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## Summary

This thesis qualitatively covers how and why leadership, competence, responsibility and contractors influence compliance with procedures, and whether or not there are other factors that may potentially influence these organizational factors and the relationship between them.

The theoretical approach in this thesis is based on an MTO perspective in regards to assessing factors that may influence leadership, competence, responsibility, contractors and compliance. Compliance with procedures is regarded as safety critical behavior, and the relationship between leadership, competence, responsibility, contractors and compliance has been discussed in light of the data collected and theory found on the subject.

A qualitative approach has been used to answer the research problems in the thesis, and nine informants have been interviewed using semi-structured interviews. The informants have, between them, covered a large amount of roles and positions from within the organization where the study was conducted.

Important findings in the study include support to the assumption that leadership, competence, responsibility and contractors are all connected to, and affect, compliance with procedures. Leadership will affect competence through leaders' influence on training and development, and their responsibility to ensure a worker has the right competence. In the same way leaders affect compliance through keeping a focus on compliance and involving employees, as well as leading by example. It seems to be important to keep a balance between a worker's responsibilities and authority, which can be considered to be a leadership task. Also leaders should ensure involvement, inclusion and follow-up of the contractors in order to facilitate compliance. Compliance with procedures was considered impossible without some sort of competence, and it seems important that workers feel a responsibility for what they do, in order to improve compliance. In regards to contractors, unfamiliarity with procedures and inhibitions to give feedback were some of the factors revealed that affected compliance negatively.

Finally, the study revealed several other factors that influence leadership, competence, responsibility, contractors and compliance, as well as the relationship between them. The most important ones identified were availability of procedures, lack of knowledge, design of procedures, understanding the importance of compliance and conflicting demands.

## Foreword

This thesis represents the final part of my master's degree in societal safety. In connection with the execution of it, there are several people who deserve thanks.

First of all I would like to thank my supervisor, Espen Olsen, who has contributed with good and useful advice throughout this process. Thank you for your interest and time in creating this thesis, which was both interesting and rewarding to do.

Secondly, I would like to thank my informants who made this study possible with descriptive and insightful statements about the topic. Thanks for making time for me in your otherwise busy schedules.

Finally I would like to thank classmates and family for the support and motivation they have offered throughout this process.

Ida Skaugrud.

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# 1. Introduction

## 1.1. Justification for the choice of the task

The petroleum industry comes with a high risk potential for accidents that can have significant consequences, both to the environment and workers involved. The Petroleum Safety Authority Norway (PSA) has registered 329 personal injuries from 2009 which filled the criteria of death, absence into the next shift or medical treatment. One of these was an accident which led to the death of a worker. Additionally 178 injuries were reported, 64 of which were classified as recreational injuries, and 114 injuries classified as first care injuries, (Petroleumstilsynet, 2009). Given this potential for accidents, research into the organizational causes of accidents can help point the way for the organizations involved towards a safer organization with less injuries.

Although many companies investigation reports provide a good overview of how human and technological factors contribute toward unwanted incidents, PSA has raised concern that different companies' investigation reports lack an adequate illumination of organizational factors. Their experience is that organizational factors concerning structural conditions are included, but factors related to for example cultural conditions, management conditions and others are clarified to a lesser extent (Thunem, Kaarstad & Thunem, 2009). Looking closer at these factors can therefore contribute to the knowledge of how organizational factors affect safety.

This thesis and its research questions are based on findings made in a previous survey within a production company that operates in the Norwegian petroleum industry, (Dahl & Olsen, 2011). This survey led to a structural model that aims to explain how five different organizational factors are connected and affect each other. The five organizational factors in the structural model are leadership, competence, responsibilities, contractors and compliance. This structural model found statistical connections between the five organizational factors. In order to more extensively test this model and discover other possible organizational factors a qualitative study was done, which is the focus of the thesis.

These five organizational factors are in some way included in the regulatory requirements of organizations in the petroleum industry. First of all, according to the Framework Regulations, (Lovdata, 2010) "the operator shall have an organisation in Norway that, on an independent basis, is capable of ensuring that petroleum activities are carried out in accordance with the regulations," (Section 12). The operator shall also ensure that anyone who carries out work

has the competence necessary to carry out such work in a prudent manner (Section 12). In other words the organization has to ensure that its employees are competent to do the work they are supposed to do, and that the organization is able to fulfill its purpose in a safe way. Secondly, section 17 states the organizations duty to establish, follow up and further develop a management system designed to ensure compliance with requirements in the health, safety and environment legislation. Contractors are regulated in section 18, stating that “when entering into a contract, the responsible party shall ensure that the contractors and suppliers are qualified to fulfil the regulatory requirements relating to health, safety and the environment. Furthermore, the responsible party shall follow up to ensure that the participants comply with the requirements while performing the assignment in the activities covered by these regulations.” It seems the presence of these factors in regulations concerning the petroleum industry is an indicator of their importance, and warrants further study of how they affect each other and compliance.

**1.2. Background**

The background for this thesis is as mentioned over a structural model (below) developed by Dahl and Olsen (2011).

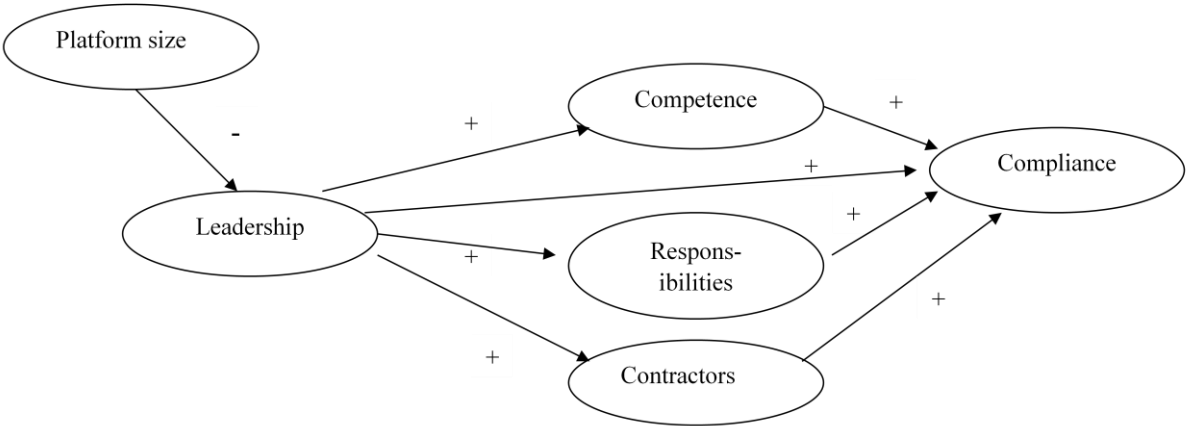


Figure 1: Structural model develop by Dahl and Olsen (2011)

The structural model involves five factors. The first factor, *leadership*, measures the level of safety leadership. Leadership here is defined as active participation in planning, facilitation, and follow-up of work, contributing to cooperation between involved groups or units. Further, *competence* measures the level in which contractors are involved at work and is defined as the degree of participation and influence, receiving of necessary training, and utilization of competence. Third, *responsibilities* measure the unambiguousness of the responsibilities and authority for the different positions. Here it is defined as the clarity of competency requirements, responsibilities and authority related to a position. The fourth factor, *contractors*, measures the level of follow up of the contractors as well as their feedback. In this thesis this is defined as to which extent contractors receive necessary training and are followed up in regards to their work and feedback. *Compliance* is the fifth factor in the model and measure the degree of compliance with management documentation. Here, compliance is defined as using management documentation in the planning, preparation and execution of work, dealing with discrepancies in accordance with governing documents and using “safe job analysis” in the implementation of risk-prone tasks. The definitions of the five factors above are all based on definitions from the previous study (Dahl & Olsen, 2011).

The model describes a relation between the five organizational factors. Leadership has a positive effect on competence, responsibilities, contractors and compliance. And competence, responsibilities and contractors also have a positive effect on compliance. Furthermore these five factors are negatively correlated with personal injuries (Dahl & Olsen, 2011), which indicates the importance of more research on these factors as a way of reducing the frequency of injuries.

While there was a statistical relationship found between these factors in the study the model is based on, one can argue that further research is necessary to gain a better understanding, enabling an organization to use the findings in a way that leads to reduction of non-compliance behavior and a reduction of accidents or incidents. The role played by platform size will not be studied in this thesis.

There are several reasons to study this model qualitatively. The first is that this model is based on a survey that only included the five organizational factors leadership, competence, responsibilities, contractors and compliance. This means that other variables that were not part of that study may have a large impact on compliance, only since they were not included in the survey, their importance was not examined. This means that a greater part of



organizational factors might not show in the model simply because they were not included in the survey.

Secondly, the structural model does not include contextual factors such as time pressure, stress, organizational culture and so on. It is likely that these contextual factors have a role to play in determining how the organizational factors that were included in the survey affect one another.

Finally, the structural model explains a found relationship between the five organizational factors that were studied. It does not however reflect how the factors influence each others. Understanding how the factors affect each other is the key to understand how one can organize to enhance compliance, and reduce accidents.

#### **1.4. The goal of the thesis**

The goal of this thesis is to study how and why the five organizational factors from the structural model affect each other qualitatively. This includes studying the context that may contribute to compliance or non-compliance of rules. While the structural model is based on a study where five organizational factors were studied explicitly it is, as always in real life, likely that the full picture is more complicated. This thesis will therefore not focus solely on the five organizational factors mentioned before, but also open up for the possibility that other factors might be as important. It is also possible that the structural model does not show the relationship between the different factors quite as nuanced as this thesis. The relationships between the different factors might be dependent on other factors, or the factors used in the structural model might not be seen as the most important factors when it comes to compliance.

To ensure that the context included in this thesis is as detailed and comprehensive as possible an MTO perspective will be used to analyze the context within which compliance takes place. Within an organization it will be too easy of an explanation to blame non-compliance simply on employees who do not follow rules. It is likely there are combinations of reasons that can explain why some rules are followed while others are not. The same way it is likely to be a number of explanations available to explain why rules are followed in some circumstances while not in others.

Here an investigation into what can explain and affect compliance and safety critical behavior in a production based company in the petroleum industry was done. This is the overall goal of the thesis, which leads to two research problems that will be answered in this study:

*How and why do leadership, competence, responsibility and contractors influence compliance?*

And:

*What other contextual factors will potentially influence these organizational factors and the relationship between them?*

### **1.5. Why is the study relevant?**

This thesis will examine how organizational factors influence compliance within a production company in the Norwegian petroleum industry. The company in which the study takes place is an international energy company with operations in several countries around the world. The company's headquarters are situated in Norway, and the study will take place here. The goal of the company is zero harm to people. And in the strive to create a safe workplace a focus on the interaction between personnel, organization and technology is recognized as important.

Reducing accidents and incidents in work life has been an area that has been given a lot of focus over the last years. One way of reducing human errors or incidents is through effective safety management (Lu & Yang, 2010). The belief is that better safety management will decrease the number of accidents and incidents, thereby improving the organizational safety. Understanding how organizational factors influence safety behavior would give organizations the possibility to explain why employees sometimes do not comply with safety procedures. Understanding this makes it possible for the organization to create barriers or facilitate training that enables compliance to a greater degree than it already has. This is important given the number of accidents that occur in the industry, and the potential consequences these accidents may have.

### **1.6. Description of the study**

This thesis will be based on a former study of how organizational factors influence compliance, as mentioned earlier. The content of this study is based on semi structured interviews regarding the factors identified in the previous study, as well as other factors that the informants find significant, and contextual factors. The informants chosen to participate will be employees within the company where the first study took place, and inhabit a broad

experience from within the organization or the petroleum industry. Combined they will also have a broad experience both at the operational level, in the sharp end of the organization, as well as strategic, and managerial experience. This will be further explained in chapter 3 of the thesis: “Methods”. The interviews will be recorded and transcribed to ensure that the information is available throughout the rest of the study. The transcribed interviews will then make the basis for chapter 4 and 5: “Results and discussion” and “Conclusion”.

### **1.7. Theoretical context**

Through the last century there have been different trends concerning how researchers and safety personnel have approached the problem of reducing accidents. Hale and Hovden (1998) separate between three ages throughout the scientific study of safety. The first age is described as a time when the focus of safety was on how one could use technical measures to prevent accidents with technical causes. These accidents were seen as the only accidents one would be able to prevent. When the second age emerged the focus shifted to the study of human error and human recovery and prevention. The realization had been made that a technical focus could not solve all problems. In the same way one realized that matching technology with individuals would not be enough to prevent accidents either. This brought on the third age of the scientific study of safety where the focus is on management systems. From an MTO perspective the first and second age of safety can be seen as focusing on technology and man, which leaves the organizational perspective for the third age of safety. This thesis will focus on the organizational part of safety, leaving room for findings that might coincide better with the human or technological part of the MTO perspective.

While there are several areas concerning safety in an organization that might be studied, the focus of this thesis will be on safety compliance. This is however just part of what is being studied in regards to studies on workplace safety. The model under indicates where compliance fits in within the research done on workplace safety, and is included here to illustrate the theoretical context of this study. It also illustrates other areas of interest that would be interesting to include in the study, but has been left out because of practical considerations such as time and size of the project.

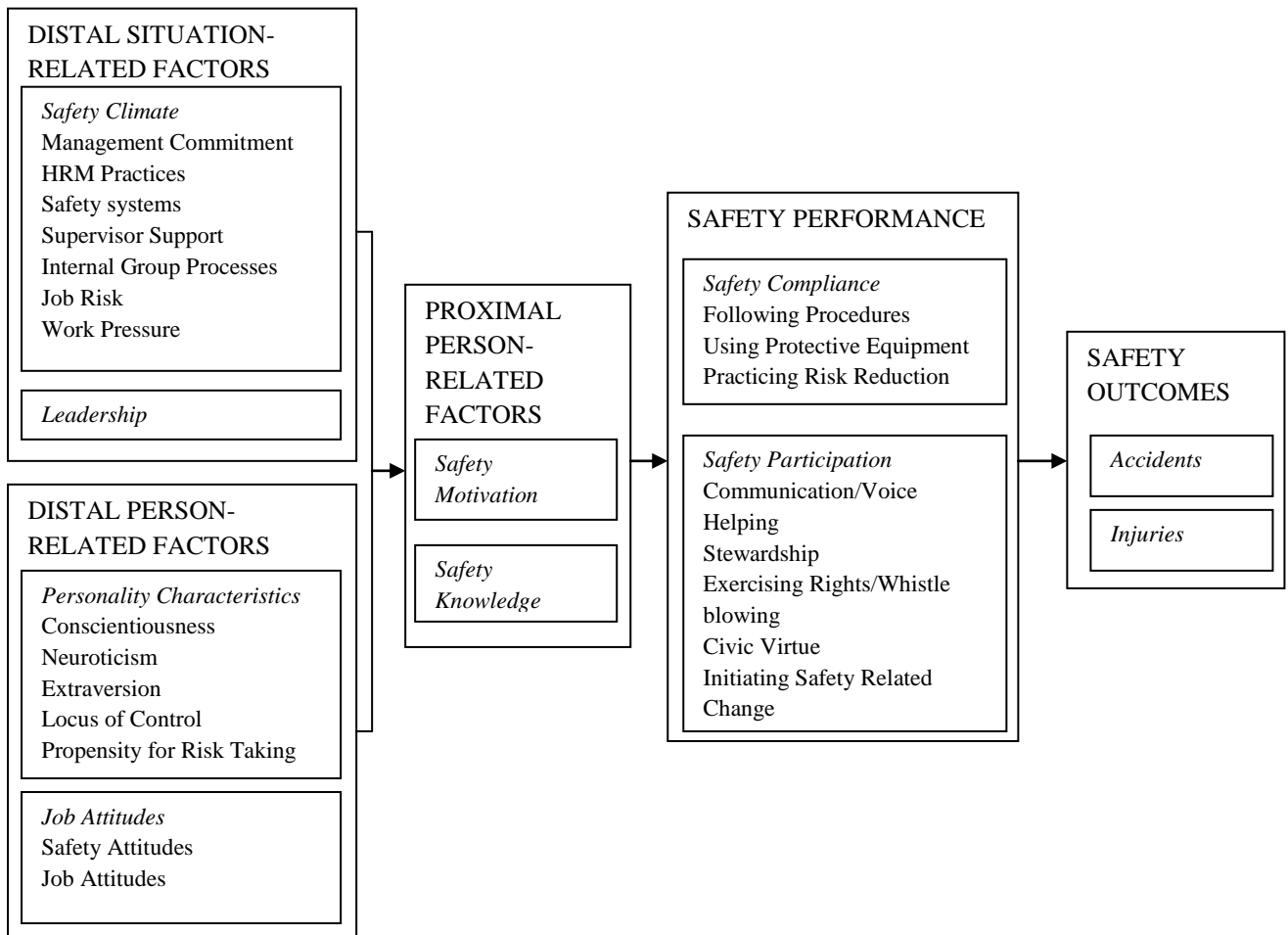


Figure 2: An integrative model of workplace safety (Christian, Bradley, Wallace & Burke, 2009)

## **2. Theoretical perspectives**

### **2.1. An MTO perspective**

The concept of MTO was introduced after the accident at Three Mile Island outside of Harrisburg in 1979. The analysis of the Three Mile Island accident sequence of events showed that deficiencies in the interaction between man, technology and organizational factors contributed to the events. Today the MTO concept includes all aspects of the interaction between man, technology and organizational factors. The boundaries between the three areas are unclear and there is a strong dependence between them. To understand the causes and context when implementing an MTO analysis requires systems thinking. Rollenhagen (1997) defines MTO as a perspective on security whose purpose is to study how a person's physical, psychological and social environment interact with different technologies and organizational forms, and from this knowledge work for greater security. With an MTO perspective the focus is on contextual variables to explain why errors occur, and how they can be prevented. Organizations are part of a bigger system, therefore it is important to understand how the interaction between human operators, the technical system and the organizational context can fail and result in hazardous situations or accidents. This thesis examines how and why organizational factors may affect compliance. This will be done within the context given by an MTO perspective because it offers the opportunity for a more holistic understanding by including in the context: work characteristics, safety systems, management systems, and in short all systems that influences the daily work of employees. Accidents and incidents are usually due to a combination of several factors. What at first glance may give the impression of being an individual human error or technical failure is almost always proven to have more underlying causes. When studying how compliance is affected by organizational factors it is therefore important to include the three subsystems: the technical, the human and the organizational. While the purpose of this thesis states that the focus is on organizational factors, these factors will not be seen isolated from the context in which they take place. This implies that the technical and human subsystems of the MTO perspective will also be included in this thesis, and they are seen as necessary pieces to gain a better understanding of the organizational factors.

#### **2.1.1. The technical system**

Within the technical safety tradition the starting point is for obvious reasons the technology, which has affected how one sees man and organization. For example there has been little

emphasis on how the instructions should be designed to be easily understood and useful (Rollenhagen, 1997). Intersections between the technical system on the one hand and man and organization on the other, has thus traditionally been on technological conditions. In this study the technical system includes the platform that makes out the employees workplace, as well as the different technical instruments, monitors and so on, which makes the platform operational. It is reasonable to assume that characteristics of this technical system may influence the structural model developed by Dahl and Olsen (2011). How accessible the system is, availability of procedures and governing documentation, user friendliness and clarity of the system are all characteristics of the technical system that may be assumed to influence compliance. In order to follow procedures and be compliant it is likely that the procedures must be available and possible to find for the user of the system, as well as possible to understand.

### **2.1.2. The human system**

Within the human system man can be studied in three subsystems: the biological, the psychological and the social, (Rollenhagen, 1997). From a biological point of view humans can be seen as animals with survival as the main goal. In interactions with complicated technology the reaction is often primitive, this is important to consider both under construction and maintenance.

Today it is often behavioral scientists who work with security issues from a psychological perspective. Problems can arise when engineers and behavioral scientists simultaneously analyze vulnerabilities based on their different traditions.

The social subsystem is made up by relations between people, and consists of components such as attitudes and values. This system has a big impact on how safety is developed because it affects behavior in terms of communication and cooperation. The organizational culture is a part of the human system, and includes the biological, psychological and social subsystems of the human system. Leadership as an organizational factor may be seen as a part of the human system when it includes the relationship between managers and employees. But it can also be seen as a part of the organizational system when seen as a part of the hierarchical system.

It is reasonable to assume that human dimensions, as well as technical, influence the structural model that this thesis is based upon. Dimensions related to the biological subsystem of the human system such as stress or fatigue, may be important in understanding why workers might not comply with procedures. This may also be the case with dimensions related to the

psychological and social subsystems. For instance one may assume that in order to comply with procedures the worker needs to understand the procedures and what they imply. And this may be difficult if there are conflicting goals or unclear roles and responsibilities.

### **2.1.3. The organizational system**

The organizational system concerns the relationships between system components and subsystems. Each subsystem has an internal organization and individual subsystems have an organization between them. This organization can include job descriptions, responsibilities, flat and hierarchical organizations, goals, policy, etc. Responsibility as an organizational factor can be seen as a part of the organizational system. Leadership may be seen as part of the organizational system between individual subsystems as well as part of the internal organization in one subsystem. While the structural model (Dahl & Olsen, 2011) examines some organizational factors that can be seen as part of the organizational system, there are other factors not covered in the structural model that may also be assumed to affect compliance. Also, since leadership may also be considered a part of the organizational system it will be reasonable to assume that differences in the hierarchical structure could influence compliance as well.

There are also other cultural issues like trust, involvement and shared understanding that may be believed to affect how organizational factors influence each other. The organizational system can be seen to include organizational culture. Organizational culture may be one factor that affects how employees work and cooperate, and is therefore part of both the internal organization as well as the organization between individual subsystems. Organizational culture has been defined as a pattern of basic assumptions – created, discovered or developed by a given group as it learns to cope with its problems of external adaption and internal integration – that has worked sufficiently well that it is considered true, and that it be taught to new members as the correct way to perceive, think and feel in relation to these issues (Schein, 1987). With this definition organizational culture can be understood to help create a common understanding about the context the organization operates in, and a common way of relating to this context. This way the organizational culture becomes a model for behavior and action. Furthermore Schein (1987) distinguishes between three levels in the organizational culture: basic assumptions, expressed values, and artifacts. The first level is the basic assumptions, which is the most fundamental level, and primarily unconscious. The second level consists of the norms and values that are often highlighted when it comes to organizational culture. And

the third level is the visible expressions of the organizational culture. This level is a reflection of the two lower levels.

In addition to distinguish between different levels of the organizational culture, it is also common to separate between different levels of consensus where fragmentation is on one side, and integration is on the other. Here there are three main perspectives: integration, differentiation and ambiguity (Richter & Koch, 2004). In the integrative perspective the culture is seen as consistent, there is consensus in the organization, and there is no ambiguity. In the differentiation perspective there are subcultures of consensus, and ambiguity is channeled. The third perspective is ambiguity, which is characterized by disorientation, contradictions and paradoxes. To what extent the culture is integrated, based on consensus or ambiguity, might be especially relevant regarding contractors. One can assume that compliance by contractors may be especially influenced by what kind of culture one finds in the organization. A culture based on fragmentation will most likely not have the same including qualities as an integrated culture might have.

Safety culture has been defined by Guldenmund (2000) as “those aspects of the organizational culture which will impact on attitudes and behavior related to increasing or decreasing risk” (p. 251). While there is often literature specifying the differences between organizational and safety culture, the two concepts will not be treated separately here. The focus will be on organizational culture, and the safety culture will be treated as an integrated part.

## **2.2. Safety critical behavior**

Safety critical behavior can be seen as behavior within an organization that is necessary to maintain a safe operation, or behavior that is needed to maintain the safety level of the organization. In this thesis compliance with work procedures is seen as safety critical behavior, and is therefore crucial to maintain the safety level in the organization. Broadbent defines safety compliance as the term “used to describe the core activities that need to be carried out by individuals to maintain workplace safety. These behaviours include adhering to standard work procedures and wearing personal protective equipment,” (Broadbent, 2004, p. 2). The assumption is that when one maximizes safety compliance a reduction in injury rates naturally follows.

Non-compliance with a safety rule can be seen as a violation of that rule. Violations are defined as “an action that is contrary to a rule,” (Alper & Karsh, 2009, p. 740). Not all violations result in unwanted outcomes, but there is reason to believe that safety violations



may increase a system's vulnerability (Alper & Karsh, 2009). With an increased vulnerability comes an increased risk of an unwanted situation. But it is not necessarily true that all violations are wrong in the sense that they make the system unsafe. If the safety rules are not appropriate, the system safety can be increased by a violation (Alper & Karsh, 2009). According to Battmann and Klumb "A broad range of behaviours regarding procedures, rules and regulations can be classified as "violations"," (1993, p. 36). Violations should therefore be understood in dimension ranging from flexible application of rules to complete ignorance of them. In between these outer point one can distinguish between several grades of violations. "Regulations can be incorrectly applied; loopholes can be exploited; rules can be applied following the letter to exclude liability, and they can be applied mechanically without checking applicability to the specific case," (Battmann & Klumb, 1993, p. 36). When compliance is defined as adhering to work procedures it is safety critical only as long as these procedures maintain workplace safety. Studying what affects compliance to rules may help control causes of violations, and in doing so, reduce accidents. This may also provide an understanding of situations where violations are needed to maintain system safety.

Blaming individuals for violations of safety rules is an insufficient approach to improving safety (Alper & Karsh, 2009). Studying how organizational factors may contribute to compliance of rules can give insight into causes of violations as well as compliance, which may contribute to a better approach for improving safety. "It is imperative that research on industrial safety violations explores how human-tool, human-job, human-environment, and human-organization interaction affect the likelihood of violations," (Alper & Karsh, 2009, p. 750).

When compliance is characterized as safety critical behavior the question ends up being how are other organizational factors affecting this, and thereby also how might they contribute to a safer workplace. It seems that generating compliance within an organization is a challenging task, given that one finds non-compliance as a factor contributing to accidents or incidents in many investigation reports. Why is compliance such a difficult task? By studying compliance from an MTO perspective there is a belief that this will increase the understanding of what generates compliance, and why compliance seems to be difficult to create or maintain.

### **2.3. Leadership and competence**

In the previous survey (Dahl & Olsen, 2011) the questions concerning competence were about whether employees experienced sufficient involvement/influence over their own work. They

were also asked if they got to utilize their competence and abilities in their current job, if they received the necessary training in relation to new work tasks and responsibilities, and if they had the opportunity to participate in matters relating to the working environment and safety. Quinn defined a competency as “suggesting both the possession of knowledge and the behavioral capacity to act appropriately” (as cited in Blair, 1999, p. 29) Competence is here linked to involvement, training, utilization and participating. Workforce involvement and empowerment in planning and decision-making, thereby increasing workforce ownership and responsibility of safety performance was one of four important safety leadership issues O’Dea and Flin (2001) identified when they surveyed 200 offshore installation managers in the UK oil industry. It indicates that leadership plays an active part in involving employees, and that this role is important for safety outcomes. Alper and Karsh (2009) found that four variables that were connected to information, education and training had a negative effect on compliance. These were “unfamiliarity with design, use of incorrect materials, conflict/confusion between trades, and failures in site organization” (p. 748). In addition they found that a worker’s level of knowledge, as well as a worker’s level on training, had a positive association with compliance. Leadership is crucial both when it comes to how much training a worker will get within an organization, and what possibility this worker has to increase his or her level of knowledge. In the same review it was also found that amongst others, time pressure and conflicting demands had a negative effect on compliance. This is also connected to leadership, and it can be seen as a leadership problem to prevent time pressure and conflicting demands.

#### **2.4. Leadership and compliance**

Compliance has already been defined as behaviors that “include adhering to standard work procedures,” (Broadbent, 2004, p. 2). The question here is how leadership may affect compliance. In the previous survey (Dahl & Olsen, 2011) the questions regarding compliance were: (1) In my unit we always use safe job analysis in the implementation of risk-prone tasks, (2) in my unit we comply with governing documents, (3) in my unit we handle deviations according to the governing documents, and (4) in my unit we always use governing documents in the planning, preparation and execution of work. Simard and Marchand (1997) discussed workgroups propensity to comply with safety factors, and how this is influenced by micro-macro organizational factors. Their findings support that social relationship variables at the shopfloor are the best predictors of safety compliance behavior. They also found that “the fabric of these social relationships can be substantially influenced by managerial actions in

developing a participative approach in the supervisory management of safety and a commitment of senior managers to develop the safety program and joint regulation mechanisms,” (Simard & Marchand, 1997, p. 172). Based on this one can assume that there is a link between leadership and compliance. This link may also be closely connected to the social subsystem that is part of the human system in an MTO perspective.

Lu and Yang (2010) found that safety motivation and safety concern were positively associated with self-reported safety behavior, this included safety compliance. Safety policy was found to have a positive, but not significant influence on safety compliance. This suggests that good safety behavior follows greater safety leadership, and thus increase safety.

Mearns and Reader (2008) hypothesized high levels of support reflecting care in the organization about employee well-being will lead to more positive safety behavior in the workforce. They found that organizations can achieve benefits in safety performance by focusing on activities that are designed to improve health. Supervisor support was found to be a stronger predictor of safety behavior than workmate support was. This may be interpreted through how employees see supervisors. When they are seen as representing the goals and priorities of the organization they are also seen as a reference of how the organization prioritizes the employee’s well-being.

*In summary, the finding of a relationship between safety behaviours and support from the operator and support from the supervisors would appear to provide backing for the hypothesis that employees’ perceptions about the support an organization provides for well-being and health may be linked to outcome measures such as safety behavior.* (Mearns & Reader, 2008, p. 395).

Again there is a link here to the social subsystem of the human system, although leadership may very well also be described as a part of the organizational system.

In chapter 2.3 “Safety critical behavior”, the notion that not all violations of rules are bad was examined. There are situations in which non-compliance with the rules is a safer action, or where the worker has no choice but to break the rules. In their review article Alper and Karsh (2009) say that design that makes violations necessary, complicated design and changes to standard approved design has a negative impact on compliance. They say that in some cases non-compliance is a result of systems that do not support the work that is to be carried out. In these cases compliance is not possible for the worker. Poor management or management who

turns a blind eye further increases the likelihood of violations in these cases, linking leadership as an organizational factor to compliance. Given that a part of leadership also concerns decisions about which systems to use, and what kind of operations should take place, one can assume that these kind of decisions will affect workers compliance.

## **2.5. Leadership and responsibility**

Within an organization there are bound to be different levels of leadership as well as different responsibilities. The job of ensuring that different responsibilities are clear and understood by employees is a leadership job. According to Reason (1997), the higher status an individual has in an organization, the higher is the effect of that individual's actions on organizational outcomes. By this, one can assume that the need for clearly described responsibilities is higher the higher one gets in the hierarchical structure. In the former study (Dahl and Olsen, 2011) questionnaire items concerning responsibilities were (1) is the responsibility I have in my position clearly described? (2) Is the authority I have in my position clearly described? And (3) are the competencies required for my position clearly described? These questions focus on the clarity in which the responsibilities are described. It is likely that unclear responsibilities can contribute to non-compliance of rules, either because workers are not aware of their responsibilities, or because nobody in fact has responsibility for a certain area or task. This fits well with what Wu, Lin and Shiau (2010) found in their article, that coordination is an important safety leadership factor that influences safety culture.

According to Busch and Vanebo (2003) a job position is a formal position defined through the allocation of tasks, authority and responsibilities. A position can be seen as independent from the individual. When an individual enters a position this individual is given a role, or in other words, there are expectations that the individual maintain all the tasks that are part of the position. In designing positions two decisions have to be made. The first is concerning the degree of specialization, and the other is concerning the degree of formalization. The former will decide the width of the tasks that are to be maintained, and the latter specifies the room for maneuver associated with each task. In other words the latter clarifies to what extent the position holder can decide how to do the task. The degree of specialization and formalization is a question of management, and therefore clearly links leadership to responsibilities. It is reasonable to argue that specialization and formalization in regards to positions can be seen as part of the organizational system in an MTO perspective. It is likely that the clarity of specialization and formalization may influence the degree of compliance in the organization.

## **2.6. Leadership and contractors**

To understand how leadership may affect contractors' behavior regarding compliance needs an understanding of how contractors' behavior can be affected. It is necessary to understand what makes contractors follow procedures. Høyvik, Tharaldsen, Baste and Moen (2009) studied the influence of a local working environment and company belonging on employee's opinion concerning occupational health and safety. What was found was that the local working environment seemed to be more important than the employer regarding several safety climate dimensions. "This result was found both for workers in operating companies and for contractors," (Høyvik et al, 2009, p. 1329). Given this it is reasonable to assume that local leadership has an effect on contractors' compliance with safety procedures. The indication one can draw from this study is that local belonging on an installation is important for perceived health and safety. In the previous study by Dahl and Olsen (2011) the questions regarding contractors were (1) in my unit we closely follow-up with the contractors we work with, (2) in my unit we systematically follow-up feedback we get from our contractors, and (3) the contractors we work with get the necessary training in order to work safely. Leadership behavior can be seen as connected with all of these questions. The local management teams must be aware of the importance their roles play in producing good health and safety results on installations, as a good HSE policy set-up by managers is not enough to ensure this (Høyvik et al. 2009). Regarding design that makes compliance less likely it is reasonable to assume that this would be reflected in some of the feedback to the organization. Either way it demonstrates a link between leadership and contractors that will have an effect on the link between contractors and compliance. Just as leadership and competence can be seen as connected with competing goals so can leadership and contractors. If contractors are subjected to, amongst other, time pressure and conflicting demands they are more likely not to comply with safety procedures (Alper & Karsh, 2009).

## **2.7. Competence and compliance**

Several reasons can be found to explain how competence can affect compliance. Mullen (2004) found that workers had a need to maintain their image as competent, and that this influenced individual safety behavior, and could lead to individuals violating safety procedures. This willingness to violate procedures in order to maintain their image as competent was found despite organizational policies that outlined and encouraged safety procedures.

Competence is connected to adequate training and involvement in one's own work situation. Noncompliance can therefore be seen as a response to role overload which is defined as "the degree to which performance is affected by inadequate resources, training, and time to perform one's role" (Mullen, 2004, p. 278). According to participants in Mullen's study, there was not always time to carry out the work in a safe way. Alper and Karsh (2009) also found that training and education had an effect on violations which supports the idea that inadequate training can have a negative effect on compliance.

A third finding was how socialization influences safety behavior. Socialization through previous experiences did in fact continue to influence an individual's safety attitudes and behavior long after their socialization into the workplace (Mullen, 2004). Again this is supported by Alper and Karsh (2009) who found that habit to comply and previous accident involvement were some of the individual characteristics which had significant associations with violations, when they were identifying variables that predict violations.

This indicates that employees should be given the opportunity to use their competence without having to take short cuts. In addition it highlights the importance of necessary and adequate training.

## **2.8. Responsibility and compliance**

Responsibilities are connected to the responsibility that comes with one's position, whether or not a worker is aware of the authority that follows a position, and if the specific qualifications for the position are clear. This is closely connected with the design of positions within the organization, mentioned earlier. When a position is designed both the responsibilities and the room for maneuver in fulfilling these responsibilities are decided. The question here, however, is how the design will affect employees' compliance with rules. When an employee is put in a situation where there are conflicting demands, the responsibilities of the position is no longer clear. This has been found to have a negative effect on compliance. "Conflicting goals can lead to violations when an individual has a goal of compliance with the rules, and a different goal that conflicts with compliance" (Alper & Karsh, 2009, p.750). The same can be said for situations where the design is too complicated or there have been changes to standard approved designs. In these cases the procedures needed to fulfill a task may not be in accordance with the employee's responsibilities.

It seems reasonable to assume that the design and allocation of positions may influence employees' compliance. A job position was defined earlier as the allocation of tasks, authority

and responsibilities (Busch & Vanebo, 2003). When the responsibilities of the position are not clear to the employee, it is reasonable to assume that this may affect compliance.

## **2.9. Contractors and compliance**

How leadership may affect contractors' behavior has been discussed earlier. The question here concerns the connection between contractors and compliance. As mentioned earlier it seems that both for workers in the operating companies as well as contractors, the local working environment is more important than the employer when it comes to several safety climate dimensions (Høyvik et al, 2009). Given this it is reasonable to assume that contractors will not differ from other employees in how they are linked to compliance. This is supported by Mearns, Rundmo, Gordon and Fleming (2004) who found that the installation was a factor that explained more of the variance in safety climate than national belonging when they studied Norwegian and UK offshore employees. This could mean that contractors are susceptible to the same influences that make other workers comply with or violate safety rules. However, given that the local working environment seems so important in regard to contractors' degree of compliance; it is likely that there are aspects of the local working environment that will influence contractors differently than the organization's own employees. For instance, it is reasonable to assume that it is more difficult for the contractors to be familiar with all the current procedures at one location, as the contractors switch work places more rapidly than other employees.

### **3. Methods**

The aim of this chapter is to clarify how the study in this thesis was designed. The rest of this chapter will discuss the choice of method, source of data and analysis of this data. According to Blaikie (2009) a research design should answer three basic questions: What you will study, why you will study it, and how this study will be done. The first two questions have been answered and discussed in the introduction of this thesis. In this chapter however, the question of how the study will be done, will be discussed further.

#### **3.1. Choice of research strategy**

The research strategy chosen for this study is closest to an abductive research strategy which Blaikie (2009) describes to have the aim of describing and understanding social life in the terms of social actors' meanings and motives. While other strategies might as well have been used to answer my research problem, the abductive strategy has the advantage that it incorporates the meaning and interpretations that the informants use in their life. By choosing this strategy I was able to study what meaning the informants gave the different organizational factors, and use this as a way of understanding what organizational factors influence compliance, and why compliance is influenced by them. However, while this thesis is mainly based on an abductive research strategy, it may be argued that the inductive as well as the deductive strategies have been utilized during the interviews and analysis as well. For example, during the interviews hypotheses that had emerged earlier on were tested. And in the analysis of these interviews data collected were searched for patterns and characteristics that could produce descriptions of how and why compliance took place in the organization. These other research strategies were therefore utilized at different times in the study, however the abductive research strategy has been the basic throughout the entire study.

#### **3.2. Sources of data**

The data collected in this thesis are primary data generated through interviews in a semi-natural setting, with a qualitative form.

The data used in this thesis have been generated through interviews during the study and are therefore primary data. According to Blaikie (2009) primary data are generated by the researcher who is responsible for the design of the study, as well as the collection, analysis and reporting of the data. The research problem is however based on the structural model presented in the introduction chapter (Dahl & Olsen, 2011) which can be considered tertiary data. One of the greatest advantages of using primary data in a study, such as this thesis, is



that the data are a direct result of the contact between the researcher and the source (Blaikie, 2009). This enables the researcher to evaluate the data in a better way than had it been secondary or tertiary data. For this reason the data used in this thesis are primary data. Another reason for using primary data is that it gives the researcher a better control over the areas of interest that are being researched. In this case it means that, while this thesis is founded on tertiary data, these data may not include all the factors that are interesting to answer the research problem. By generating primary data, the choice of areas of interest has been that of the researcher.

The form of the data collected in this thesis is qualitative which comes with certain advantages and disadvantages. A common belief is that numerical data are needed for scientific research. It is seen as more objective. However it is impossible to generate any data without somehow influencing it as a researcher. While quantitative researchers are usually distanced from the people being studied, a qualitative approach allows the researcher to become an insider among the social actors', which are being studied, culture or worldviews (Blaikie, 2009). The aim of this thesis has been to gain a better understanding of which organizational factors influence compliance. To answer this demanded a thicker description as well as a higher focus on the social processes that happens within the organization studied, which is better adopted by a qualitative approach than a quantitative.

As mentioned earlier, the interview setting in which the data for this thesis have been generated can be seen as a semi-natural setting which means that the informants are not actually engaged in the activities that are to be studied, but rather that they are interviewed about these activities (Blaikie, 2009). In this thesis the informants have been interviewed about compliance. The goal has been to get a hold of the informants' orientation to the world, and use this to explain why different degrees of compliance or non-compliance take place. There are however some difficulties with this concerning the gap between what people say they do, and what they actually do. Since the goal of the thesis is to understand why non-compliance happens, or what causes it, this problem should not be too severe though.

### **3.3. Interviews and range of informants**

One of the characteristics of a qualitative interview is that the researcher wishes to get in-depth information, because of this, the number of informants should not be too extensive (Dalland, 2007). In this study nine organizational members have been interviewed. They were all selected by a contact person within the company who also arranged the interviews and

forwarded my letter to the selected informants pertaining to the purpose of the interviews in regards to this study. The letter was written to give the informants basic information about the study, as well as to prepare them for the actual interview situation.

The informants interviewed for this thesis possess different jobs, and have different experience related to management experience, leadership experience as well as operational experience. They were all employed in the company in which the study took place. This means that the roles these informants occupy differentiate in many ways, and adds breadth to the data collected. The difference in experience and education among the informants also makes sure that the questions are answered based on different point of views. In this case it was important to ask open questions and let the informants choose what was important to focus on. This led to a big variety in the answers, especially in the first interviews. After a while the answers given dealt with the same areas as earlier interviews, which point to a certain saturation of information. This indicates that even with the use of more informants the answers would at this point start to be repeated.

The goal of a qualitative research interview is to capture the informants own description of a specific situation (Dalland, 2007). The interviews were semi-structured, which means that they were based on a certain interview guide, which ensured that the different themes in the guide were discussed. But the interview situation was not fixed to this regarding what questions would be asked and the order of these questions. This created flexibility in the interviews and made it possible for them to be carried out in a more conversational manner. The interviews therefore had the possibility to develop into areas that were not in the interview guide, but could be interesting in light of the research problem. This is consistent with Blaikie (2009) who says that qualitative researchers “have to accept opportunities when they open up and they will want to follow leads as they occur, “(p. 215).

Most of the interviews in this study took from 30 to 60 minutes, depending on what type of experience the informant had, as well as his or her personal interest in the subject. Attention was paid to ask questions that would not lead the informants in certain directions. However, some direct questions were asked if the informant did not discuss certain areas that were important to the research problem. All the interviews were recorded and transcribed afterwards.

Given that the informants used in this thesis are at least to some extent used to being interviewed, it is important to assess their quality as informants. Experience is not necessarily

a negative, but it brings with it certain challenges that the interviewer should be aware of before commencing with the interviews. Andersen (2006) describes a key informant as an informant that has a particularly good overview over, and insight into, the questions the researcher wishes to get an answer to. He argues that in interviews with resourceful informants a more active role on the part of the researcher will increase the validity and reliability of the data. Taking an active role means that the researcher continuously uses the interview situation to test their own assumptions as well as the informant's assumptions.

### **3.4. Analysis**

In order to be able to analyze the data gathered from the interviews, the data were first divided into different categories. These categories were based on, first of all the organizational factors from the structural model (Dahl & Olsen, 2011) that the study was based on. Other categories were developed to fit data that would otherwise not be included in categories based on the organizational factors. When the data had been categorized they were further classified to a level where they could be used to describe the research problem of this thesis within the context of relevant literature.

Although there were some categories and classifications that emerged quite naturally, other data were not as easy to categorize and classify, and some pieces of data could be placed in more than one category. In these cases the data were placed where they seemed to fit best, or where they seemed to be more relevant.

There were also some challenges in presenting informants views, relating to the fact that the interviews were all conducted in Norwegian, as were the transcriptions of the interviews. Based on practical and time consuming issues the transcribed interviews were not translated, only quotes that seemed to be of importance to the discussion were.

### **3.5. Reliability and validity**

There are two main requirements for data which is important both for what the data generated in a study can be used for and what value they have for that study. One is the demand that the data generated are reliable, and have been generated in a reliable way. The other is concerning the validity of the data (Dalland, 2007). Reliability can be understood as the data's credibility and confirmability, while validity is a question of transferability to specific situational conditions or theoretical assumptions (Andersen, 2006). In other words the reliability is high if the same study was to be repeated and would result in the same findings and conclusions.

Likewise validity is stronger depending on the success of the researcher in investigating what they intended to investigate.

According to Andersen (2006), the question of reliability and validity needs to be handled at two levels. First of all there is a need to document that what has been said in the interview situation have been perceived and understood correctly. It is important to separate between statements about facts and interpretations. Documentation is therefore important, and the use of a recorder as well as notes can be helpful. The interview recordings made it possible to focus on how things were said as well as what was said by the interviewees. In addition the recordings could be listened to at a later time, and they were transcribed afterwards to ease the process of analyzing them.

Secondly, the facts and interpretations used in the description, interpretation and analysis, has to be verifiable and consistent related to the study's objectives and frames of reference. According to Blaikie (2009) the character of qualitative data makes it difficult, if not impossible, to corroborate or replicate data. This is because the researcher is usually the measuring instrument and therefore no two are the same. When it comes to the semi-structured interviews none of these were exactly alike, and to do the same interview again with another researcher at a later time would possibly give a different account. This does not mean that the first results were not correct, it only indicates that a certain amount of time has passed, or that new knowledge has been provided to the area. In addition, a new result may also be a reflection of the interaction between the researcher and the informant. Since a semi-structured interview is so reliant on subjective interpretation some might not see them as reliable enough. There are two different views among qualitative researchers on this according to Blaikie (2009). The first is that corroboration or replication is impossible. As long as the researcher acts professionally and explains how they did their research, his or her accounts should be trusted. The second view is that the social actors concerned must corroborate the researchers accounts of social life, meaning the researcher's account must correspond to the one of social actors. In this thesis, theory has been used as a way of improving the validity of the study. It has been a frame of reference, and has ensured that the accounts in this study to a certain degree correspond at least with other research found in similar areas. Likewise it is important to achieve a certain depth among the informants and what they represent to ensure the validity and reliability of the data. Validating data is a continuous task throughout the process of the study and thesis. Attention has been given to whether or not what has been done at each stage is relevant for the thesis.

## **4. Results and discussion**

The aim of this thesis was to study how and why the different organizational factors from the structural model (Dahl & Olsen, 2011) affect each other, and identify what other contextual factors will potentially influence these organizational factors and the relation between them. The interviews identified several organizational factors that may have an impact on compliance, and revealed connections between these that can contribute to expanding the scope of the original structural model. The different factors revealed, and the connections between these were not expressed by all the informants. The informants did not all agree on the importance or strength of all the different factors either. Some were more commonly shared than others.

The analysis revealed several organizational factors, both included and left out of the original structural model (Dahl & Olsen, 2011), that affect a workers compliance with procedures. Factors revealed that were included in the structural model have been classified under these, and factors not included have been added at the end of this chapter. Each of the organizational factors has been discussed below.

### **4.1. Safety critical behavior**

#### **4.1.1. Results**

Compliance is defined as adhering to work procedures (Broadbent, 2004). Participants in this study defined the term in a similar way. To comply, one needs something to comply with, like procedures, rules or guidelines. One informant stated, “It is to do the work in accordance with the policies and procedures and laws that are applicable.” Compliance was, by the participants, seen as doing what the rules say one should do. It was evident that compliance was understood to be more complex than simply adhering to rules however, as most of the participants added other aspects to their definition as well.

According to the informants, compliance is dependent upon an understanding of the procedures that a worker should comply with. For instance another informant said that to comply with procedures “you need the ability to understand the procedures and guidelines, and you have to be willing to make sure you have the latest understanding of the task that is to be performed”. Compliance then is about using the competencies and the skills a worker has while the work is being done. The procedures within the organization are regarded as best practice and includes the organizational learning that has taken place within the organization

through its lifetime. By complying, the worker fulfills the task the best way the organization has learned to do it.

By understanding the procedures themselves as well as the importance they inhabit, it appears as though compliance is dependent upon an evaluation of whether or not the procedure is the best way to do the task at hand. Before following the procedures the worker, or the team of workers, were expected to assess what risks came with the task, if they had the right competence to perform the task safely, and whether or not the procedures were a good way of performing the task. As one informant put it, “I should check to see if there is an improvement potential related to the job I am about to do.” Blind compliance with rules and procedures were not seen as a positive feature. Compliance in this case therefore includes an assessment of the procedures quality as well as the task specific properties, and how these relate to the procedures. If a risk assessment reveals risks that are not acceptable, compliance includes adding features to the procedure so an acceptable risk level is reached. This, however, is not something the worker can simply add, one has to apply for a modification and follow the rules whether the modification is accepted or not. But this gives the organization room for improvement in their procedures.

Compliance is mainly seen as positive for the organization by the informants. And there is a belief that if the organization gets better at compliance, the number of incidents will go down. This is based on the fact that non-compliance is a contributor to many incidents that have already happened. Also, since compliance is viewed as a product of the organizational learning, non-compliance indicates a lack of utilization of previous experiences made. To maintain a safe organization it is not enough to rely on individual experience and compliance with procedures is the best method the organization knows to work effective and avoid errors and mistakes. This way compliance is seen as a success factor in working safely, and does at least include some minimum elements that should always be included. Several of the informants do however identify negative aspects of compliance. First of all blind compliance is not necessarily positive, and can contribute to errors and incidents. There is a need for a pragmatic view concerning compliance. One should comply with procedures, but at the same time it is important to think for oneself, and use one’s competence and experience. For compliance to be positive, the procedure needs to be the safest alternative, what the book says has to be right. And the procedures need to be adapted well enough to local variations.

#### 4.1.2. Discussion

This study revealed that the informants view compliance much in the same way as it has been defined in the theoretical chapter of the thesis. They did however include other aspects of what it entails to comply, that are not a part of the original definition. It was argued that compliance with procedures were not just about following a specific procedure, but also demanded an understanding of, and competence and skills to perform the task. From an MTO perspective one can argue that compliance is then dependent on involvement of all three of the sub systems. Although the human subsystem may be seen as the most important one, given that there is always a human who does or does not comply with procedures, compliance demands an understanding of the technical and organizational subsystem, as well as the skills and competence to handle these. When an MTO perspective is included in this way it points to the limitation of blaming individuals for non-compliance in order to improve safety within an organization. Instead it reveals areas of improvement, in which the organization may in fact be able to exercise influence over. The focus on a wider understanding of the term compliance also sheds light on what non-compliance actually entails, and it can be argued that it shows that non-compliance is not necessarily constricted to violations of rules. Non-compliance will from a wider understanding of the term include situations where the worker did not entail the necessary skills, competence or experience as well.

Compliance has in this thesis been characterized as safety critical behavior, and most of the informants concurred to this view. Amongst other reasons because the procedures workers are to comply with are based on the organization's learning. In accordance with the theoretical starting point of the thesis there seem to be a connection between compliance and a safe organization, as the informants expressed a strong belief that if the organization gets better at compliance the number of accident or incidents will be reduced. Although it has been made clear that there are times when compliance might not be the safest way of acting, it is the safest way the organization knows how to act. Considering this, the importance of an assessment, using understanding, skills, competence and experience becomes more evident. One may therefore argue that compliance is considered as safety critical behavior when it entails an assessment of the procedure one is to perform. This seems to be overall in accordance with the informants' views, given that several of them clearly expressed that blind compliance was not the goal of the organization.

## 4.2. Leadership and competence

### 4.2.1. Results

The most important aspect when it comes to leaders affecting competence is, according to the informants, that the leaders know their crew. They have to make sure that everybody has a basic competence, and also check on the crew while they perform their tasks. One informant said that by being close enough when the team performs their task he or she can observe if anyone pulls back a little, which may indicate insecurity about how to do the job, and this way the leader may discover potential gaps in competence among the workers. The oil and gas industry develops fast and it is important that workers competence is adjusted to the same level. So the leader needs to make sure that the crew can do the job, or in the worst case, if they can't, stop the job. Time and room for learning is essential, and it is a leader's job to create this.

In addition to the organizations need for an updated competence among the workers, individuals have personal needs to develop themselves as well. Here it is important from the leader's side not to feel threatened by this, and let their workers evolve without restricting them unnecessarily, according to one informant.

Habits are also mentioned as important, and that is why training is essential. Another informant said that "Leaders affect the competence of their employees in the form of providing the training, the courses, the updates that are required in relation to the processes we have concerning staff development." Workers practice the right response, not just how to learn from mistakes. When the right response is repeated over and over this eventually becomes the way to do it, it becomes a habit to do it right. A metaphor used by one of the informants compares this to a soccer team; "They do not focus solely on what went wrong at the last game, they also focus on what they are good at, and how they can be even better at this." Behavioral change is difficult, and needs continual effort.

### 4.2.2. Discussion

Leadership plays a key role in presenting workers with different tasks and job opportunities. Since the oil industry poses serious risks, it is important that workers' competence is up to date, and that they inhabit the right competence to perform the job. Alper and Karsh (2009) found that unfamiliarity with design, use of incorrect materials, confusion between trades and failures in site organization posed a threat to compliance. It seems that a way to prevent this is for the leaders to know their crew well. By checking on their crew the leaders may discover



gaps in competence that can stem from unfamiliarity with design, for example. By being closely invested in the team of workers the leader is also more able to ensure that their competences are up to date and that the crew is able to do the job. Involvement and empowerment seems to be an important task for a leader who wishes to increase compliance. This is supported by the findings of O’Dea and Flin (2001), namely that involvement is a leadership task that plays a role for safety outcomes.

Concerning workers’ individual needs to develop themselves, it is a leader’s task to give workers a mix of jobs they know how to do, feel like they master, and jobs that challenge them. This is something a leader has a large potential to control, and therefore can affect a worker’s competence development. In addition leaders have the opportunity to ensure that workers experience “on the job learning”, as well as other learning opportunities that helps the worker develop in a desired direction. It seems that worker involvement is an important way of achieving this.

The strong focus on training and habits expressed by the informants is supported by the theory in this field where it has been established that workers’ level of knowledge and training has a positive association with compliance (Alper & Karsh, 2009). Since the leaders are the ones who, for the most part, decide what should be practiced, and how it should be practiced, it seems very clear how leaders may affect the workers competence through training and practice. Furthermore, the informants’ belief in a continuing focus on behavioral change shows another aspect in which leaders play a key role. It is unlikely that a focus on behavioral change will be kept without leadership support and engagement.

### **4.3. Leadership and compliance**

#### **4.3.1. Results**

According to the informants concerning the connection between leadership and compliance, a leader will always have the power to lead by example. They should strive to be good role models since, according to one of the informants, “Nothing is as disruptive as a leader that says something, and then does something else.” Also, “a leader that shows in actions that his way of working is effective will have a greater advantage than a leader that doesn’t. A leader needs to be positive about the procedures and illustrate that they are the working toolbox.” And what a leader requests will also affect how compliance is being emphasized. Requests for how the job has been done, signals something entirely different than requests about when the job can be finished, and is a direct way in which a leader can contribute to compliance,

according to the informants. In addition a leader should seek out the team while it is doing the job.

How leadership may affect compliance is also a question of level of leadership. Offshore the operative leadership is considered important, while the informants are less sure if the top management of the organization will have a strong impact here. Trust is an important feature as well, and trust between colleagues that work closely together is regarded as most important when it comes to compliance. The operative management is important because it helps create a common understanding of what should be done, and how it should be done. This again may contribute to a better understanding of the whole operation, which is important according to the informants since a worker needs to understand that the small things he or she does can have great consequences.

Involvement is mentioned as an important contributor to compliance because it builds understanding and knowledge about the operations. When procedures are made, involvement of workers is especially important given that they hold important knowledge about the specific operations, and the context surrounding the operation. When the workers feel involved in this process and feel like they contribute to it, this may create a stronger feeling of ownership towards the procedure, which will, according to the informants, most likely increase compliance with these procedures. It is also likely that an involvement like this will increase the quality of the procedures as well, which will also make a higher level of compliance more likely. Although involvement of workers is clearly a leadership task, workers themselves also hold a responsibility to get involved. To do the job right is as much a part of the worker's job as doing the right job.

Another aspect when it comes to how leadership can affect compliance concerns the clarity of the importance of compliance. "A leader needs to be absolutely clear when it comes to not allowing non-compliance to take place. Compliance should be in focus and have a clear priority for the team performing a task." To ensure this, a leader may use rewards and punishment as an incentive. For this to happen the leaders need to be trained on compliance, and following procedures should come naturally to them so that they can pass this on to their workers. And the workers will need to be trained to a similar extent as well.

### 4.3.2. Discussion

In the theoretical chapter of this thesis, concerning leadership and competence, it has been argued that there is a link between leadership and compliance through, among others, social variables at the shopfloor (Simard & Marchand, 1997). Likewise supervisor support is believed to have an impact on compliance (Mearns & Reader, 2008). Finally there is a point about non-compliance sometimes being the result of a system that does not support the workers in performing their job (Alper & Karsh, 2009).

This study revealed an aspect that the informants seemed to find more important than the others, namely the leaders responsibility of leading by example. This was seen as important because of the disruptive nature of a leader who says one thing and then does something else. This may be understood as part of both supervisory support as well as social relationships at the shopfloor. It is likely that a lack of consistency between a leader's sayings and actions will diminish the workers' feelings of support, thereby reducing the likelihood of compliance, indicated by the findings of Mearns and Reader (2008). Further, they state that the likelihood of compliance connected with support is based on the way the worker sees the supervisor. When the supervisor is seen as representing the organization's goals and priorities, it is likely that a leader, who does not show with actions that compliance is important, will paint a picture of an organization where compliance is not prioritized. Likewise, Simard and Marchand (1997) found that social relationships at the shopfloor can be substantially influenced by managerial actions, which can provide another explanation as to why leading by example may be important to create compliance. Again, if the supervisor's actions show that compliance is not in focus, or considered important, this will impact the relationships of, and with, his or her team, possibly affecting the degree of compliance. Social relationships as well as management support can both be included in the social subsystem that is part of the human system in an MTO perspective. One may argue that concerning the link between leadership and compliance, the findings in this study indicates the importance of involving more than just the organizational factors, or rather that leadership may be seen not just as an organizational factor, but also as a human factor.

Trust and involvement are aspects identified by the informants that can also be explained through support in the organizations as well as through social relationships at the shopfloor. The level of leadership seemed important when it came to the effect on compliance, which illustrates that the need for trust and involvement concerns levels straight on top of each others, or at the same level, in the organizational hierarchy. Involvement seems particularly

important because it seems to build a common understanding between the workers about the operations they are supposed to implement. Finally, the need of a clear focus on the importance of compliance is connected to why it is important that leaders lead by example. Without a focus on compliance from the leader, it is not likely that the workers will maintain a focus either. This indicates that involvement is a leadership task that may contribute to greater compliance with procedures, much in accordance with the findings of Lu and Yang (2010) that good safety behavior follows greater safety leadership, and thus increase safety.

#### **4.4. Leadership and responsibility**

##### **4.4.1. Results**

It appears as though the link between leadership and responsibility is important when it comes to explaining why compliance takes place or not. It was expressed by one of the informants that lack of time to do basic leadership tasks as following up workers in the field could be problematic. Other tasks tended to take a lot of time, such as a big amount of emails, or other managerial obligations. With this taking a lot of time, the leaders had less time to ensure that operations in the field were compliant with procedures, or to discover unbalances in responsibility at the worksite.

The balance between authority and responsibility was another expressed concern in the interviews. The informants stressed the view that there needed to be a balance between the two, and that lack of authority when one is given responsibility for something, may be experienced as very difficult for the person holding the responsibility. He or she will be assessed based on what their responsibilities are, and if there is no authority to change anything this may feel like a difficult position to be in. Another point made by a different informant was:

*If I have the responsibility to close a valve, but someone else is supposed to check if I have done it right, I might be inclined to be a little sloppier with it because I know that there is always someone else who will check on me.*

Creating too many controls may therefore create a sort of dullness in the workers because someone else is always expected to capture errors or mistakes.

The same goes for unclear responsibilities, which can, potentially, create dangerous situations. “With unclear responsibilities things may fall between two chairs.” It is a leader’s job to make sure that the responsibility is clear, and that no area is left without someone in charge of it.

Leaders can affect compliance through responsibilities since they participate in the nomination of employees for new positions. This is the deployment process in the company. Employees are now assessed on two scales, both how effective they do a job as well as how the job is done. This contributes to a leader's possibility to affect compliance through responsibilities. Again a feeling of responsibility is believed to affect compliance, and a leader can do several things to create a feeling of ownership and responsibility.

#### **4.4.2. Discussion**

The link between leadership and responsibility seems to be highly dependent on the clarity of the worker's responsibilities and a balance between responsibilities and authority. This certainly coincides with the theoretical assumptions in this thesis, namely that unclear responsibilities may contribute to non-compliance of rules, either because workers are not aware of their responsibilities, or because nobody in fact has responsibility for that certain area or task.

Another aspect concerning the link between leadership and responsibilities were the balance between responsibility and authority. This was one of the aspects that most of the informants expressed during the interviews, and seems to be highly important in regard to explaining compliance in the organization. By not having the authority in the area one is responsible for, it seems the worker is in a no win situation. Since a situation like this leaves the worker with no influence over the area, it is reasonable to assume the feeling of responsibility will be weakened as well. This can be seen in connection to the organization's design of positions, where a position was defined as the allocation of tasks, authority and responsibilities (Busch & Vanebo, 2003). A lack of balance between authority and responsibility may be understood as a lack of clarity in the formalization of a position, indicating that the room for maneuver associated with the task is not in balance with the allocation of the task. The feeling of being checked up on whenever a task is to be done, may also lead the worker to feel like he or she is controlled, which may, for the worker indicate a lack of trust. Also, the worker may stop seeing the point of doing the task by the procedure as someone else will always follow up, and correct the mistakes. It seems that balance between responsibility and authority is a key aspect in the link between leadership and responsibilities. It is quite apparent that this is a leadership task, and a way that leaders may influence compliance through responsibilities, which is supported by Wu et al. (2010) who found that coordination is an important safety leadership factor that influences safety culture.

The job of recommending workers for promotions is another clear example of how leaders affect responsibilities in the organization. Given that the workers are assessed on how they perform their tasks as well as how effective they are, the leaders have a great opportunity here to determine who gets what responsibilities, and this may be regulated based on who has been more compliant in the past. In this way the leader may contribute to compliance by ensuring that workers they recommend for new responsibilities are workers with a good history of compliance.

## 4.5. Leadership and contractors

### 4.5.1. Results

For leaders in the organization involvement and inclusion of the contractors is very important according to the informants. It is necessary to create a common workplace for the employees and the contractors so they feel like they are a part of the same team. One informant says:

*You need to show a general interest in the contractors as an operator, show care and that they are included in the workgroup. They should become a natural part of the organization out there, not be kept on the outside with their own things to do.*

It is important that the leaders have information and knowledge about the contractors. They should request the contractors' understanding and be clear about the focus on compliance, and that non-compliance is not tolerated. One informant said that,

*In the sharp end of the organization, offshore, you get the contractors you get when they land on the helicopter deck. They are here to do a job, and then you need to trust that people onshore have done their job and sent you competent people. But you also need to stay suspicious, and make sure they understand their tasks.*

This shows the informants focus on the need for leaders to know their contractors, both on land and offshore. The organization will always have a more direct control over its own employees, but the organization also needs to do what is possible to know the contractors as well as they are able to. This is important to ensure the contractors management systems are not poorer or contradictory to the organization's own management systems. Leaders can also ensure that demands are met and that expectations are realistic, this should be formalized in contracts, but needs to be followed-up later as well. It might be necessary to train the contractors, and they need to be given time and opportunity to familiarize themselves with the procedures.

Systematically following up with the contractors is crucial; “Leaders need to stay close to the contractors in the same way that they stay close to their own employees,” as one informant says. Feedback needs to be followed-up systematically. It was also pointed out by one of the informants that contractors should be viewed as a great information resource to the organization since they usually have a lot of different experience, and they may help identify potential treats given that they perform many potentially dangerous tasks.

#### **4.5.2. Discussion**

While the informants seemed to agree that what made contractors comply with procedures were the same as what made other employees comply with procedures, they pointed out several aspects concerning the link between leadership and contractors. This implies that although the personal motivation for complying with procedures may be the same for contractors and other employees, there are organizational factors that affect contractors differently in regard to compliance. This may be caused by different organizational settings between the contractors and the organization’s own employees, and there are several things leaders can do to reassure that compliance takes place.

According to Høyvik et al, (2009) the local working environment seemed to be more important than the employer regarding several safety climate dimensions, both for workers from the operating companies as well as for contractors. This indicates an effect of local leadership which coincides with the view expressed by the informants. The local belonging to the workspace seems to be important in regard to compliance. This is also what the findings in this study indicate, as the importance of creating a common workplace is emphasized by the informants. It is considered important that the contractors are, and feel like they are, an equal part of the team, by for instance wearing the same kinds of coveralls. It seems reasonable to argue that in regards to contractors, the local leadership plays an important role, and that in accordance with the findings of Høyvik et al. (2009) local management teams are important in producing good health and safety results on installations.

While the contractors should be treated as part of the team to increase the chances of compliance, the need for information about the contractors may be greater due to the fact that contractors are a part of the crew that is harder for the leaders to control. Compared to the organization’s own employees, contractors are more challenging in regard to knowledge and control. While an employee will stay with the organization usually over a longer period of time, contractors may shift between operators rapidly, and the information about them,

necessary to the organization may change rapidly as well. This demands that local leaders follow up contractors at least to the same extent they follow up their own employees. Also that they encourage feedback that may contain important information about systems or operations that contributes to hindrance of compliance since for example time pressure and conflicting demands makes contractors less likely to comply with safety procedures (Alper & Karsh, 2009).

## 4.6. Competence and compliance

### 4.6.1. Results

Competence is regarded as very important when it comes to compliance. According to the informants it is not possible to comply with procedures without a minimum of competence on what you should be complying to. Therefore competence and compliance are closely connected. At the very least you need to be able to find your way around the systems to find the right procedures. Competence requires the understanding of why there are procedures for high risk operations, and it is important to understand why compliance is so important. Competence gives you an understanding of the whole operation, and the worker needs to know what happens when this is done, and when this is done. Without knowing this, the worker can't do the job. One informant said that:

*Competence means a lot when it comes to understanding why we have procedures on risk prone tasks, and why we have described the processes to be able to work safely. This is when competence is important, just to understand why this is so important.*

This is connected to a common understanding of the risks of the operation.

There is a belief among the informants that more competent workers contribute to safer working. Hopefully more competence also leads to more compliance. Although it is not necessarily a given that one gets better at compliance by becoming a more competent worker. But since competence enables the worker to understand more of the potential consequences it is hopefully a connection. This does not however mean that workers with higher education make fewer errors than other workers as anyone can make mistakes. It is probably more important with the right training in order to improve compliance, training with safety critical operations. In safety critical operations there is usually a need, at one point, for some sort of tacit knowledge.



The informants agree that education by itself is not the most important competence. Rather than an education is an important building block to make a competent worker, a fundamental that needs to be present. Experience and skills are considered to be very important. There is no need for knowledge about a task if you don't have the skills to actually perform the operation. "You will need some form of knowledge that you can't get simply by reading." Skills usually develop through experience. In addition a sensation of coping or mastering the task is important since it will be difficult to get workers to do something they don't believe they can actually do. To ensure that they believe this, the workers should have received training so as to have tested themselves and their limits. One of the informants points out that the incidents he has seen mostly have involved experienced workers who are performing routine task. They have done the job a hundred times before, and therefore may not be as concentrated as they are when they perform demanding tasks with a high risk potential. This means that when routine tasks are to be done, less experience will keep the worker more focused, and a lack of experience may therefore be a positive in these specific situations.

When it comes to previous experience with accidents, this may affect the degree of compliance later. But according to the informants this is very dependent on what kind of previous experience the worker has had. If the experience is that compliance had a good result or non-compliance had a bad result, it is more likely that compliance will be the choice in a new situation, opposite if compliance had a bad outcome or non-compliance had a good outcome. Yet this is only believed to be valid for similar types of situations to the previously experienced one.

#### **4.6.2. Discussion**

While the theoretical chapter of this thesis focused on the workers view of themselves as competent, role overload and socialization, the informants contributed with other views on how competence may affect compliance. Among other factors they focused on the role competence plays when it comes to being able to comply with procedures. This indicates that in order to comply with procedures the workers needed to be competent in what they were doing, and that the need to seem competent to others was not a strong indicator of compliance. From the informants' points of view competence is necessary to understand a bigger part of the system, and why compliance is so important in high risk operations. Given this, non-compliance might be seen as a lack of competence rather than a personal need to seem competent. Although competence is seen as a necessary quality to comply, it is not seen as the only necessity. And competence by itself will not ensure that compliance takes place.

There is always room for errors, in which training can make a big difference. Training provides workers with skills that they do not necessarily inhabit just from having knowledge about an operation. This indicates that training is an important feature of competence. Based on the informants it is reasonable to assume that a combination of knowledge, skills and experience is necessary to create a competent worker, and that all three aspects of competence are necessary in order to comply with a procedure. This is in accordance with the findings in Mullen's (2004) study where non compliance could be seen as a response of role overload, caused by inadequate training. The informants' views are also supported by Alper and Karsh (2009), whose study indicated that inadequate training can have a negative effect on compliance.

Previous experience with accidents or incidents can be seen as part of a socialization process as Mullen (2004) describes it, which is believed to be of importance to future safety behavior and attitudes. This was however nuanced by the informants, saying that how previous experience affects compliance is dependent on what outcomes the previous experiences had.

Given that competence, at least to a certain degree, is necessary to comply with procedures one can establish a connection between compliance and level of knowledge. A high level of knowledge does not necessarily mean a high level of compliance though. In addition to competence it seems that a will, a demand, and a focus, to comply with procedures are also necessary.

## **4.7. Responsibility and compliance**

### **4.7.1. Results**

The informants agreed that workers need to feel responsibility for what they do, and that they are part of something meaningful. Without this, non-compliance seemed more likely. "My experience is that if people don't feel that they are doing something meaningful, that they have some kind of responsibility, work becomes difficult and the potential for mistakes grows," as one informant expressed it. He went on to say "you need to feel responsibility for the task you have been given, not just perform it mechanically."

There is a possibility that when too many people are supposed to sign off that something has been done a certain way, this leads the workers to be less accurate since there always will be others that catch their mistake. This can also feel like for the worker like he or she is being controlled, indicating a lack of trust. One informant pointed out that it has been shown that

giving personnel an extended responsibility or role catches on with more workers and creates a bigger feeling of ownership to the job, which will lead to greater compliance.

*As leaders, we are very dependent on having trust, and we rely on being able to give trust. This trust is then regulated by subsequent actions. If the actions are in accordance with what we have agreed upon and expect of each other, the trust is extended gradually. And normally people who have trust will have confidence not to think too much about what people are doing on a daily basis, they know that the jobs will be done the way they have agreed upon.*

Even when a worker is given responsibility he or she may not always be “worthy” of this responsibility. Responsibility needs to come with accountability as well. This is closely connected with the need for trust, both among workers and between leaders and workers. One informant says “If I take a shortcut in a process, and you trust me to follow the full procedure for the process, I am being irresponsible, especially if this shortcut exposes you to a risk in your work.” If this is then discovered, it is important that the worker responsible for the short cut can be held accountable.

#### **4.7.2. Discussion**

The findings in this study support the assumption that unclear responsibilities may lead to non-compliance. Since this is a large and complex organization the issue of clear responsibilities is especially important, indicating the need for well designed job positions. One can assume that there are situations in which it is difficult to maintain a good overview, which can lead to a lack of responsibility leading to non-compliance. It seems that a sense of responsibility for the tasks among the workers may help to restrain such a negative effect. When workers feel responsibilities for their task it seems more likely that gaps in responsibilities will be identified and dealt with, than if they were just performing their jobs mechanically without any other considerations. Feeling responsibility for a job will make the worker more motivated to create a good result, which may lead to a higher degree of compliance. The same may be argued for situations where non-compliance is a result of too complicated designs.

Trust also seems to be an important issue when it comes to responsibilities and compliance. It seems as if trust can be considered as a mediator between the leader’s need for control, and the worker’s need not to feel like he or she is controlled. When trust is established between leaders and workers, or between workers, the need to control whether everything is done in compliance with procedures seems to be smaller. When a worker may be held accountable for

non-compliance regarding his or her areas of responsibility, it is likely that this may lead to a greater degree of compliance. Accountability may also help increase trust among workers and between leaders and workers.

Conflicting goals were not expressed as being that important by the informants concerning the link between responsibilities and compliance. One may however argue that unclear responsibilities create conflicting demands for the worker for example in cases where the worker has a responsibility, but lacks the authority. The workers goal may be to handle the task in a certain way, but because of his or her lack of authority this may conflict with complying with procedures.

## **4.8. Contractors and compliance**

### **4.8.1. Results**

All the informants agree that what makes contractors comply are mostly the same as what makes the organizations own employees comply with procedures. The other factors discussed in this thesis, such as leadership, competence and responsibility will therefore also apply to the contractors. There are however several factors that are specific to the contractors' situations that do not apply to the organizations own employees to the same degree.

The factors identified as negative for compliance in regard to contractors were unfamiliarity with the workspace and the procedures as well as inhibitions to give feedback, seen in regard to getting the next contract. They have both the organization's rules as well as their own company's rules to comply with, which make it harder to remember all of them. This was expressed by one of the informants in this way:

*The contractors have more than one workplace, and the rules for one operator may be different than the rules of another operator. So it is easy to forget that when one travels from A to B and work for more than one operator.*

Contractors may work under slightly different conditions than employees of the organization, and procedures etc, may be more inaccessible for them.

And they may be too focused on blindly complying to give good reports back to the organization. One informant expressed that:

*It is probably different from installation to installation, but I believe there are similarities when it comes to the contractors being a little more reserved in regards to*

*give feedback. If the contractors complain too much, or do not perform well, they may not be sent back out again.*

Positive factors however were that contractors may be more strongly motivated to please the organization because they want to get a new contract in the future and the consequences for a contractor who does not comply may be more severe than for an organization employee. Because of this “There is an extra focus not to create an incident for the contractor or the contractors company,” as one of the informants put it.

#### **4.8.2. Discussion**

Given that contractors are affected by the same factors as other employees when it comes to compliance, the focus needs to be on how these factors affect contractors differently than the organization’s own employees. It seems that contractors are especially vulnerable to organizational factors because of their lack of familiarity with the organization. They may be doing a job on a worksite they have never been to before, or it may have been a long time since they were there last, and the procedures might have been changed in the meantime. This supports the theory saying that local working environment is the most important factor in regard to safety (Høyvik et al. 2009). It seems to be of key importance that the leaders and workers at the local working area are able to include the contractors, and integrate them in the workforce to a similar extent as one of the organizations own employees. When a worker arrives at an unfamiliar worksite, how he or she is involved, or taken care of here, seems to be the most important way of dealing with unfamiliarity and other factors that contractors are more vulnerable to.

Another aspect that seems crucial when it comes to contractors and compliance is the process of giving and following up on feedback. While neither too much, nor too little feedback is ideal, it seems to be important to have a system in which the contractors are followed-up in a way that reveals aspects of non compliance, but also creates room for the contractors to report their concerns without risking their next contract. As discussed in chapter 4.5. Leadership and Contractors, the importance of knowledge about the contractor and their competence seems crucial to establish such a system of feedback and follow-up.

## 4.9. Other factors that affect compliance

### 4.9.1. Results

It appears that compliance might be difficult to achieve. That is, the informants identified several reasons as to why compliance might not take place other than the original organizational factors studied. The first of which was availability. Several of the informants pointed out that with a system of procedures which is difficult to orientate within, compliance may be difficult to achieve. The workers need to have a general overview of the different procedures, as well as being trained in locating the right procedures or documents that concerned the tasks at hand. They also need to inhabit the ability, desire and time to locate the right documents, because it may be challenging to locate the element within a procedure that relates to the certain task, given the extensive and complex organization.

Another reason for non-compliance identified by the informants was lack of knowledge. One interviewee said, “The most common reason why people do not follow procedures I would think is that they do not actually know of them.” Either that workers fail to comply because they are not aware of any procedures that regulate the area where the job is done or that they inadvertently make mistakes.

The design of the procedures was also mentioned as contributing to whether or not workers complied with the procedures. It was considered difficult to write a procedure that one can comply with in all settings and situations. The person who writes a procedure and the person who does the task connected to the procedure may be located in entirely different parts of the organization, which makes both the ability to formulate the procedure as well as the ability to understand the procedure key in regard to compliance. The design of the procedures, which includes features such as language, pictures etc. may therefore affect compliance in either direction.

A fourth challenge related to compliance was identified as an understanding of why procedures are important to follow. This has been mentioned above, as being part of the organizational learning that has taken place within the organization, although here the focus is more on understanding the task or problem at hand. One of the aims of any procedure is to transfer information about a certain way to handle a task. But these tasks are not carried out in a vacuum, and therefore there may be a need for coordination between tasks or between the task and the procedures. One interviewee pointed out that the procedures were not always adjusted to the setting, in his case the work space was of an older standard, which made it

necessary to adjust the procedures to the work space he was operating in. This makes a common understanding of the problem at hand important. As pointed out by one of the informants it is not a problem to drive through an orange light until other drivers do the same. With high risk operations it is even more important to comply with the rules since the consequences can be high.

A fifth concern the informants raised was that procedures might involve conflicting demands on the worker. This did not however include uncertainty as to what priority safety had in the organization, as all the informants were clear on the fact that safety was the highest priority. However it was pointed out that the sheer amount of procedures makes it likely that some of them are in some way logically inconsistent with each other. This is closely linked to the next issue which is the complexity of the procedures and the system of the procedures. Several informants said that it is important to keep the number of procedures down, to not have more procedures than necessary. With too many procedures there was a risk of too much focus on doing things the right way, instead of doing the right things. Compliance should not be considered a goal in itself, but a means to reach the goals of the organization. Another aspect of this is that with larger amounts of procedures, the more demanding it is for the workers who need to be updated on the procedures at all times. And if these workers are experienced and have done the tasks before, it can become a problem to recognize the changes in the procedures, or updates, as well. Compliance with procedures is then seen as time consuming and demands discipline of the worker, who needs to read the procedure and fulfill the task according to it. This may also affect compliance when there is a lack of time, since the job may be done faster by not complying with all the procedures.

#### **4.9.2. Discussion**

Lack of availability as a restraint on compliance may be seen both as a part of the human and the technological subsystems in an MTO perspective. A system that is difficult to operate within, and where it is complicated to find the right procedures can be argued to be the result of the technical subsystem failing the task of presenting the worker with procedures. From the human subsystem this is more about whether or not the person who is searching for the procedures is capable of, and invested in, finding the right procedures. This is more about whether or not it is the right person at the job, than whether or not the procedure or system is working as intended. Lack of knowledge resulting in non-compliance may be another aspect, or a result of lack of availability of the procedures. One of the reasons workers may not be aware of procedures may be because they are not as accessible as they ideally should be. In

this case availability may be included in the organizational subsystem of the MTO perspective, indicating the close link between the three.

Design of procedures was identified as important as well as challenging by the informants. It seems reasonable to assume that how a procedure is designed will in fact affect to what degree workers will comply with it. It has been argued earlier in this chapter that among others competence is needed to comply with procedures because they need to be understood. Based on this it is reasonable to assume that the choice of design will impact the competences needed to understand the procedure. Design here may be argued to concern the link between the organizational and the human systems in an MTO perspective, as well as the link between the technical and human systems. Design is then about making the procedures understandable and appropriate for the workers who are complying with them. Involvement is another issue that has been mentioned before as an important contributor to compliance. In the case of design, it is possible that involvement of different types of employees in the procedure writing process may help ensure that the procedure is as easy to understand and comply with as possible.

While understanding the importance of complying with procedures is argued to be a part of how competence affects compliance, it seems to be expressed so strongly by the informants that it requires attention not only as a part of the link between competence and compliance. It seems as one of the challenges in creating good procedures that foster compliance is related to what kind of contexts the tasks are performed in. While the understanding of the task is a key aspect in the link between competence and compliance, it seems likely that there is also a need for an understanding of the greater context of the organization in which the work is being done. This coincides well with an MTO perspective where the belief is that one has to integrate all three subsystems of man, technology and organization to create a safer organization, and implies that a greater understanding of all of these three subsystems are necessary positively affect compliance within the organization.

Conflicting demands as a reason for non-compliance has been discussed as part of the connection between responsibilities and compliance. Here it is concerned more with the procedure itself, and the system of procedures, and how this may contribute to non-compliance. The number of procedures seems to be important, and indicates that too many procedures will increase the likelihood of non-compliance either because of inconsistency between the procedures or the demand on the worker to orientate within the procedures being



too great. From an MTO perspective it can then be argued that the system of procedures, either as part of the technological or organizational system is not properly adjusted to the human system, making compliance time consuming and possibly unnecessarily hard.

## 5. Conclusion, limitations and implications

### 5.1. Conclusion

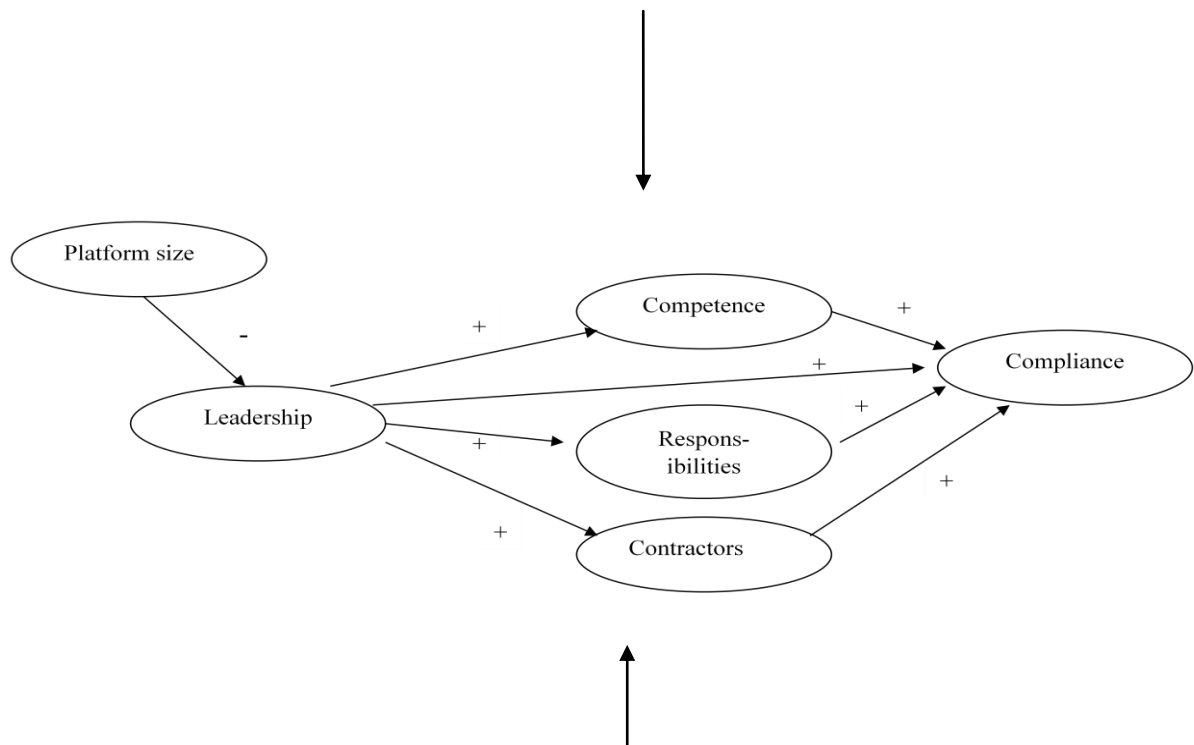
The purpose of this thesis has been to study how and why leadership, competence, responsibility and contractors influence compliance, and identify what other factors can potentially influence these organizational factors and the relationship between them.

This study first of all supports the connections made in the structural model (Dahl & Olsen, 2011) between the organizational factors included there. In this study, all of the participants saw some link between the different organizational factors affecting each other as they do in the structural model. The relation between leadership and competence was supported through the fact that leaders have influence over how much training and development possibilities the workers will get. In addition it was considered a leadership task to ensure the team of workers had the competence they were supposed to have to do the job at hand. The importance of leading by example is one of the explanations for why there is a relation between leadership and compliance. Involvement and a clear focus on compliance was also found as a reason for how leadership may affect compliance, and the same was the importance of this support from a level of leadership close to the worker. Concerning responsibilities as an organizational factor, and its relation to leadership, it was found that a balance between responsibilities and authorities was important. Unclear responsibilities and lack of time to perform basic leadership tasks seemed to be important. The deployment process where workers are nominated for new positions was an example of how leadership affects responsibilities. In regards to contractors, involvement, inclusion, information, knowledge and systematical follow-up seemed to be factors that were clearly a leader's job, indicating a strong link between leadership and contractors. Compliance was considered impossible without some sort of competence. To be able to comply with a procedure, there needs to be at least a basic understanding of that procedure, or the task it describes. Competence was seen as a mix of education, experience and skills, and there was a belief that more competence lead to more compliance. Workers need to feel responsibility for what they do, and when they do, this may lead to a higher degree of compliance. Extended responsibilities are also positive for compliance, but responsibility needs to come with accountability. For contractors it seems like unfamiliarity with workplace and procedures, inhibitions to give feedback, less available procedures and a focus on blind compliance are important in regards to a contractor's degree of compliance with procedures.

The study secondly revealed other factors that influenced the organizational factors discussed above and the relation between them. The first was availability of procedures, both in regards to the system of procedures being able to navigate through and in regards to the worker being motivated to finding the right procedure for the task that is to be performed. Secondly, lack of knowledge seemed to be another important reason for non compliance. Workers do not violate procedures on choice, but rather because they are not aware of the procedures regulating the task. Thirdly design of procedures was considered important to create a higher degree of compliance. It is difficult to design a procedure that can be complied with in all situations within an organization. And there are challenges related to writing the procedure, as well as to understanding it. To understand why compliance with procedures is important is the fourth factor revealed. There needs to be an understanding among the workers that the procedures are the safest way to perform a task, and this understanding will lead to increased compliance. Finally, conflicting demands may affect the organizational factors described above. When there are too many procedures, the demand to stay up to date in regards to the procedures may conflict with getting the job done. This can affect compliance for example when there is a lack of time since compliance seems to be time consuming.

Based on the findings and discussion in the previous chapter, the previous structural model (Dahl & Olsen, 2011) presented in the introduction of the thesis will be expanded here to include the other factors that were revealed in this study:

Contextual system factors: *Availability of procedures, design of procedures, conflicting demands, amount of procedures*



Contextual work process factors: *Personal ability to find the right procedures, lack of knowledge about procedures, understanding the importance of following procedures*

Figure 3: Extended structural model, based on Dahl and Olsen (2011).

## 5.2. Limitations

The selection of informants as well as the numbers of informants involved in this thesis does not meet the requirements to generalize to a population. The goal of the thesis was to obtain individual perceptions and experiences that can help explain how compliance is affected by the organizational factors from the previous study (Dahl & Olsen, 2011), as well as other factors. The need to generalize in the meaning from one population to another is therefore not part of the overall aim of the thesis. This might be seen as a limitation of the study, yet I argue that the findings are important because they contribute to our understanding of how different factors contribute to or hinder compliance within an organization. The goal was to identify common traits that connect certain phenomenon under similar circumstances. Although the number of informants is not at a level where one may generalize; this lack of generalization was a known consequence of this research strategy within this thesis.

The different factors studied in this thesis are not exhaustive, there are most likely several other factors that influence both the structural model developed by Dahl and Olsen (2011) as well as compliance directly. The ones that have been included in this thesis seem to have been the most important ones in the views of the informants. Because of the limited resources, especially in terms of time to conduct the study, the choice was made to focus on fewer factors, to discuss these thoroughly.

## 5.3. Implications

In regard to organizations, the findings in this study indicate that blaming individuals for violations of rules is an inadequate response to non-compliance, with little potential for improving the safety in the organization. The organizational factors that make out the structural model (Dahl & Olsen) that this thesis is based on were all found to affect compliance, indicating that they should be included in an organization's work to further improve compliance. Several of the findings in this study illuminate areas of interest in regard to management strategies that, if they are upheld, may influence among others the design of procedures or how leader development is considered in an organization.

Although several contextual factors that affect compliance were revealed in this study, future research should be carried out to develop a holistic framework that includes more factors than those included in this study. Based on the model presented in chapter 1.7., it seems evident that compliance is one of the areas of interest when it comes to creating safer workspaces. By

expanding the factors studied in regard to compliance knowledge may be gained that help create compliance in the future, and help prevent accidents and injuries.

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## Appendix 1

### Intervjuguide:

#### Innledende spørsmål:

- Hvor lenge har du jobbet der du er nå?
- Kan du beskrive jobben din?
- Hva slags arbeidsoppgaver har du?
- Har du tidligere vært involvert i ulykker/hendelser som har ført til skader?
- Hvilke systemer/strukturer påvirker arbeidsdagen din?

#### Etterlevelse:

- Hva legger du i etterlevelse?
- Er etterlevelse bra for sikkerheten eller ikke? Hvorfor/ hvorfor ikke?
- **Hvorfor er etterlevelse vanskelig å få til?**
- Hvordan tror du etterlevelse bidrar til en tryggere arbeidsplass?
- Har du god nok kjennskap til styrende dokumentasjon til å etterleve denne?
- Er slik dokumentasjon tilgjengelig slik at det er mulig å finne den for å følge den?
- Påvirkes etterlevelse av sikkerhetsmotivasjon og sikkerhetsbekymringer?
- **Hva tror du gjør at man ikke alltid etterlever styrende dokumentasjon?**
- Er det viktig med lokal tilhørighet?

#### Ledelse:

- Hva er ledelse for deg?
- Hva syns du er viktige oppgaver for ledelsen på din arbeidsplass?
- **Hvordan påvirker dine ledere arbeidet ditt?**
- **Har ledelse en innvirkning på etterlevelse av regler?**
- **Hvordan bidrar ledere til økt etterlevelse?**

#### Kompetanse:

- Hva legger du i kompetanse?
- Får du utnyttet din egen kompetanse i din stilling?
- **Har ledelse innvirkning på kompetanse?**
- **Hvordan kan ledere påvirke kompetansen til ansatte?**
- **Hva betyr kompetanse for etterlevelse av regler og prosedyrer?**
- Hva betyr informasjon, utdanning og opplæring for etterlevelse av regler?
- Har det noe å si/hva har det å si om man har vært involvert i en ulykke tidligere?

#### Ansvar/myndighet:

- Er det klart og tydelig hva slags ansvar du har gjennom din stilling?
- **Er det viktig at dette er avklart?**
- Stemmer ansvaret som hører til stillingen overens med det faktiske ansvaret du har i praksis?
- **Hvordan påvirkes ansvar og myndighet av ledelsen der du jobber?**

- **Har ansvar noen betydning for etterlevelse av regler?**
- Vil uklare ansvarsområder og myndighet føre til manglende etterlevelse? Hvorfor det?
- Hvordan spiller grad av endring og vanskelighetsgrad inn?

#### **Leverandører:**

- **Hva tror du er det viktigste å gjøre/tenke på når det gjelder leverandører?**
- Tror du den lokale ledelsen kan påvirke hvordan leverandører utfører jobben sin?
- **Hva tror du gjør at leverandører etterlever regler eller ikke?**
- **Tror du det er forskjell på hva som får ansatte og leverandører til å følge regler og prosedyrer?**
- Hvorfor tror du at det er en forskjell, eller hvorfor tror du ikke det?
- Hva tror du i størst grad påvirker hvorvidt leverandører etterlever regler (tilgjengelighet, opplæring osv.)?

#### **Andre faktorer:**

- **Er det andre ting ved arbeidet ditt som fører til økt eller redusert etterlevelse?**
- **Er det andre ting du tror er viktige for å oppnå etterlevelse av regler?**
- **Hvordan/hvorfor tror du disse tingene påvirker etterlevelse?**
- Spiller dårlige systemer (som ikke gjør det mulig å etterleve reglene) en stor rolle i forhold til brudd på regler?
- Hvordan påvirker konkurrerende mål, motstridende krav og tidspress etterlevelse?
- Hvilken rolle spiller tid når det kommer til etterlevelse? Kan mangel på tid føre til brudd på regler?
- Hvilken rolle spiller sosialisering? Kan man sosialiseres inn til å følge eller bryte regler?
- Tror du det er sånn at når organisasjonen reflekterer omsorg angående ansattes velbefinnende at dette kan føre til at ansatte utviser med positiv sikkerhetsatferd?

#### **Avsluttende spørsmål:**

- Er det noe du ønsker å legge til/spørsmål til det som har blitt sagt?

## Appendix 2

### **Prosjekt informasjon:**

Mitt navn er Ida Skaugrud. Jeg er en student ved Universitetet i Stavanger. Informasjon fra denne undersøkelsen vil bli benyttet i min masteroppgave som en del av mastergradsstudiet i Samfunnssikkerhet ved Universitetet i Stavanger. Temaet for undersøkelsen er hvordan organisatoriske faktorer påvirker etterlevelse av regler og prosedyrer. Etterlevelse ses som kritisk for at en organisasjon skal kunne opprettholde og forbedre sitt sikkerhetsnivå. Ledelse, kompetanse, ansvar og leverandører er organisatoriske faktorer som står i fokus i denne undersøkelsen. Målet med oppgaven er å belyse hvordan disse faktorene påvirker etterlevelse og belyse andre faktorer som eventuelt spiller inn.

Informasjon som kommer fram gjennom intervjuene vil anonymiseres fullstendig. Identiteter vil ikke knyttes til innsamlet data. Alle lydopptak vil slettes når oppgaven er ferdigstilt. Oppgaven vil være tilgjengelig for ansatte og studenter ved Universitetet i Stavanger.

### **Project information:**

My name is Ida Skaugrud; I am a student at the University of Stavanger. Information from this survey will be used in my thesis for a Master's Degree in Societal Safety and Risk Management at the University of Stavanger. The goal of this study is to discover how organizational factors effect compliance with rules and procedures. Compliance is seen as critical for an organization's ability to maintain and improve its safety. Leadership, competence, responsibilities and contractors are the organizational factors that are the focus of this investigation. The aim of the project is to clarify how these factors effect compliance and shed light on other factors that may also play a role.

The information being provided from those being surveyed will be completely anonymous. Identities will not be associated with the data being collected. Any recordings will be deleted once the project is completed. There will be open access to the manuscript for university students and employees.