliant with the organizations commitment. A general observation shows that management gives focus to statistics, while employees are more hands-on. To create a common understanding it is perceived as important to minimize this gap. Various tools found offshore are seen as important, as they generally enhance the acceptance requirement. However procedures are seen as important to increase safety, Industri Energi highlight that compliance to these tools is seen as bothersome. It is therefore emphasized a mixture between compliance and shared responsibility, as it narrows down the scope, but does yet provide own thinking.

In SfS it is emphasized that management has the greater responsibility. This is because in a strong culture, management will have to take initiative and tell employees what is tolerated and not. The focus on management setting the requirements shows that SfS believe employees must be rule compliant. SfS highlight that there are too many rules and procedures which makes it hard to see whether employees perceive it as culture. Furthermore, SfS mention that management and employees do not have the same understandings. As management introduced new things, tools performed before operations are often seen as exclusion of liability. In result, employees end up feeling like scapegoats if something goes wrong.

Summing up common factors and challenges

The above mentioned views sum up what how the different organizations think in relation to responsibility and compliance. As a main summary it can be safe to say that responsibility and compliance is an issue the organizations have yet to sort out. It should therefore be used more time upon the topic in order to map how this is perceived. Some common features and differences are, nevertheless, found in order highlight the current understandings between management and employees.

The common pattern illustrates that management poses big influence, given the bigger responsibility, e.g. being visible in BP Norway and setting framework conditions in the PSA. This counts also for the Wintershall Norway and the trade union, where management must set the requirements. As such, it corresponds to other research, as management practice is central to affect safety (Antonsen, 2009). However, a general consensus also shows that the companies believe the employees also need to take responsibility, but can only do so if the framework conditions are provided. These findings are in accordance with other studies emphasizing that employees also pose an affect (Hovden & Larsson, 1987). In relation to the BBS approach chosen by Conoco Phillips Norway, leaving safety to the lower levels, this is also in accordance with research on the similarities between the safety culture programs and the BBS approach. Here, the BBS approach may leave safety to the lower levels in the hierarchy, but must even so have support from the management (DeJoy, 2005).

In light of management being good role models, there is a trend showing that the organizations safety policies are being followed where management act accordingly. In four of the six organizations it is mentioned that top management are visible in the organizations, acting according to the safety policies set up. This is in accordance with other research indicating that someone's beliefs and values (management) can create shared values and

beliefs in the organization (Schein, 2004). Moreover, compliance with this safety strategies also interrelate to safety culture, as rule-compliance is an important part of a safety strategy where organizations make rules for the workers to follow (Hale & Borys, 2010; Hopkins, 2011).

Even though there is believed to be some consensus between management and their employees, they are yet to get a fully common framing. In two the six organizations, the informants indicate that the acceptance requirement to speak out is perceived as good. This, due to the various tools put in place. However, the remaining organizations have been rather unsure and have either not give any comment or highlighted that employees are not always fully comfortable. An interesting finding show that both Conoco Phillip Norway's and Wintershall Norway do not perceive the acceptance requirements as 100 %, as they believe the ability to want to intervene varies from individual to individual. This can be seen in relation to other research on individuals risk perception, where employees might be less likely to intervene because they believe these behaviours have little influence on accidents (Rundmo & Hale, 2003; Henning et al., 2009).

It is also important to keep in mind that the companies have talked about the acceptance requirement between their employees, but none have mentioned how this would be perceived if employees would have said "stop" to their own management. This can be seen as a pitfall when actually looking into the acceptance requirement in practice, as it is not clear whether employees are comfortable enough to speak out against their management.

Looking at the main summary presented at the top of this chapter, another challenge is related to the employees' perception of seeing the organizations activity as culture or compliance. This is perhaps the most important aspect of this subchapter, as a common understanding is preferred in order to further create a common understanding in the industry. However, the common consensus mentions that this is a challenge. Two different reasons stand out in the six organizations. Firstly, it has to do with management. It is mentioned that safety culture can be perceived as culture if management are good role models. Employees must not feel that requirements are only meant for them and explained the purpose of these rules and procedures. Secondly, it is the number of rules and procedures. In two of the six organizations it is mentioned that procedures and rules are seen as bothersome. This shows resemblance to research on compliance. As rules and procedures are rather general in their use there might come occasions where workers will judge them as unnecessary (Hopkins, 2011). As such, an interesting measure can be to either implement culture programs for the management, relating to the PSA's top management focus. Such a measure may, in result, train the management in being more prominent, and how to communicate the purpose of safety better.

Main points – a common understanding of safety culture

- Management are given the main responsibility, e.g. by setting framework conditions. Employees have the responsibility to follow and act accordingly.
- Management needs to be good role models. Follow organizations safety policies. Management programs may be developed to make them more prominent role models.

- Acceptance requirement in relation to intervene can be a challenge in every organization. Various tools can work as a contributive factor to help to help employees in the “sharp end”. However, it is important to assess whether the acceptance requirement is not only words, but practice, as one cannot be sure if employees dare to speak out against their management.
- Ambivalent understandings on whether employees perceive safety culture as culture or compliance. Two challenges are identified related to management being good role models, and the number of rules and procedures in order for employees to not to rule-compliant.
- Best practices cannot be defined for all the companies, as the companies have too many different tools. A mixture is possible as it can narrow the scope, but still includes own thoughts. A superior framing can be established, but needs to fit according to hazards and dangers at specific company.

7 Approach for establishing a good safety culture

The overall consensus in the organizations show that safety culture is perceived as good, but according to the companies the Norwegian Framework Regulation § 15 can never fully be met. It can therefore be safe to say that the desired effect is not reached. The challenge is therefore to develop an approach which can target each aspect the Norwegian Framework Regulation § 15 encompasses, in order to establishing a “good” safety culture in the industry.

The data collected has shown that the culture approach and the BBS approach are better in some areas compared to others, each having their advantages. To establish a “good” safety culture it is utmost important to have a common starting point. This is more easily integrated with a culture program in order to share common visions and goals, changing our basic assumptions. Regardless if a culture approach or a BBS approach is chosen the upper management and leaders needs to show commitment and act as good role models, according to the values that are set up. Employees will then get positively influence by following their leaders, increasing the importance of direct communications as a medium. The BBS approach is, though, seen as a better approach concerning involvement of employees as individual contribution is seen important. The focus on individual contribution has also shown an increased encouragement of new ideas from employees. By having several tools in place both approaches are able to make their employees more observant and willing to report. However, the culture approach makes it easier to create a climate of trust compared to the BBS approach, since each individual sees their role as a part of the whole. To conclude, data shows that culture programs are more prominent to create a lasting change in comparison to a BBS approach. However, it is important to acknowledge the importance of the BBS influence. In result, it is suitable to have a culture program with elements of BBS methods in order to fully match all aspect in the Norwegian Framework Regulation § 15.

Implementation of such an approach can, however, not give the desired affect alone. This has been a significant issue over the recent years. Several contributive factors also play a vital role in the successfulness of the chosen approach. One issue has been the evaluation of the success. From previously assessed approaches, much weight has been put on the use of statistics. Statistics can, however, only give an indication and does not provide the final answer to whether a “good” safety culture is present. Safety culture is by meaning very hard to detect and qualitative methods must, therefore, be used in order to evaluate the success of an approach, in relation to continuous improvement. Ensuring that safety is seen in relation to HSE also constitutes a vital part of the success, as employees’ health is as much related to the safety, in comparison to injuries on worksite. Difficulties may also arise if a HSE culture approach is carried out once, as it may not give lasting changes. Follow-up measures must be available for both onshore and offshore personnel to maintain their knowledge. However, too many measures introduced rapidly will also contribute as a negative factor if employees do not understand the purpose. A careful selection and implementation should be done in order for employees to see the essentials.

Based on the various findings in this assignment, a “good” safety culture approach is presented by the following table:

Table 15 Suggested approach and methods for establishing a "good" safety culture.

Understanding

A common framing must be in place before starting, e.g. visions, common slogans and meaning of safety. This is vital, in order to ensure that everyone knows the necessities and advantages of the program. It will ultimately provide an opportunity to establish common values and beliefs, and in turn, pose an influence on employees' basic assumptions.

A shift in the understanding of the safety culture has shown a development from being a safety aspect, to focus on the whole HSE notion.

Commitment and communication

Upper management together with middle leaders must take the bigger responsibility to make sure safety comes before all other conflicting goals. Need to be visible and act as good role models, by following the organizations vision, safety policies and goals. A management program can be established for top management and leaders, in order to enhance their understanding and commitment. Provide individuals with essential support and training. Must not overlook the importance of own employees involvement.

Establish direct communication between HSE personnel and employees offshore, to ensure less complexity. This will reduce difficulties in the flow of information, ensure proper feedback and make employees legitimate partners in safety communication. Management and HSE personnel must be a vital part in the operational teams.

Involvement and encouragement

Various arenas must be established in order to involve every worker in the company, e.g. employee participation in meetings, development of culture modules and tools. This will create a sense of ownership, where everyone can share the purpose of safety. Vital to ensure that contractors also are included, as they constitute a vital part of the operations, bringing other a variety of cultures and work methods.

Development and meetings should include personnel from management, safety representatives, "sharp end" (both permanent employees and contractors). The remainder stakeholders and affected parties should also be included in collaborative arenas.

Opportunity e.g. where employees can come with new ideas for safer work practice, should be developed in order to encourage and secure relearning in the organization. This brings in elements from the BBS approach, giving an influence on the culture.

Trust and creative mistrust

Include tools for both observation and reporting. Important to create two types of tools for observation. Firstly, for members to observe own work practice in order to constantly be aware hazards at work place. It should also provide employees the ability to lower their acceptance requirement for stopping hazardous operations and unwanted actions. Secondly, for management to systematically observe work and create a dialogue with employees in order to assess the culture, maintain barriers and promote good practice.

Reporting tools should also be available as it will ensure continuous risk awareness, and hence, relearning about other incidents. This will ultimately ensure that employees do not get conceited and remain sceptic to work performed.

Development of common slogans, visions and tools increases trust between employees, as a common foundation is established. This also helps the acceptance requirements in relation to speak out, when employees are comfortable and trust each other.

Continuous improvement

The importance of developing and establishing an understanding to safety and that safety thinking should be in every aspect so it is seen as an inseparable part of every work practice (ensuring organizational learning). The introduction of common slogans, reporting tools, role plays and other follow-up tools, can be used to create a lasting change. This will ultimately reduce the number of accidents and ensure continuous reflection, where continuous improvement can be characterised by the ability to identify and react to danger signals.

It is important to note that, though there are five points in the previous table, it encompasses all of the eight elements essential for establishing a “good” safety culture. This is because some of the elements are more easily discussed in relation to the other and have so forth been set up in the same frame. As such, it provides a simplification, giving some key words as a checklist for fulfilling the proposed approach:

Key words which can be used as a checklist, when establishing a “good” safety culture:

- Common framing
- Ownership
- Offshore communication
- Employee participation
- Collaborative arenas
- Relearning
- Observant
- Reporting

Even with an approach suited to encompass the Norwegian Framework Regulating § 15, the most interesting finding has shown that, in this point in time, there cannot be defined a best practice for all organizations. Since the various oil companies see their own safety culture approaches and methods as the most preferable, as they have spent much money and time in development, a common method for establishing a “good” safety culture can be hard to develop. In present time organizations are more tied up with personalizing own methods. To conclude, this shows that a common practice in the industry in relation to safety culture is, in present time, not desired as organizations are yet to mature in order to successfully agree upon a common approach or method for the industry. The safety approach presented in table 15 can, thus, provide a superior framing for the industry when the companies are ready for a change. However, it is important to keep in mind that each approach will have to be made according to the risks and hazards presented at the different companies and locations.

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Appendix 1: Interview Guide

Bakgrunn:

- Fortell meg litt om deg selv
- Navn, arbeidsplass, stilling, erfaring

Sikkerhetskultur:

- Hva legger du i ordet sikkerhet? Hva vil det si å være sikker?
- Hva legger du i ordet sikkerhetskultur?
- Hva mener du et selskap med god sikkerhetskultur må ha? Hva er viktig?
- Hva legger du i ordet HMS-kultur? Hva tenker du om forskjell/likhet i forhold til betydningen om sikkerhetskultur i denne sammenheng?

Arbeidsmåter og metodikk der du jobber:

- Hvor ligger fokuset på HMS-kultur hos dere?
- Hvem skal ha den vanskeligste jobben for skape god HMS-kultur – ledelsen eller de ansatte?
- Hva blir gjort hos dere for å få til en god HMS-kultur?
- Ser du på denne metoden eller tilnæringsmåten som den riktige veien å gå for å nå visjonen deres?
- Hvilke begrensninger og hindringer finnes? Hva kan bli gjort bedre?
- Har du noe tanker om hvordan akkurat denne metoden kan tas ”ett skritt videre” for å etablere en felles HMS-kultur i bransjen?

Sikkerhetskulturprogramr:

- Har dere sikkerhetskulturprogramr? (Er dette obligatorisk hos dere?)
- Hva er din holdning til sikkerhetskulturprogramr? Er det den beste fremgangsmåten?
- Forskning og en del praktikere antyder at utviklingen av slike programr ikke er effektive nok til å skape en varig forandring. Hva er dine tanker om dette?
- Hva opplever du som den største utfordringen knyttet til slike programr?
- (Har sikkerhetskulturprogramr gitt den tiltenkte effekten? På hvilken måte?)
- (Merker du noe forskjell i atferd ved gjennomførte programr? Hvordan?)
- (Hvordan følger dere opp dette hos dere? Er det godt nok?)

Sikkerhetskultur indikatorer:

- Vil du si sikkerhetskulturen hos dere har bedret/forverret seg over de siste årene?
- Har dere noe måte å måle og vurdere om dere har en god HMS-kultur?
- Mener du sikkerhetskulturindikatorer er en god nok måte å gjenspeile sikkerhetskulturen på?
- Føler du at du får tilstrekkelig med informasjon og tilbakemeldinger for å skape en god HMS-kultur?

Bedriftspesifikke:

- Legger du merke til noe umiddelbare forskjeller i hvordan ansatte her og ansatte ved kontraktørselskaper opererer med tanke på å utøve arbeid på en sikker måte?
- Tror du ledelsen og ansatte har en felles oppfattelse av hva som er god HMS-kultur?
- Er ledelsen gode rollemodeller for god HMS-kultur?
- Hvordan er holdning til sikkerhet vs. produksjon? Skaper dette konflikt?
- Hvordan føler du akseptnivået er for å fortelle noen at de ikke jobber sikkert? Er dette lett eller vanskelig?
- Hva tror du er holdningen til ansatte – Tror du de ser på sikkerhetskultur som noe de må gjøre for å følge regler og prosedyrer?

Myndighet/Organisasjon spesifikke:

- Hva tenker du om endringen av Rammeforskriften § 11 til § 15? Er det lettere å tolke den nå kontra tidligere?
- Hva mener du er hensikten med å ha en slik åpen lov?
- Tror du det hadde blitt bedre/verre dersom man konkretiserte Rammeforskriften § 15?
- På hvilken måte tror du Rammeforskriften § 15 sikrer en bedre HMS-kultur?

Arbeidsmåter og metodikk for fremtiden:

- Basert på det du har nevnt om god sikkerhetskultur. Hvilke tiltak og metoder mener du kan bli brukt for å skape en felles overordnet forståelse om hva som er god HMS-kultur i oljebransjen?
- Tror du det kan bli definert noe metode for ”best practice”, eller kan fokus på å ha ”safety program” være tilstrekkelig nok for å få den tiltenkte effekten?

Avslutning:

- Tror du det noen gang det vil bli en felles forståelse av HMS-kultur i bransjen, etter dagens forskrift?
- Hvilken betydning tror du denne oppgaven eventuelt kan ha innen dette feltet?

Appendix 2: Information letter

Jeg er en masterstudent i Helse, Miljø og Sikkerhet, Institutt for Industriell Økonomi og Teknologiledelse ved Norges teknisk- naturvitenskapelige universitet (NTNU) i Trondheim. I samarbeid med BP Norge AS skal jeg skrive en masteroppgave med fokus på hvordan man kan skape en god HMS-kultur i forhold til Rammeforskriften § 15, og evaluere forskjellige tilnærminger og metoder brukt i oljeindustrien. Med dette ønsker jeg å undersøke hva forskjellige parter i oljeindustrien ser på som essensielt og nødvendig for å skape en god HMS-kultur, og med dette kunne foreslå en metode egnet for å skape en god HMS-kultur i forhold til Rammeforskriften § 15.

Jeg ønsker å benytte meg av opplysninger som samles inn under intervjuene. I forkant av intervjuet vil jeg derfor rette en forespørsel til deg om å la meg bruke opplysningene i min masteroppgave. Jeg vil presisere at det er frivillig å gjøre disse opplysningene tilgjengelige for bruk i masteroppgaven.

Samtykke kan trekkes tilbake så lenge studien pågår uten at man må oppgi grunn. Det vil kun være de som er ansvarlige for masteroppgaven som har tilgang til opplysningene om hvem som deltar i studien. Opplysninger om hvilke data som benyttes videre i prosjektet, vil kun være kjent for oss.

Spørsmålene som vil være interessant for meg å stille vil dreie seg om hvilke tiltak og metoder som blir brukt for å skape en god HMS-kultur, hva man ser på som essensielt, og tanker om hvordan dette kan brukes videre for å etablere en god HMS-kultur. I tillegg til disse spørsmålene, vil det være noen konkrete spørsmål om hvor fokuset på HMS-kultur ligger hos dere.

Under intervjusituasjonen vil det bli benyttet en båndopptaker, for å sikre at viktig informasjon ikke går tapt. Det vil også bli benyttet notater, om dette skulle være nødvendig.

Som masterstudenter har vi taushetsplikt, og all data behandles konfidensielt. Som følge av dette vil ingen enkeltpersoner kunne gjenkjennes i den ferdige oppgaven. Dersom dette likevel skulle bli aktuelt vil jeg be deg om samtykke til dette i forkant. For og ytterligere sikre anonymiteten og opplysningene brukt om deg, vil dette bli sendt til deg for samtykke, slik at du som enkeltperson selv kan verifisere at du ikke føler deg utsatt og stå inne for det som er skrevet. Det vil imidlertid være mulig for en intern personidentifisering av kollegaer, men det vil ikke være mulig for eventuelle eksterne lesere å identifisere deg som enkeltperson. Opplysningene anonymiseres og slettes når oppgaven er ferdig, innen utgangen av 2011.

Studien er klarert med Personvernombudet for forskning, Norsk samfunnsvitenskapelig datatjeneste A/S.

Veileder på masterprosjektet er Jan Hovden ved NTNU: jan.hovden@iot.ntnu.no

Kontaktperson i BP Norge AS er Bjørn-Ivar Amundsen: bjoern-ivar.amundsen@no.BP.com

Med vennlig hilsen

Karan Saggi

Tlf.: 40882581 / mr.saggi@gmail.com, saggi@stud.ntnu.no

Samtykkeerklæring:

Jeg har mottatt informasjon om studien skriftlig og muntlig ønsker å stille på intervju.

Signatur Telefonnummer