Norwegian School of Economics
Bergen, Fall 2015

NHH

WHEN CREATIVITY AND INNOVATION IS AT STAKE

How downsizing affects the work environment in light of the current economic downturn

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Master Thesis in Economics and Business Administration

Profile: Business Analysis and Performance Management

NORWEGIAN SCHOOL OF ECONOMICS

ACKNOWLEDGEMENTS

This master thesis was written as a part of our MSc in Economics and Business Administration at the Norwegian School of Economics. This experience has been one of the most inspiring and educational of our time at NHH, but at the same time one of the most challenging. Our subject is highly relevant considering the current market conditions in the Norwegian oil and gas industry, and this has made the process even more interesting.

The quality of the collaboration between us has been very satisfactory. We are left with a product we are proud of, a positive experience, and important knowledge to take with us further in life. There are some important people we would like to thank who have made this thesis possible.

First and foremost, we would like to thank our supervisor, Marcus Selart. We highly appreciate your contribution with valuable advice, support, and guidance throughout this process. Your involvement and continuous feedback has been of great importance. In addition, we would also like to show our gratitude to Alexander Madsen Sandvik, who has contributed with useful input in the preparation of our questionnaire.

Furthermore, we wish to thank the three firms that have contributed to our study, and especially the contact persons in these firms. We highly appreciate all of the employees willing to take the time to complete our questionnaire. During this difficult time in the industry, this is something that we do not take for granted.

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Bergen December 18, 2015

ABSTRACT

In this thesis we have studied how downsizing impacts the work environment for creativity and innovation in light of the current economic downturn in the Norwegian oil and gas industry. The theoretical aspects of anticipated downsizing, job motivation, job insecurity and job satisfaction has been reviewed and related to employees' perceptions of the work environment for creativity. In order to assess the work environment for creativity, we have used the survey instrument KEYS. This instrument was developed and adapted over several years by a pioneer in the creativity field, Theresa Amabile (1996). To answer our research problem empirically, we have developed a research model consisting of four hypotheses.

Our study is based on an analysis of three firms in the industry. In order to test our hypotheses and answer our research problem, we have distributed a questionnaire to 480 employees, in which we received a total of 100 responses. This yields a response rate of 20.8%, which we consider good, taking into account the length and the timing of the survey.

The regression analysis revealed that job satisfaction and job insecurity had a causal relationship with the work environment for creativity. Both anticipated downsizing and job motivation was not significantly related to the total work environment for creativity. However, anticipated downsizing was positively related to challenging work and sufficient resources, while job motivation showed a positive relationship with challenging work.

The results of the regression analysis and descriptive statistics have been thoroughly discussed in the last section of our thesis. This includes both an in-depth discussion of the results, and implications for theory and practice.

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1.0 INTRODUCTION

Over the past two years the Norwegian oil and gas industry has been characterized by a substantial amount of uncertainty. The main cause is a combination of a major drop in the oil price and high development and operating costs in the industry. This has lead to a significant slowdown of the activity level on the Norwegian continental shelf as firms drop or postpone investments and projects. Many firms in the industry resort to downsizing in order to adapt to the changing market conditions. So far, more than 27,000 people in the industry have lost their job as a result of the downturn. Statoil, the largest player in Norwegian oil and gas industry, accounts for 5,500 of these jobs alone.

In the current challenging and rapidly changing business environment, continuous renewal and adaptation is required to stay in business. Hence, the quest for increased organizational creativity and innovation in products, services, systems, and work processes has been increasingly recognized as a key factor to long-term organizational survival, competitiveness, and success (Ekvall 1999; Mathisen & Einarsen 2004). Especially in times of crisis, it is vital for companies to put time and resources into innovation so that they can not only survive the economic downturn, but also evolve and improve as a company. If the Norwegian oil and gas industry is able to maintain a focus on innovation, while at the same time successfully cut costs, firms can gain long-term benefits (Nofas.no 2014).

Whether or not successful innovation in fact occurs within an organization is related to a wide range of external and internal factors. However, creative and innovative behaviour by employees seem to be affected by a combination of both personal qualities and work environment factors (West & Richards 1999). Organizations can create a work environment in which creativity and innovation either is encouraged or stifled. The combination of a supportive and challenging work environment has particularly been found to sustain high levels of creative behaviour in individuals and teams (West & Richards 1999). In addition, a creative and innovative work environment seem to be characterized by

encouragement of new ideas, freedom regarding the choice of tasks and how to preform them, free and open communication, as well as appropriate feedback and recognition for creative work (Amabile 1996).

Every year a large number of companies lay off their workers in the hope of enhancing organizational efficiency, reducing cost, and improving organizational performance (Mellahi & Wilkinson 2010). Previous research shows that downsizing activities often has a major impact on the work environment and the employees within organizations. Some common patterns of change in the work environment in organizations during downsizing have been uncovered. Organizations appear to undergo a deterioration of trust, increase in fear, high levels of uncertainty, a resistance to change, and a tendency toward rigid behaviour patterns (Cascio 1993; Appelbaum et al. 1999; Macky 2004). Additionally, downsizing leads to a variety of feelings and reactions by the employees who remain in organizations following involuntary employee reductions, such as anger, relief, stress, and job insecurity (Noer 1993). Further, these reactions have the potential to affect the survivors work behaviours and attitudes, namely motivation, commitment, job performance, and job satisfaction. We believe some of these downsizing consequences will have an impact on the work environment for creativity and innovation.

The main objective of this thesis is to explore the impact of downsizing on the innovative capability of the modern-day firm in the Norwegian oil and gas industry. The terms creativity and innovation tend to overlap in much of the literature. We can define and distinguish creativity from innovation in the following manner: the essence of creativity is to produce novel and useful ideas, while innovation is to successfully implement these creative ideas within an organization (Amabile et al. 1996). In this view, creativity by individuals and teams is a starting point for innovation in organizations; it is a necessary, but not sufficient condition for innovation. Since all innovation starts with creative ideas, we will examine the perceptions of the work environment that influence the creative and innovative work carried out in organizations. We will assess the work environment during downsizing by conducting a survey on employees in

three firms in the Norwegian oil and gas industry. One of these firms is one of the world's largest independent exploration and production operator, while the other two are large service companies in the industry. All of our participatory firms have engaged in downsizing activities the past year and at the same time emphasize creativity and innovation through their vision and core values. These three firms account for over 3000 of the missing jobs in the industry. Half of these jobs are contract labour, while the rest are permanent employees.

Taking the importance of innovation and creativity in the current economic downturn into consideration, our research problem can be defined as follows:

"How downsizing affects the work environment for creativity and innovation in light of the current economic downturn in the Norwegian oil and gas industry"

Our analysis is based on the survey instrument, **KEYS: Assessing the Climate for Creativity,** developed by Theresa Amabile in 1995. The conceptual model underlying KEYS represents scales that are positively related to creativity, *stimulant scales,* and scales that are negatively related to creativity, *obstacle scales.* Furthermore, we will use these scales to assess the perceptions of the work environment for creativity during the current economic downturn.

The thesis is structured as follows: In the second section we will present the theoretical background of our thesis. We will discuss relevant literature and prior research in the creativity, innovation, and downsizing field. Furthermore, we will present previous research on how downsizing can impact creativity and innovation in organizations. In the third section, we will introduce our developed research model and the hypotheses we wish to test. Section four will explain the methodology and data sources used in the analysis. The results and the analysis of our survey will be presented in the fifth section. In the sixth section, we will discuss our results and the implication of these results compared to relevant studies. The last section will summarize the main findings of our study and the concluding remarks of our analysis will be briefly explained.

2.0 THEORETICAL BACKGROUND

In this section we will present the theoretical background of our thesis. The main purpose is to develop a good understanding and insight into relevant research. The theory and literature presented will later be used as a basis for the analysis of our research problem. We start by defining downsizing, before we move on to examine its causes and consequences. We continue by defining creativity and innovation, and introduce the survey instrument, KEYS. This instrument will be used to explain which work environment characteristics that positively influence individual and group creativity in organizations, and which characteristics that can be destructive for creative behaviour. Additionally, research on how downsizing affects the work environment for creativity and innovation in organizations will be presented. Finally, we will briefly introduce literature on how firms can sustain creative and innovative during downsizing.

2.1 DOWNSIZING

A single definition of downsizing does not exist across literature and studies. However, it is clear that it involves cutting workforce levels. Cascio (1993) refers to downsizing as "the planned eliminations of positions or jobs". Cameron (1994) includes the purpose of downsizing and defines it as "a set of activities, undertaken on the part of the management of an organization and designed to improve organizational efficiency, productivity, and/or competitiveness". Downsizing represents an implemented strategy that affects the size of the firm's workforce, costs, and work processes.

While many different terms have been used in reference to downsizing, it is important to distinguish between downsizing and employee layoffs (Gandolfi & Oster 2009). Employee layoffs is exclusively concerned with the individual level of analysis, while downsizing is a extensive concept covering micro, organizational, industry, and global levels. Employee layoffs are an operational mechanism used to implement downsizing, whereas downsizing can be seen as a strategic intent, also known as rightsizing (Hitt et al. 1994).

During the past 30 years, firms across the world have frequently implemented downsizing. In the 1980s and early 1990s, it was mainly implemented by firms who were experiencing economic downturns. However, since the mid-1990s, downsizing has become a leading strategy of choice for a multitude of firms (Gandolfi 2008). Downsizing may be seen as a strategic transformation implemented to change a firms design, work processes, firm culture, values and attitudes (Gandolfi & Hansson 2011). Today, downsizing is something most firms will experience, and something we frequently read about in the media. From "Levekårsundersøkelsen" (survey on income and living conditions) in 2003, 38% of employees in Norwegian firms had experienced downsizing over the past two years (Colbjørnsen 2006).

Firms use different strategies to reduce the number of employees. Downsizing can be conducted through transfers, redeployment, reduced work hours, early retirement, and permanent layoffs. Some firms do everything to avoid downsizing during economic downturns and implement employee attrition. To avoid layoffs, firm institutes a hiring freeze and gradually reduce the workforce by not replacing employees lost through retirement and resignations.

2.1.1 Downsizing causes

Why do firms resort to downsizing? Literature and studies mentions a multitude of possible causes, and each downsizing decision reflects a combination of different drivers. Workforce reduction is one of many strategies firms use when they experience increased competition, new technology, deregulation, and changes in demand conditions (Nesheim et al. 2007). Furthermore, downsizing is affected by economic cycles, and firms experiencing difficult economic times are more likely to downsize.

As mentioned, downsizing is no longer exclusively used as a crisis resolution in economic downturns. Today, downsizing is a strategy of choice used to maintain competitive advantages and respond to changing industry conditions. Strategic downsizing is proactive and a move to position the firm for long-term growth,

while downsizing in economic downturns is often a reactive move with short-term benefits to ease financial pressures (Band & Tustin 1995).

Drew (1994) differentiates between three categories of downsizing causes: macroeconomic, industry-specific, and firm-specific forces. In order to examine the factors that lead firms to downsize, he conducted a research with executives in several large Canadian firms. Declining sales and poor financial results were the causes rated first and second. Greater responsiveness to customer needs, increased international competition, and changes in strategy were other high-rated causes.

Gandolfi and Hansson (2011) distinguish between external and firm-level downsizing causes. Among the external factors they mention global competition, pressure from rival firms, poor industry conditions, economic downturns, and technological change. Important firm-level factors are different types of cost-reducing efforts. These efforts are often implemented as a response to various types of crises and external factors over which management has little or no control. Downsizing can also be caused by decreased financial resources and lowered profit margins. Other firm-level factors are managerial and driven by firm strategy. For instance, firms seek to gain efficiency and productivity. Hence, they downsize to make best possible use of their human and physical resources. Sometimes downsizing is not only implemented to cut labour costs in the short run, but also to apply downward pressure on wage demands from the remaining workforce in the longer term (Ryan & Macky 1998).

Costs associated with employees constitute a large amount of total costs in most firms. Hence, cutting costs by reducing employees appears to be a natural strategy, especially for firms struggling to stay alive in a globally competitive market (Cascio 1993). In addition, future incomes are less predictable and controllable than future costs, and managers who seek to increase profitability often do so by reducing headcount and labour costs.

2.1.2 Downsizing consequences

The body of literature on downsizing consequences presents a complex yet rich picture (Gandolfi & Hansson 2011). The majority of the studies on downsizing consequences suggest that the expected positive outcomes often fail to materialize (e.g. Cascio 1993; Gandolfi 2006). The success of a downsizing process depends on how it is implemented and why firms choose to downsize in the first place. We divide downsizing consequences into two categories: financial and consequences for the work environment and the employees.

Financial consequences

Previous literature and research on financial consequences of downsizing has shown various results. The results vary among different industries, organizations, and the measurements taken into account in the analysis. Gandolfi's (2008) research on financial consequences draw the following conclusion:

"The overall picture of the financial effects of downsizing is negative. While a few firms have reported financial improvements, the majority have failed to report increased levels of efficiency, effectiveness, productivity, and profitability".

The announcement of downsizing activities has shown positive short-term stock market reactions, but the long-term effects are negative (Appelbaum et al. 1999). Regarding the effects on profitability and EBITD margin of downsized firms, there is a lack of empirical data to suggest that downsizing has a significant positive effect on financial outcomes.

A long-term study performed by De Meuse et al. (2004) analysed the financial performance of firms that downsized between 1987 and 1998. They found that downsized firms performed significantly poorer two years following the announcement. The study also examined whether the magnitude of downsizing had an impact on firm performance. The data indicated that firms who downsized 10% or more did significantly poorer than firms that downsized less.

Consequences for the work environment and the employees

Downsizing will also have consequences on the organizational level, namely for the work environment and the employees in the organization. Cascio (1993) mentions the following expected positive outcomes of downsizing: less bureaucracy, faster decision-making, smoother communication, greater entrepreneurship, and increased levels of employee productivity. However, previous research has shown that the expected positive outcomes rarely materialize, and there exist several negative consequences of downsizing.

In some cases, downsizing may result in reduced layers in the organizational hierarchy. Subsequently, this could lead to faster decision-making and smoother communication (Cascio 1993). However, organizational downsizing often damage communication by creating fear, causing the employees to become more self-centred. This individualistic attitude has proven to prevent teamwork and result in loss of trust (Cameron 1994). As downsizing activities increase, employees may become more loyal to their own careers rather than to the organization they work in (Cascio 1993). Furthermore, Wagar (1998) found reduced moral and lower overall employee satisfaction as possible consequences of downsizing. Downsizing can also increase resistance to change that generate conservatism and a threat-rigidity response (Macky 2004). Clear communication from management can ensure greater acceptance for change and reduce the negative outcomes of downsizing.

The consequences for employees are often overlooked and underestimated, but prior research on downsizing has shown immense and far-reaching consequences at the human level (Brockner et al. 1988). Gandolfi (2006) draw a distinction between three categories of people directly impacted by downsizing: executioners, victims, and survivors. The *executioner* is an individual entrusted with the conduct and execution of the downsizing process. Little research has been conducted on the emotional responses and reactions of the executioners. However, the research conducted suggests that the implementers of downsizing suffer from similar reactions as the victims and survivors of downsizing (Gandolfi 2006).

A downsizing *victim* is a person who is downsized or restructured involuntarily (Gandolfi 2006). Research suggests several psychological effects resulting from job loss. These effects include stress, reduced self-esteem, helplessness, social isolation, and depression. For the victims of downsizing, losing the job often offset emotions comparable to those experiencing a loss of someone close (De Vries & Balazs 1997). Furthermore, other studies mention uncertainty, decreased level of commitment, and loyalty as consequences experienced by the victims. In some cases, these consequences could be carried over to the victim's next job (Macky 2004).

Finally, a downsizing *survivor* is a person who remains in the organization after involuntary employee reductions have taken place. Most of the previous research has focused on the employees forced to leave the organization, namely the victims. This is quite surprising given that it is the surviving employees that are expected to continue the organization's work and move it towards a new level of productivity, profitability and competitiveness (Gandolfi 2006). One of the most common reasons why downsizing is unsuccessful and result in long-term negative effects, is that organizations often are successful at preparing for the employees being laid off, but they may not be prepared for the feelings and reactions experienced by the surviving employees (Devine et al. 2003).

The impact downsizing has on the remaining workforce is often referred to as survivor syndrome or survivor sickness. Noer (1994) defines survivor syndrome as "a set of feelings and perceptions that occur in employees who remain in organizational systems following involuntary employee reductions." The survivor syndrome is characterized by a variety of psychological states, such as guilt, anger, relief, stress, and job insecurity. Further, these mental stages have the potential to affect the survivors' work behaviour and attitudes, namely motivation, commitment, and job satisfaction. Cascio (1993) refers to the appearance of survivor syndrome as the downside of downsizing.

Survivor syndrome is also associated with survivor guilt. This is a feeling of responsibility or remorse of some offence, and is often expressed in terms of

depression, fear, or anger (Noer 1993). These feelings are comparable to the concept of combat syndrome. Combat syndrome refers to the feelings experienced by a soldier in combat upon the death of a fellow soldier. Feelings of relief for own survival are often followed by feelings of immerse guilt for own survival (Allen 1997). These feelings tend to arise when survivors feel that their own merit is no better than the victims of downsizing. Previous research have found that the response of survivors is closely linked to the treatment received by those laid off. Downsizing survivors will react most negatively when they perceive that their terminated colleagues have been badly treated and poorly recompensed (Brockner et al. 1987).

Noer (1993) conducted a longitudinal study in a large multinational firm that engaged in downsizing activities, and was able to recognize and separate survivors' negative feelings and reactions into twelve categories. He concluded that the vast majority of downsizing survivors experience survivor syndrome to some degree. In addition, he contends that downsizing trigger changes in employees' perception of and relationship with the organization, for instance, lower commitment to the organization and reduced work performance. It is not the downsizing itself that create the emotions associated with survivor syndrome, but rather the manner in which the downsizing is handled by the management. We will describe a few of the survivor reactions in Noer's research that we consider most important.

Job insecurity is one of the most common reactions during and after downsizing. Downsizing activities are very often conducted gradually, and therefore many surviving employees are concerned about whether they will be able to retain their job in the future. Lack of predictability and lack of control over organizational processes can induce job insecurity among the survivors. Job insecurity will influence employees work behaviour and attitudes on a daily basis. The uncertainty, stress, and worry of what to do if they lose their job may redirect focus from the actual work. Appelbaum et al. (1997) argues that many surviving employees attempt to cope with this feeling by withdrawing from their jobs psychologically. This psychological withdrawal may result in decreased

commitment to the organization, diminished job satisfaction, increased intent to resign, and reduced job performance. In addition, many experience the job situation as confusing. It is quite usual to be assigned new tasks, responsibility, and increased workload after downsizing. Thus, many do not see how they fit into the newly structured organization – they lack *strategic direction*.

Experienced fairness and *clear communication* from top management is especially important with regard to how survivors react during and after downsizing. This particularly influences their levels of productivity and the quality of their job performance. Survivors will judge the fairness of layoffs, and they can be sceptical about the necessity, process, and fairness of the downsizing strategy. Previous research has revealed that surviving employees are more committed to the organization when they perceive that the terminated employees were adequately compensated and treated fairly (Greenberg 1990). In addition, communication is key in all steps of the process – before, during and after downsizing. Lack of communication and inadequate preparations of employees for downsizing can cause survivors to view the entire process with suspicion (Appelbaum et al. 1997). Clear and concise communication can reduce negative emotions such as uncertainty, unfairness, and anger. However, survivors can receive varied degrees of communication and information during downsizing, based on their level within the organization (Armstrong-Stassen 1993).

As a response to fear of further terminations, many survivors become more *risk averse* and experience low *motivation.* Survivors avoid taking advantage of employment opportunities, accept new work assignments, discuss job-related problems, and presenting new ideas. This is because they are concerned with being exposed to criticism and poor performance evaluation, and therefore, become the victim of future layoffs. The surviving employees try to fit well into their actual position in order to stay safe (Appelbaum et al. 1997). Thus, it is natural to feel less motivated, and many survivors do not see the reason why they should be giving an effort when they could be the next to be terminated. This low risk tolerance and fear of failure can strongly affect innovation and creative activity in organizations (Richtnér & Åhlström 2006).

Many survivors feel a *lack of trust* in management and experience the downsizing as a *betrayal*. Some employees no longer sense the organization's future or their place as an integral member of the organization. The employees do not see why they should be concerned about their employer, since this employer was not really concerned for their colleagues (Appelbaum et al. 1997). Again, how the management implement and communicate the downsizing is essential to prevent the employees from experiencing these negative emotions. Another reaction by survivors is a *lack of commitment*. Some employees feel the organization has let them down, and that they have not been treated with the respect they believe they are entitled. This could ultimately result in less effort being put into the work and employees feeling indifferent about firm performance.

There are a number of overlooked and hidden costs associated with downsizing. Downsized firms often do poorly in the long term because the employees show weaker performance. It is intuitive to assume that it is better to be a survivor than a victim of downsizing, but existing research proves that this is not always the case. Devine et al. (2003) performed a study that compared victims and survivors. In their study, they found that the victims who found new employment post-downsizing reported considerably more positive outcomes than those who remained in the downsized environment. The terminated employees felt less stress on the job and reported higher levels of perceived job control. In these cases, the employees that are terminated become the survivors and the employees who remain in the organization, feel like the victims. In addition, the survivors often receive less support and resources during and after the downsizing process compared to the victims (Gandolfi 2008). Furthermore, the survivors generally find themselves facing new tasks, job responsibilities, and increased level of workload due to reduced manpower.

2.2 CREATIVITY AND INNOVATION

During the current economic downturn in the Norwegian oil and gas industry, firms need to be creative and invest in innovation to ensure a sustainable future (E24.no 15.09.2015). To ensure future sources of income, firms have to generate

new ideas as well as develop technological advancements to reduce the increasing cost level in the industry. During economic downturns, investments in uncertain future sources of income become less attractive, and innovation and research is often given lower priority, since the main objective is to cut cost. However, during an economic downturn it is especially important for firms to invest in innovation to create a competitive advantage (Nofas.no 2014). Investing in innovation will cause increased risk, and avoiding risk during downturns is a natural course of action for most firms. Nonetheless, the firms that gain market share and increase profitability are those that are innovative (Thomas & Chan 2013).

Dougherty and Bowman (1995) highlight the importance of innovation during downsizing: *"A competitive cost structure only buys you a ticket to the competition game. To win the game, companies must provide customers with more value for their money, respond to new needs with new products, and employ new technologies".*

All innovation starts with creative ideas. Without creative ideas from individuals there will be no innovation. For firms to be innovative it is absolutely necessary to create a work environment that encourages creative behaviour. We will now define creativity and present work environment characteristics that positively influence individual and group creativity in organizations.

2.2.1 Defining creativity

It is difficult to specify a precise, universally applicable definition of the term creativity. For instance, we cannot identify specific traits and say that work done by persons exhibiting those traits, must necessarily be creative. Creativity can be defined according to a person, process or product. The labelling of a person or a process as creative presupposes that the product produced by the person or through the process is regarded as creative (Thomas & Chan 2013). Hence, most definitions are based on the product.

"The generation of a product that is judged to be novel and also to be appropriate, useful, or valuable by a suitably knowledgeable group" (Thomas & Chan 2013). This definition of creativity has received great support from scholars and is considered a "sociocultural definition" of creativity. The most important feature of this definition is the reliance on the subjective perceptions by those judging the product. In the book "Creativity in Context" (1996), Amabile sought to specify a consensual definition of creativity and the result was "a product is creative when the experts in the domain agree it is creative". This approach emphasizes the importance of the social context in which the creative product is presented. Furthermore, it requires a consensus within the domain that the product is indeed creative.

In order to assess the work environment for creativity, it will be appropriate to use a definition by Amabile (1988) related to KEYS: "the production of novel and useful ideas by an individual or small group of individuals working together". We will use this definition when describing personal characteristics affecting creative behaviour, but more importantly how motivation and work environment can influence individual creativity (Amabile 1996).

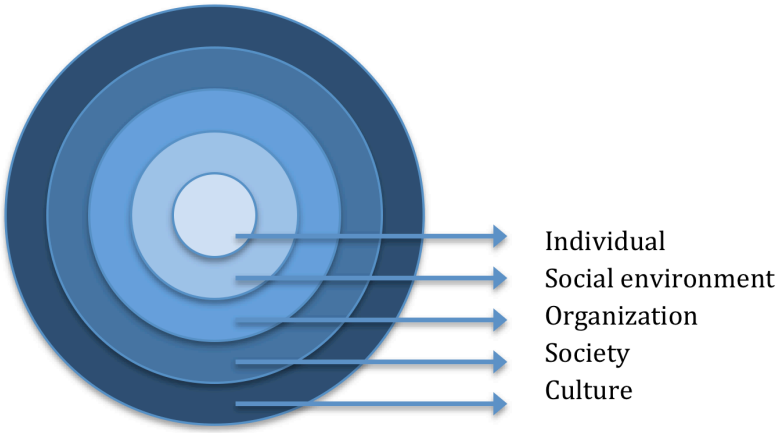

Figure 1: Factors affecting creative behaviour. Source: Kaufmann (2006)

We often have a tendency to think of creativity as something that happens inside a person, but creativity is a complex phenomenon that is influenced by several factors. It is important not only to look at individual characteristics when evaluating creative behaviour, but also characteristics in the social environment,

organization, society, and culture. Social environment both in childhood, at school, and workplace is important for creativity, and are in some cases quite critical. In our study, the focus will be on how organizations can affect creative behaviour.

To create a creative and innovative environment in organizations, it is particularly important with good and motivational management. The management need to be motivated in order to motivate the rest of the organization, and to create an innovative attitude in the organization. For creative processes to succeed, it is necessary that the management facilitate the work environment. Difficult or impossible working conditions can be destructive for creative behaviour of employees who are qualified to work creatively (Ekvall 1999).

There are different instruments available for measuring work environments conducive to creativity and innovation, such as KEYS: assessing the climate for creativity, Creative Climate Questionnaire (CCQ), Situational Outlook Questionnaire, Team Climate Inventory (TCI), and Siegel Scale of Support for Innovation (SSSI). Mathisen and Einarsen (2004) made a review were they evaluated the different instruments. In their review, it was concluded that KEYS and TCI are of acceptable scientific quality and are well documented in peer-reviewed literature. Their conclusion supports our choice of using Amabile's survey instrument KEYS in our research.

2.2.2 The componential theory of creativity

The componential theory of creativity is a theory developed by Amabile (1988). The theory assumes that every person with normal capacities is able to develop at least moderately creative work in some domain. Furthermore, both the level and the frequency of creative behaviour can be influenced by a person's work environment.

The theory includes three components of individual creativity: expertise, creative-thinking skills, and motivation. All components are necessary for

creative behaviour in any given domain. The theory proposes that the level of creativity will be higher, the higher the level of each of the three components. Additionally, creative behaviour is most likely to occur when a person's skills overlap with his or her strongest intrinsic interests.

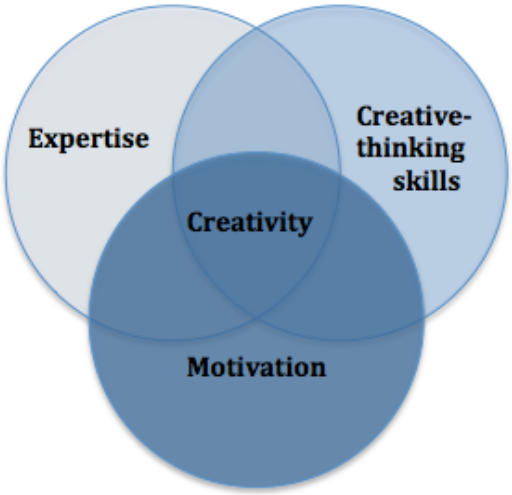

Figure 2: Three-component model of creativity. Source: Amabile (1997)

The *expertise* component is the base for all creative work, and includes factual knowledge, technical skills, and special talents in the target work domain. This component can be viewed as the set of cognitive pathways for solving a given problem or doing a given task (Amabile 1997).

The second component, *creative-thinking skills*, refers to how people approach problems and solutions. These skills represent a person's ability to break out of pre-conceived perceptions, draw expertise from other domains, and the ability to put existing ideas together in new combinations. Creative thinking will to some extent depend on a person's personality and how a person thinks and works. For instance, independence, risk-taking, tolerance for ambiguity, and the ability of being comfortable disagreeing with others are personality characteristics that will affect creative behaviour positively. However, it is possible to improve creativity skills by practicing techniques to increase cognitive flexibility and intellectual independence (Amabile 1997).

The two skill components, expertise and creative thinking, is a person's resources and determine what a person can do. However, the third component, *motivation*, determines what that person actually will do. Motivation can be either intrinsic or extrinsic. Intrinsic motivation is driven by interest, passion, curiosity, or by a personal sense of satisfaction. When people are intrinsically motivated they find the work itself motivating, and they engage in their work for the enjoyment and challenge of it. Extrinsic motivation is driven by external factors – such as surveillance, competition, expected evaluation, wages, or the promise of rewards.

A number of studies by Amabile have shown evidence in favour of intrinsic motivation (Amabile 1988, 1998). In line with this, the *Intrinsic Motivation Principle of Creativity* claims: "people will be most creative when they feel motivated primarily by the interest, satisfaction, and challenge of the work itself – and not external pressures" (Amabile 1998). However, there are some extrinsic motivators that may combine synergistically with intrinsic motivation, particularly if initial levels of intrinsic motivation are high, such as constructive feedback on the work, recognition for creative ideas, and clearly defined overall project goals.

To some extent, intrinsic motivation depends on a person's personality. Some people are naturally more strongly driven than others by the enjoyment and sense of challenge in their work (Amabile 1998). However, work environment can have a significant effect on a person's level of intrinsic motivation. Although the work environment can to a certain degree influence a person's expertise and creative-thinking skills, the strongest and most direct influence can be made on a person's motivation.

By introducing KEYS, we will explain which work environment features that facilitate individual creativity and innovation in organizations, and which features that can be destructive for creativity. These characteristics will affect employees' motivation for creative behaviour.

2.2.3 KEYS: Assessing the climate for creativity

KEYS is a survey instrument developed to assess the work environment for creativity. The instrument establishes connections between the work environment, motivation, and creativity. It was developed to assess both creativity and innovation, since all innovation starts with creative ideas (Amabile et al. 1996). KEYS and the underlying conceptual model are based on factors that affect the work environment for creativity. These factors have been established through what previous research has suggested as important for creativity in organizations.

Furthermore, the instrument is based on the employees' perceptions of the work environment and how these perceptions influence creativity in their work. It is fair to assume that the whole organization, as well as their department and their work groups, affect individuals' perception of the work environment. Thus, KEYS include perceptions influenced by various levels within the organization.

The figure below illustrates the conceptual model underlying KEYS. The scales that are expected to positively influence creativity is referred to as "stimulant scales", while those expected to negatively influence creativity is referred to as "obstacle scales". Several of the scales derive from the intrinsic motivation principle of creativity. Extrinsic motivators can lead people to feel externally controlled by their work, and undermine intrinsic motivation (Amabile 1988). Further, the model starts of with the factors most frequently mentioned in previous research, and ends with those less discussed.

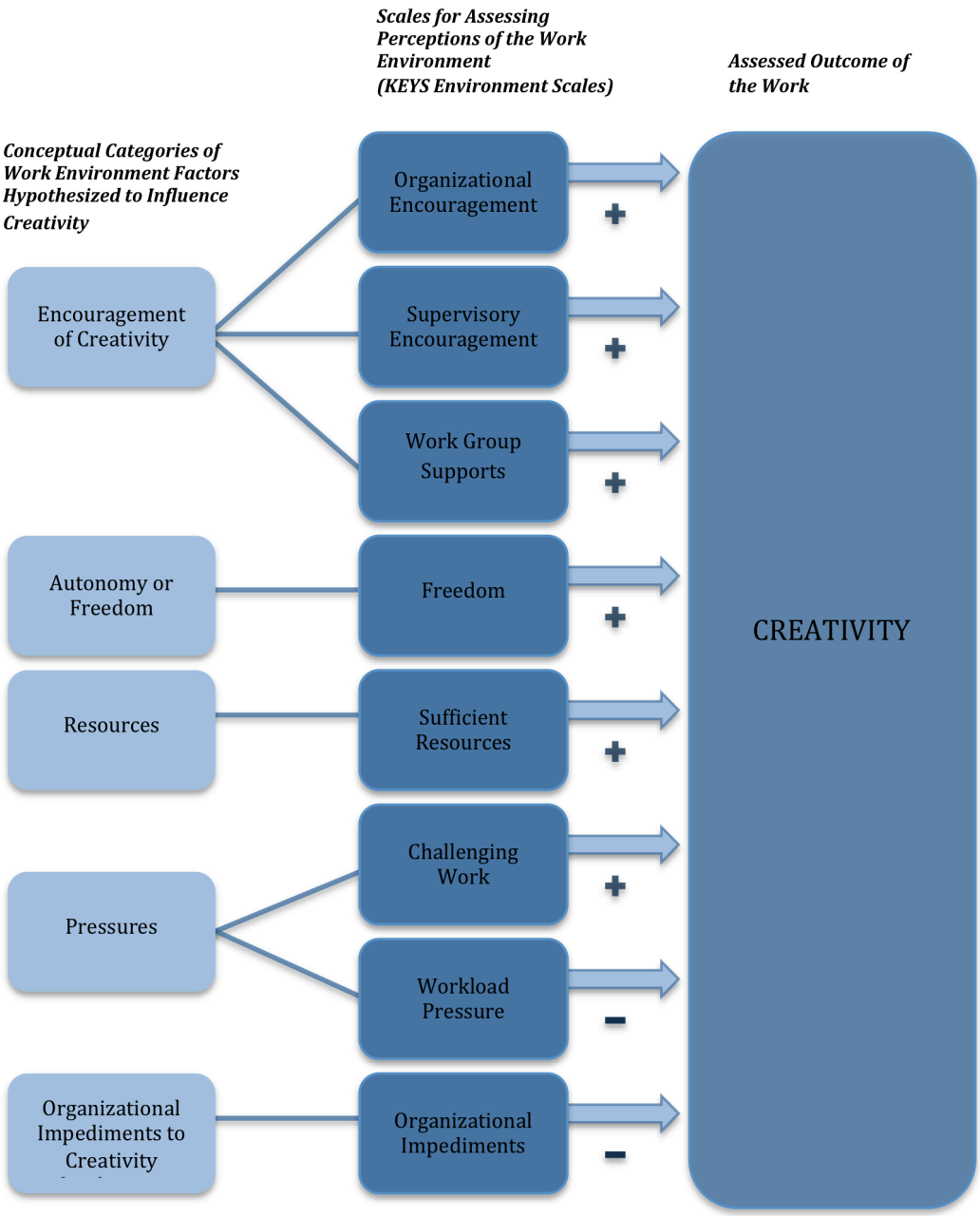

Figure 3: Conceptual model underlying assessment of perceptions of the work environment for creativity (KEYS). Source: Amabile et al. (1996)

The first work environment factor, **encouragement of creativity**, is the most frequently mentioned in past research. Encouragement of creativity occurs on three different levels in the organization: *organizational encouragement, supervisory encouragement,* and *work group supports*.

Organizational encouragement consists of several aspects of the organization. First, management should encourage risk taking and idea generation, as well as

place a value on creativity and innovation in general. Psychological research on creativity has suggested that novel and useful ideas are more likely to occur when it is encouraged (Amabile 1988). The orientation toward creativity and innovation should primarily come from the highest level of management, but it is important that lower levels of management communicate this vision to employees. Additionally, it is important that the organization have an offensive strategy of taking the lead toward the future – not an orientation toward maintaining status quo.

Another aspect is support and fair evaluation of new ideas throughout the organization, including work that is considered a "failure". Studies show that lack of idea support has a negative effect on the work environment for creativity (Ekvall 1996). Recognition and reward for creative ideas and work is another aspect. Although research has shown that engaging in creativity only to receive a reward can undermine creativity, reward can positively influence creativity if it is perceived as a bonus or a confirmation of one's competence (Amabile et al. 1986). Finally, participative management and decision-making are important features of organizational encouragement, and employees across the organization should have a collaborative idea flow.

Furthermore, *supervisory encouragement* is an important element of the creativity orientation. Project managers or direct supervisors should have clearly defined goals, open interactions between subordinates and supervisor, and support teams' work and ideas. An open and supportive interaction between subordinates and supervisor can prevent employees from fearing negative criticism that undermine the intrinsic motivation necessary for creativity. Supervisory encouragement is closely related to organizational encouragement, as it is important that lower levels of management communicate the orientation toward creativity and innovation defined by the highest level of management.

Finally, encouragement for creativity and innovation can occur in work groups and teams. Important features for *work group supports* are a mutual openness to new ideas and suggestions, and that it is accepted to constructively challenge

those ideas and suggestions. Moreover, a diverse workforce is important to generate a variety of new ideas and can positively impact creative thinking in organizations. This includes diversity in background, expertise, skills, or personality, but also through cooperation across different departments in the organization. In addition, a diverse workforce can encourage individuals to gain diverse experiences that will increase their creativity (Amabile & Khaire 2008).

The second work environment factor is **autonomy or freedom.** Past research suggest that creativity and innovation is positively affected when employees and teams are allowed a relatively high autonomy in the conduct of their own work (Amabile et al. 1996). It can also be important that employees feel a sense of ownership and control over their own work and ideas. Freedom to choose how to perform and solve assigned tasks can result in increased creative behaviour, since this gives the employees the opportunity to think independently and use their own expertise.

Resources are the third work environment factor, and can affect projects' creativity level. This factor includes every resource an organization has available in the domain targeted for creativity and innovation. Expertise, sufficient time, and financial resources represent important resources (Damanpour 1991). As mentioned, knowledge and expertise is the base of all creative work and is necessary to create novel and useful ideas. In addition, sufficient time to think creatively, explore, and test novel ideas is important for the creative environment in organizations. Finally, financial resources allow an organization to afford testing new ideas, instituting innovations, and bear the cost of failure.

The next factor is **pressures**, and we distinguish between *workload pressure* and *challenging work.* Excessive workload pressure is expected to undermine creativity, especially if it is perceived as external control imposed by management. However, some degree of pressure can positively influence creativity if it is perceived as arising from challenging nature of the problem itself (Amabile et al. 1996). For instance, time pressure can be perceived as challenging and positively correlate with intrinsic motivation and creativity.

Additionally, appropriately matching employees to work assignments based on their skills and interest can create a sense of positive challenge in the work, and significantly affect employees' intrinsic motivation.

The last work environment factor is **organizational impediments to creativity.** Formal leadership style, internal strife, and conservatism are characteristics expected to undermine creative behaviour in organizations. Employees are likely to perceive these characteristics as controlling, and they are expected to decrease the intrinsic motivation necessary for creative behaviour.

2.2.4 The componential theory of organizational creativity and innovation

The componential theory of organizational creativity and innovation can be used to explain the relationship between the work environment, individual creativity, and innovation. This relationship is illustrated in the figure below. We define innovation as "the successful implementation of creative ideas within an organization" (Amabile 1988). The three upper circles in the model are the organizational components. These represent features of the work environment that are necessary for innovation in organizations, and include all aspects assessed in KEYS. The three lower circles are the same as those mentioned earlier – the components necessary for individual creativity.

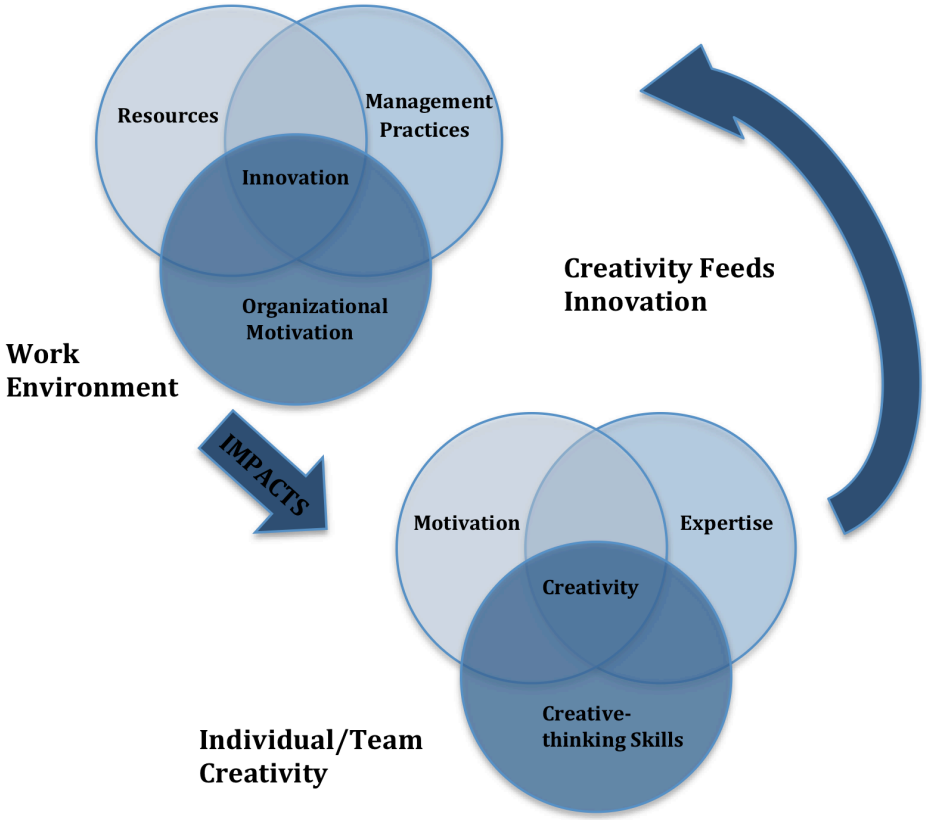

Figure 4: Impact of the organizational environment on creativity. Source: Amabile (1997)

The theory suggests that the work environment impact employees' individual creativity. As mentioned, individual creativity is the main source for innovation within organizations. The model proposes that the level of innovation will be higher, the higher the level of creative behaviour. The main objective of the theory is that the management of organizations can influence individual creativity by facilitating the work environment for creativity, which in turn affects the level of innovation in the organization (Amabile 1988).

In order to understand how innovation occurs, it is important to notice the two-way influence between the individual and the organization. What happens in the organization is influenced by the individuals, and individuals are influenced by what happens in the organization (Amabile 1988). It is essential to stress the importance of individual creativity in the process for organizational innovation, but also how the organizational environment can affect the components of individual creativity.

The *organizational motivation to innovate* is the most important component for individual creativity and innovation. The orientation should primarily come from the highest level of management, but motivation from middle management is also highly important. It is crucial that the management stress the importance of innovation as well as an orientation towards risk. In KEYS, the organizational encouragement and the organizational impediments scales represent the organizational motivation to innovate.

Secondly, there is a *resource* component at the organizational level. The component consists of relevant expertise and information, funds allocated to the work domain, and sufficient time to generate new ideas. Sufficient resources and workload pressure are KEYS scales that represent the resource component. Thirdly, *management practices* describe how management in all levels and across departments and projects breed the conception, development, and implementation of creative ideas. Supervisory encouragement, work group supports, challenging work, and freedom scales represent this component in KEYS.

2.2.5 Organizational climate for creativity and innovation

In order to gain a better understanding of how the work environment facilitates creative behaviour and innovation, a study conducted by Göran Ekvall (1996) will be introduced. The study discusses factors that are beneficial for creativity in the organizational climate. His research resulted in ten dimensions that have received empirical support in the creativity field. The ten dimensions will be briefly explained below.

Challenge. Out of all the dimensions, this is by far the most influential. It is important that the challenges match the employees' capabilities, and that the work is not too challenging or too monotonic. However, this requires some effort from the management, as it presupposes an understanding of each employee. A high-challenge climate is related to employees with high motivation and job satisfaction, and who perceive their job as meaningful. With a low level of

challenge employees do not feel committed to their work or the organization's vision.

Freedom. Freedom can be defined as the level of independence in behaviour and to what extent the employees have an impact on decision-making. A high score is seen in firms with a high level of discussions, decisiveness, and initiative taken by the employees. On the contrary, employees will act passive and be concerned with sticking to routines.

Idea support. This dimension concerns how new ideas are processed in the organization. Idea support is especially important from top management, but also from colleagues. A high score on this dimension is associated with support of new ideas, people who listen to each other, and constructive feedback on new suggestions. A negative attitude towards new ideas and fault finding characterize an organization with a low score.

Trust/Openness. When there is a high degree of trust between the employees and the management, it will create a safe and open environment within the organization. This also makes it easier for employees to present new ideas and suggestions. In organizations with low score, people are afraid of making mistakes, being exploited, or colleagues stealing their ideas.

Dynamism/Liveliness. A dynamic organization can be characterized as an organization where new things happen all the time. For instance, social events such as teambuilding and seminars, but also new projects or processes related to business operations. When things generally evolve slowly in the organization, or new projects are rarely initiated, the climate can be characterized as less dynamic.

Playfulness/Humour. Creativity is often related to spontaneity. A climate where humour, spontaneity, and "crazy" ideas are encouraged, often score high on this dimension. In organizations with low score, the climate is perceived as more serious or formal, and humour is generally considered inappropriate.

Debates. A creative organization often has a broad tolerance for contradictory opinions, ideas, and experience. This could lead to intense discussions, but it is important to stimulate "positive conflicts". Furthermore, people are encouraged to contribute with comments or constructive criticism. Debates often lead to more opinions being heard, and new suggestions being presented. When there are few debates in the organization, the climate follows authoritarian patterns and it is considered disloyal to question decisions made by management.

Absence of conflicts. This dimension concerns the absence of personal and emotional conflicts in the organization. The presence of personal conflicts is often characterized by power play, schemes, and slander. This can have a negative effect on individual creativity. On the other hand, conflicts based on a factual basis, can be productive and enhance creative behaviour.

Risk Taking. Creativity requires a certain degree of risk tolerance. In organizations where risk taking is encouraged, people respond to opportunities when they arise, and react quickly to change. Concrete experiments are preferred, as apposed to extensive research and analysis. Innovative organizations are distinguished by a relatively greater ability to handle uncertainty, compared to organizations that are less innovative. Low score is seen in organizations where people are cautious, and people prefer to be certain before making a decision.

Idea Time. Idea time can be defined as the time organizations use or can use to develop new ideas. Organizations where there is opportunity to suggest or test new ideas score high on this dimension. In low scoring organizations, there is no or little room to think "outside the box" because there is no opportunity to exceed given time schedule.

2.3 HOW DOWNSIZING AFFECTS CREATIVITY AND INNOVATION

Is it possible for organizations to downsize and still remain innovative? As of today, few studies have examined the impact of downsizing on creativity and innovation (Richtnér and Åhlström 2006). Given that innovation is a key source

of competitive advantages, this is quite surprising. We will now introduce some of the recent studies conducted on how downsizing can affect creativity and innovation in organizations.

Previous research on how downsizing affects the organizational work environment for creativity has revealed some common patterns. There is evidence that the remaining employees become risk averse and narrow-minded after downsizing (Cascio 1993). Other suggests that organizations in decline show a tendency toward rigid behaviour patterns (Cameron 1994). In line with this, creativity will be negatively affected as risk taking and flexibility is necessary for creative behaviour to occur.

Amabile and Conti (1999) published a long-term study conducted in a high-technology company with more than 30,000 employees. They looked at the implications on the work environment for creativity three points in time: during downsizing, just after the downsizing was completed, and four months after. KEYS was used to assess the work environment for creativity, and they found that all the environmental stimulants declined during downsizing. The most notable was challenging work, work group supports, and organizational encouragement. Regarding the environmental obstacle scales, workload pressure remained unchanged. However, organizational impediments increased significantly during downsizing, but declined as the downsizing came to an end. Overall, creativity declined as a result of the degraded work environment during the downsizing (Amabile 1997).

The study also unveiled that people were less creative when the stability of their own work group was disrupted, compared to the actual downsizing in their own department. In addition, when changes of group members disrupted the stability of work groups, these work groups had poorer work environment and lower levels of creative behaviour than those that remained stabile during the downsizing. Furthermore, the research distinguished between the effects of anticipated versus experienced downsizing on creative behaviour. Surprisingly, anticipated downsizing turned out to be more destructive for creative behaviour

than experienced downsizing. The anticipation of future downsizing was strongly related to people's perception of the work environment – the more downsizing people expected for the coming months, the poorer the work environment of their department, the lower the moral, and the less creative their approach to their work (Amabile 1997). The certainty of knowing that the downsizing process is over will help employees move on and heal. This leads to a generally more positive work environment than the expectations of future downsizing and all the insecurity it causes.

The motives for downsizing are significantly related to the outcome of the downsizing. When downsizing is implemented to cut cost as a reaction to an actual or potential financial difficulty it will be negatively associated with innovation output (Mellahi & Wilkinson 2010). Firms that engage in downsizing to cut cost usually maintain their product scope, resulting in an increased workload for the remaining workforce. This may restrict the time and effort employees spend on innovative activities. In addition, Chalos and Chen (2002) claims cost cutting strategies often include trimming of research and development activities associated with innovation. This is because firms who engage in this downsizing strategy are normally reacting to financial stress. Therefore, the short-term gains from downsizing are more likely to be channelled towards activities that yield short-term gains at the expense of activities, such as R&D. The reason is the risk involved and the length of time required to produce sufficient returns from innovations (Mellahi and Wilkinson 2010).

Richtnér and Åhlström (2006) conducted a study where they focused on three components that are crucial for innovation to occur*: stock of knowledge, individual creativity and motivation,* and *knowledge creation processes*. The components are based on factors likely to be affected by downsizing that previous research has suggested as necessary for innovation. They claim that, "Companies implementing a downsizing strategy aiming at increasing cost efficiency and operational effectiveness may face the fact that their innovative ability is hampered".

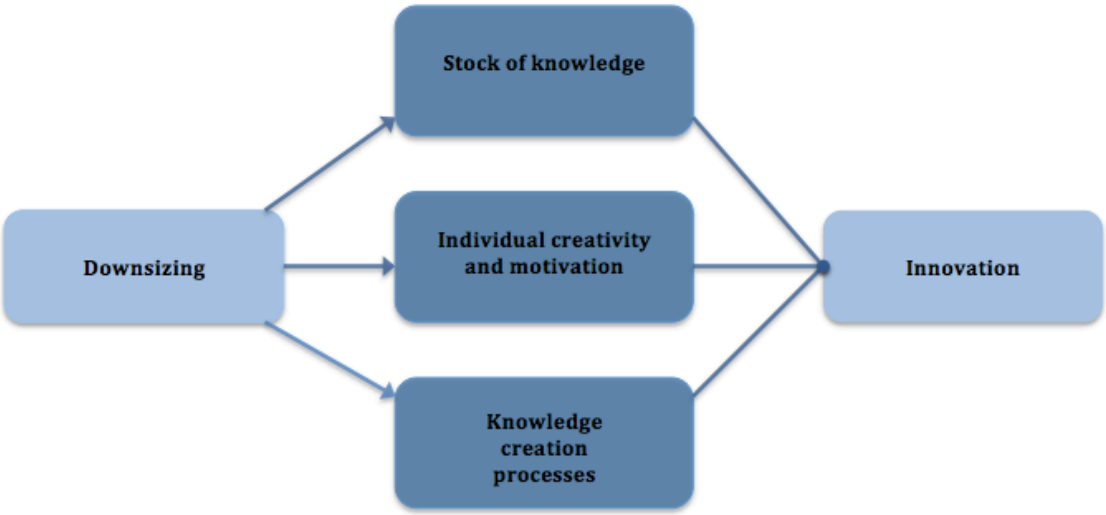

Figure 5: A model of the relationship between downsizing, knowledge, and innovation. Source: Richtnér and Åhlström (2006)

The organization's *stock of knowledge* can be defined as "the collective competence among the employees in the organization, including both formal and informal relationships" (Dougherty & Bowman 1995). It is intuitive to assume that downsizing will reduce the organization's stock of knowledge. When employees leave the organization, critical skills and knowledge can be lost, which can damage customer relationships or operations (Drew 1994). It has also been found that downsizing can have a negative impact on informal relations that is crucial to innovation. Breaking these networks can reduce the knowledge and resources that are being shared across departments in the organization (Dougherty & Bowman 1995).

Individual creativity and creative ideas generated by the employees are the foundation of innovation. In other words, negative effects on individual creativity will have a negative impact on innovation. In addition, motivation is absolutely necessary for creative behaviour (Amabile 1997). An analysis conducted by Jalajas and Bommer (1999) found that downsizing is associated with increased risk aversion, reduced willingness to present new suggestions, reduced job motivation, and increased fear. This will ultimately impact individual creativity, and is supported in Noer's (1993) research on survivors' reactions after downsizing.

The last component, *knowledge creation processes*, is the ability to create new knowledge through sharing and transfer of existing knowledge among the employees in the organization. This allows the organization to improve existing products and services that can lead to a competitive advantage. The knowledge creation process combines the two previous components; the employees use their individual creativity to build on the existing stock of knowledge in the organization, to furthermore develop new knowledge that can result in new products or services (Richtnér & Åhlström 2006).

Downsizing can also have a positive effect on the knowledge creation process. As the number of employees is reduced, the remaining employees are often faced with increased responsibility and new tasks. This challenges the remaining employees and can lead to increased learning and personal development. If new people are included in projects or work groups, it could contribute to new ideas and suggestions being presented. However, if employees fear further downsizing, knowledge becomes a new form of currency and is hoarded by individual employees and departments (Gandolfi & Oster 2009). Information sharing and organizational learning slows down as employees become more concerned with self-interest.

Downsizing often produces a crisis mentality in firms where the main focus is on immediate results. This focus may come at the expense of long-term planning, and innovation is often not a priority (Cameron 1994). Employees, who were previously viewed as a long-term asset to be developed and nurtured, are now considered a short-term expense to be reduced. Organizations often heavily invest in the employee in terms of training and learning, and organizations may lose employees with important knowledge and competence that has taken time to build up. However, a pre-study conducted in the current economic downturn in the Norwegian oil and gas industry, studied how firms respond to the recent drop in the oil price with regards to their human capital investments. Their study indicates that employees with firm-specific knowledge are more likely to be retained or relocated in the organization (Gjerde & Lindgren 2015).

2.4 HOW TO SUSTAIN INNOVATIVE DURING DOWNSIZING

We have previously accentuated the importance of investing in innovation during the current downturn in the Norwegian oil and gas industry. Previous research mentions several managerial actions to help innovation survive downsizing.

Amabile and Conti (1999) suggest three actions that should be considered by management based on their research results. Since downsizing has shown potentially devastating effects on surviving employees' motivation and creativity, managers must be certain that downsizing is an absolutely necessary course of action, and preferably attempt to avoid downsizing if possible. If downsizing is absolutely necessary, it is recommended that the downsizing process should be conducted in a timely manner. This will reduce the negative effects of anticipated downsizing mentioned earlier, and return the organization to a more stable work environment. The length of the downsizing process will have a negative impact on the remaining employees as fear of additional downsizing reduces risk taking and motivation. Furthermore, the study showed that people responded more positively when they felt that their own management was trustworthy and listened to their concerns. Good, clear, and two-way communication with all the employees about the reasons behind the downsizing and the processes being used is absolutely necessary. Finally, management should try to keep work groups intact. If downsizing affects existing work groups, they should be informed of corrective procedures and team-building efforts should be taken as soon as these changes are conducted – especially if creativity is an important feature of these groups.

Gandolfi and Oster (2009) mention several additional actions management should consider in order to sustain innovative. First, management need to consider leaving their current strategy and implement changes. The fear of failure and the desire to reduce risk after downsizing often encourage rigid behaviour patterns and pre-downsizing strategies among the employees. Second, it is important for organizations to strengthen customer relationships after downsizing. The way to maintain customer relations is to know, understand, and

communicate with customers on a deeper level. The goal is to create a close partnership with existing and future customers to ensure rapid and optimal development of products, services, and ideas that satisfy customer needs.

A third action recommended by Gandolfi and Oster is to expand and improve the institutional learning process. This is especially important because crucial knowledge and competence could be lost when employees leave during the downsizing process. Internal barriers to communication must be removed, the number of participants in conversations related to innovation must increase, formal and informal communication networks must be developed, and incentives for effective sharing of information should be implemented. Another important action is an evaluation and upgrade of corporate metrics. It is said, “What gets measured gets done”. Thus, it is necessary that the metrics reflect the company’s main activities and strategy. Furthermore, the employees should receive incentives that encourage them to achieve these metrics.

3.0 RESEARCH MODEL AND HYPOTHESES

Based on the theoretical understanding gained in the previous section we have developed a research model that shows the assumed causal relationships between different variables. In order to test this model we have defined four different hypotheses that be will accepted or rejected. As mentioned, our main focus is how different consequences of downsizing will affect the perceptions of the work environment for creativity and innovation. The research model and the hypotheses are in addition to theory, based on our own assumptions about expected relationships. Later in our thesis we will test the research model through statistical analysis.

3.1 RESEARCH MODEL

As our research model illustrates, we assume that four independent variables (anticipated downsizing, job insecurity, job motivation and job satisfaction) will have an effect on the dependent variable, namely the work environment for creativity. The variables addresses survivor reactions derived from Noer's (1993) research on employees' feelings and reactions to experienced downsizing. Additionally, we have been inspired by Amabile's (1997, 1999) research on the importance of motivation and the consequences of anticipated downsizing. The research on human and organizational consequences of downsizing is very extensive. Therefore, we have chosen some of the consequences we find both important and interesting. Our research model is illustrated below.

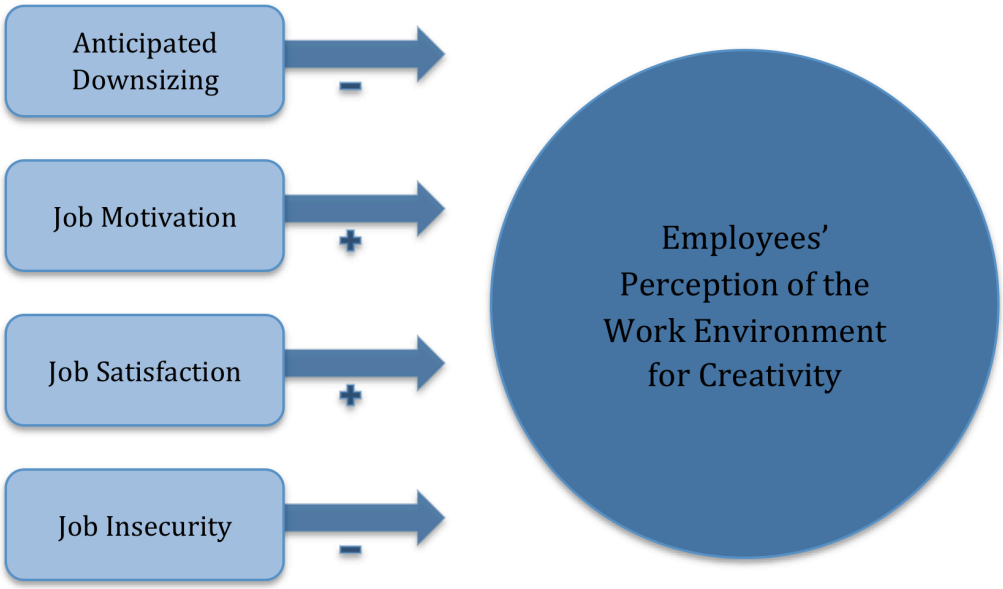

Figure 6: Research model

3.2 HYPOTHESES

Based on the research model we will define hypotheses relevant to our research problem that we would like to explore. As shown by the research model, we have defined four different hypotheses.

3.2.1 Anticipated downsizing

First, we find it interesting to explore whether anticipated downsizing has a negative relationship with the employees' perception of the work environment for creativity. We have previously mentioned that the impact of anticipated downsizing has shown to be a stronger predictor for creativity than experienced downsizing (Amabile & Conti 1999). In their study, anticipated downsizing was strongly negatively related to a large variety of behaviours and perceptions. For instance, when employees expected further downsizing in their department they reported of poorer work environment for creativity and lower morale. As mentioned, the certainty of knowing that the downsizing process is over can help employees move on and heal. This leads to a generally more positive work environment than the expectations of future downsizing and the insecurity it causes.

Similarly, Kalimo and Taris (2003) found that downsizing caused stress among the employees whether or not they themselves where directly affected by the downsizing. Moreover, the effects of anticipated downsizing on the employees' well-being were particularly strong, even though it was not certain that they would personally be affected by a future downsizing. We included this variable in addition to job insecurity, as this variable predicts whether employees expect downsizing in their department, compared to whether they perceive their own job as insecure. On this basis we suggest that:

H1: Anticipated downsizing will be negatively correlated with the work environment for creativity.

3.2.2 Job motivation

Second, we will explore whether a high level of motivation has in fact a positive relationship with creativity. Motivating people to perform at their peak is especially vital for creative behaviour, and motivation is one of the three components in Amabile's model for creativity (Amabile 1997; Amabile & Khaire 2008). Employees uninspired to wrap their mind around a problem are unlikely to come up with a novel solution.

Intrinsic motivation is particularly important for creative behaviour. Intrinsic motivation can be experienced as interest, involvement, curiosity, satisfaction, or positive challenge from the work itself (Amabile et al. 1996). This is a key factor because the level of motivation essentially determines the extent to which one engages one's expertise, skills, and effort into working with a task (Thomas & Chan 2013). The work environment in organizations can have a significant effect on a person's level of intrinsic motivation. In organizations, intrinsic motivation can be affected by appropriately matching task to employees' interest and skills, and through challenging work. Extrinsic motivation can affect creative behaviour positively through constructive feedback on work and recognition for creative work. In addition, a good leader can challenge and inspire creative behaviour by employees, while the wrong managerial behaviours, or simple neglect, can be extremely demotivating for employees (Amabile & Khaire 2008).

Several studies shows that downsizing affect employees motivation (Cascio 1993; Kinnie et al. 1998). We have mentioned how survivor syndrome can potentially affect employees' attitudes toward their work and motivation, and reduced motivation is one of the twelve survivor reactions obtained from Noer's study (1993). In light of this, we believe there is a possibility that the remaining employees will experience relatively low motivation. Considering the importance of motivation for creative behaviour and the possible negative effect on survivors' motivation during downsizing, we find it interesting to test the following hypothesis:

H2: Job motivation will be positively correlated with the work environment for creativity.

3.2.3 Job satisfaction

Job satisfaction can be described as "the employees' feelings regarding the work environment, which include the work itself, supervisors, working groups, and the organization they work within" (Cribbin 1972). Few studies have examined a possible relationship between job satisfaction, and creativity and innovation. Yet, a study by Nerkar et al. (1996) indicates that job satisfaction is positively related to innovation. In addition, we believe that job satisfaction will have a positive relationship with creativity, since job satisfaction is related to intrinsic motivation. As mentioned, people will be most creative when they feel motivated by the interest and satisfaction of the work itself (Amabile 1988).

Decreased job satisfaction is a common reaction among survivors of downsizing activities (Noer 1993; Redman & Keithley 1998; Wagar 1998). Noer mentions how the psychological states of survivor syndrome, such as anger, stress, and guilt, have the potential to affect survivors work behaviour and attitudes, namely job satisfaction. Hence, we expect that the surviving employees in our study will score relatively low on job satisfaction. Additionally, it is common that downsizing influence the remaining employees greatly in terms of increased workload, increased pressure, and destruction of the original relationship network (Tsai et al. 2007). All of these negative effects can influence the

surviving employees' job satisfaction. Tsai et al. (2007) also found that reduced job satisfaction after downsizing significantly influenced the employees' learning commitment, which in turn could be necessary for creative behaviour. Thus, we expect that:

H3: Job satisfaction will be positively correlated with the work environment for creativity.

3.2.4 Job insecurity

Finally, it is argued that one of the most impactful stressors encountered by employees derive from job insecurity (Cranny et al. 1992; Noer 1993; Brockner et al. 1988). The level of job insecurity the surviving employees experience depends on two main factors (Greenhalgh & Rosenblatt 1984). First, it depends on the perceived threat and the estimated likelihood of job loss. Second, it depends on the perceived control, which is influenced by survivors' belief that they or their employer can take action to control or prevent the threat of downsizing. In addition, job insecurity will be affected by the degree of desired continuity (Greenhalgh & Rosenblatt 2010). This depends on the employees desire for a permanent position, which is not always the case.

Organizations should be aware that when employees are unsure whether they have a job in the future, the quality of their work could be reduced. Job insecurity can affect employees' on-the-job performance by reducing motivation and employees' commitment to their work (Jeon & Shapiro 2007). Further, job insecurity can interfere with creative behaviour due to a conflict of attention, and thus redirect focus from the actual work. Probst et al. (2007) conducted a study where the purpose was to assess the effects of job insecurity on creativity. Their study suggests that that job insecurity can have adverse effects on creativity in organizations. This can be due to a decrease in creative problem solving and an increase in risk-averse thinking. Employees who believe their job is insecure are more likely to avoid behaviour that can increase the likelihood of being laid off (Probst et al. 2007). It is important that firms take into account that uncertainty about the possibility of being laid off tomorrow affects the employees'

performance today. We believe that employees, who perceive their job as insecure, have a more negative perception of the work environment for creativity. Thus, we have deduced the following hypothesis:

H4: Job insecurity will be negatively correlated with the work environment for creativity.

4.0 METHODOLOGY

In this section we will present the methodology we have used to answer our research problem. We start by presenting our research orientation, design, and strategy. We continue by explaining our sources of data collection, the survey instrument, measurements, and our sample. In the end of this section we will present the statistical methods we have used to analyse the collected data and to test our hypotheses.

4.1 RESEARCH ORIENTATION

There are two ways to draw conclusions: induction and deduction. Induction is based on empirical evidence, while deduction is based on logic (Ghauri & Grønhaug 2005). In our thesis we have used a method based on deduction. By deduction we mean that we draw conclusions through logical reasoning, and the purpose is oriented to cause and effect. In this type of research, we build hypotheses from existing literature that can be subject to empirical testing and thus be accepted or rejected. Therefore, it is necessary to develop a clear theoretical position prior to the data collection. In the second section of our thesis, we developed a good insight into previous research on downsizing, creativity, and innovation. We used this theoretical understanding to develop four hypotheses relevant to our research problem.

4.2 RESEARCH DESIGN AND STRATEGY

The research design is the overall plan of how to go about answering your research problem (Saunders 2009). In other words, the research design provides a plan or a framework for data collection and the analysis. The research problem and the purpose of the research decide which research design to use.

In our thesis we have used a causal design. The main objective of our research problem and hypotheses is to see if there exist a causal relationship between the independent variables and the dependent variable. Causal design is often based on theory or assumptions that can be turned into testable hypotheses. This gives us the opportunity to accept or reject the hypotheses by clarifying significant

relationships between the variables in our research model. The research model is based on a causal design whereas we explore if anticipated downsizing, job motivation, job satisfaction and job insecurity can explain the perceptions of the work environment for creativity. Put simply, the main purpose is to find causal relationships, and to tell if the causal predictors (independent variables) affect the employees' perceptions of the work environment for creativity (dependent variable).

Based on the choice of research design and what is practically feasible, we felt that a quantitative approach was most useful to explore our research problem. Quantitative method is especially appropriate when we want to test several hypotheses. We also needed the data to be numerical in order to answer our research problem through statistical analyses. Furthermore, to draw conclusions on the causal relationship, we needed to collect a large amount of data from multiple respondents.

The procedures of the data collection had to be determined to provide the data needed. We chose to use a survey strategy in our research. This strategy is mainly used to answer questions about who, what, where, how much, and how many (Saunders 2009). By distributing a questionnaire to a sample, we standardized the data, which makes it easier to do comparisons. We thoroughly reviewed existing literature and research to find relevant and interesting questions and variables that could be used in our questionnaire.

Both secondary and primary data has been used in our study. The theoretical background in our thesis was obtained from secondary data sources, mainly through journal articles, previous research in the creativity field, and downsizing theory. Secondary data was used to define our research problem and to develop the different hypotheses. The primary data was collected from the respondents through our questionnaire.

4.3 SURVEY INSTRUMENT AND MEASUREMENTS

The survey instrument, *KEYS,* was developed by Theresa Amabile in 1995 to assess the work environment for creativity in organizations. KEYS was developed from two primary sources, a review of previous research and a study conducted on R&D scientists and technicians were they explained high-creativity and low-creativity situations from their own work experience. Data was gathered over a 12-year period, and include answers from over 12,000 employees in 26 different firms. This has established the reliability and validity of KEYS as a survey instrument to assess the work environment for creativity. Additionally, KEYS is also relevant for assessing innovation because creativity is argued to be the seed of all innovation.

KEYS measures employees' perceptions of their current work environment on several levels within the organization, namely the organizational level, group level and supervisory level (Mathisen & Einarsen 2004). By using this survey instrument we assessed six stimulant scales that is positively related to creativity, and two obstacles scales that is negatively related. The six stimulant scales are freedom, supervisory encouragement, work group supports, organizational encouragement, challenging work, and sufficient resources. The two obstacles scales are organizational impediments and workload pressure. In addition, the criterion scale, creativity, was included in the questionnaire. This scale assessed the participants' perceptions of the actual creative work being done.

The original survey developed by Amabile consisted of 78 statements. Since answering a longer survey takes more time and effort to complete, we believe we should expect lower response rates and data quality for longer surveys. This assumption is supported by previous research that have found that survey length have a negatively linear relationship with response rates (Cook et al. 2000). Thus, in hope to increase the response rate we reduced the number of statements in our survey to 51. From prior research some of the scales have shown to be more significant than others (Amabile 1997). Hence, these scales consist of more statements in our survey. This applies to organizational

encouragement, supervisory encouragement, work group supports, and organizational impediments.

In the survey we asked the respondents to indicate to which extent each statement described their current work environment. Amabile et al. (1996) defines the current work environment as "the day to day social and physical environment in which you currently do most or all of your work". We asked the respondents to answer on a five-point Likert response scale. The points on the scale ranged from "strongly disagree" to "strongly agree". Additionally, there was a midpoint were it was possible to respond, "neither agree or disagree". This gave the respondents a neutral default option if they were uncertain about what to answer. We will briefly explain the different scales used in KEYS, as well as the Cronbach's alpha for each scale. Cronbach's alpha will be explained later in this section.

4.3.1 Stimulant scales

Freedom in the daily work environment is the opportunity to decide what work to do or how to do it, and will give employees a sense of control over their own work. Freedom was measured using four items. The participants were asked to indicate to which extent they agreed or disagreed with statements such as "I have the freedom to decide how I am going to carry out my projects". Cronbach's alpha was 0.79 for this scale.

Supervisory encouragement is represented by a boss who serves as a good work model, sets goals appropriately, supports the work group, values individual contributions, and shows confidence in the work group. This scale was measured using seven items concerning the employees' perceptions of their supervisor. The participants indicated to which extent they agreed or disagreed with statements such as "My boss communicates well with our work group" and "My boss is open to new ideas". The Cronbach's alpha was 0.92, which reflects very high reliability of this scale.

Work group supports is represented by a diversely skilled work group in which people communicate well, are open to new ideas, constructively challenge each other's work, trust each other, and feel committed to the work they are doing. Work group supports were measured using seven items regarding the participants' colleagues. The participants were asked to indicate to which extent they agreed or disagreed with statements such as "Within my work group, we challenge each other's ideas in a constructive way". Cronbach's alpha was 0.85 for work group supports.

Organizational encouragement in the daily work environment is an organizational culture that encourages creativity through fair, constructive judgment of ideas, reward and recognition for creative work, mechanisms for developing new ideas, an active flow of ideas, and a shared vision. This is one of the scales that previous research has shown to be more significant than some of the other scales. Hence, this stimulant scale was measured using nine items. The participants were asked to indicate how well statements such as "People are encouraged to solve problems creatively in this organization" and "In this organization, there is a lively and active flow of ideas", described their current work environment. For organizational encouragement the Cronbach's alpha was 0.91.

Challenging work is a sense of having to work hard on challenging tasks and important projects. Challenging work was measured using four items regarding the participants' perceptions of their daily work. The participants were asked to indicate to which extent they agreed or disagreed with statements such as "I feel challenged by the work I am currently doing" and "The tasks in my work call out the best in me". Cronbach's alpha was 0.89 for this scale.

Sufficient resources is represented by access to appropriate resources, including funds, materials, facilities, and information. This scale was measured using three items, and the participants were asked to indicate to which extent they agreed or disagreed to statements such as "Generally, I can get the resources I need for my work". For this scale the Cronbach's alpha was 0.75.

4.3.2 Obstacles scales

In our questionnaire the items in the obstacle scales where positively phrased to ease the data process and comparisons between stimulant and obstacle scales. Therefore, these scales have been renamed into "lack of organizational impediments" and "realistic workload pressure" in our analysis.

Organizational impediments are represented by an organizational culture that does impede creativity through internal political problems, harsh criticism of new ideas, destructive internal competition, an avoidance of risk, and an overemphasis on the status quo. Like organizational encouragement, this is one of the scales that previous research has found to be more significant than some of the other scales. Therefore, organizational impediments were measured using eight items. The participants were asked to indicate to which extent they agreed or disagreed with statements such as "Destructive criticism is not a problem in this organization" and "People in this organization is not concerned about protecting their territory". For organizational impediments the Cronbach's alpha was 0.84.

Workload pressure will affect creativity negatively if there is extreme workload pressure, unrealistic expectations for productivity, and distractions from creative work in the organization. Workload pressure was measured using three items. The participants indicated to which extent they agreed or disagreed with statements such as "There are realistic expectations for what people can achieve in this organization". Cronbach's alpha was 0.72 for workload pressure.

4.3.3 Criterion scale

Creativity is represented by a creative organization or unit, where a great deal of creativity is called for and where people believe they actually produce creative work. As mentioned, this scale will assess the respondents' overall perceptions of the actual creativity and innovation of the work being done, and is measured using six items. The employees were asked to indicate to which extent statements such as "Overall, my current work environment is conducive to my own creativity" and "I believe that I am currently very creative in my work". For

the creativity scale the Cronbach's alpha was 0.89, which establishes high reliability of this scale.

4.3.4 Background information

In addition, participants were asked to complete a background questionnaire. The questions include general information about the respondent, such as gender and age. The participants were asked if they have experienced downsizing in their department and whether they anticipate future downsizing. Furthermore, the questionnaire included statements about job motivation, job insecurity, and job satisfaction. These statements are related to consequences of downsizing on surviving employees known from existing literature and research.

When constructing a questionnaire it is important to ensure that all the participants understand the statements and questions in the same manner. This is particularly important for questionnaires that are translated from one language to another. In our questionnaire the statements obtained from KEYS are in English, and our background questions were first written in English. All of our participatory firms are international firms were English is a part of the daily work environment. However, the majority of the employees are Norwegian. Therefore, in hope to increase the response rate, we gave the respondents the choice between a Norwegian and an English questionnaire. In light of this, it was important to ensure an appropriate translation so that every respondent draws the same meaning from the statements and questions.

4.4 SAMPLE

A sample can be defined as "a group of cases, respondents, or records comprised as a part of the target population carefully selected to represent that population" (Blumberg 2011). In our research we have collected data from three firms in the Norwegian oil and gas industry that have engaged in downsizing within the past year. One of these firms works with exploration and production, while the other two firms are service companies in the industry. These three firms emphasize creativity and innovation through their vision and core values. Therefore, these

firms are good candidates to assess the employees' perceptions of the work environment for creativity and innovation.

In order to improve our response rate, we included fewer items per page and used Qualtrics to design and distribute the questionnaire. This tool gives the participants the opportunity to save the questionnaire and continue when they have the time. We have estimated that approximately 480 employees received the questionnaire. We were not able to get the exact number of recipients, as some of the employees who received the questionnaire from our contact distributed it further in the organization. In total, we received 100 responses. This yields a response rate of 20.8%. We consider this a good response rate, as the time was limited and since we did not have the opportunity to remind the participants to take the questionnaire.

From the collected data, the allocation between women and men was 28% and 72%, respectively. In addition, 18% was between 20-30 years old, 27% between 30-40, 32% was between 40-50 years old, and finally 23% was over 50 years old. The mean age was between 30-40 years old.

4.5 PROCEDURE

The process of contacting the firms was time consuming and much more challenging than expected. The timing of the survey was quite inconvenient for the firms, as the firms we contacted were in the midst of a downsizing process or was just concluding the process. We started out by contacting the firms directly by phone to the relevant HR-employees to increase the possibility of a positive response. If we did not receive response by phone, we sent an email with a description of our research and emphasized the importance of their participation in our study. In the end of October 2015 we had three participatory firms. The questionnaire was distributed early in November 2015 through email with help from our contacts in the firms. We concluded the collection as soon as we reached a total of 100 respondents. This was an intentional choice because of limited time, and in order to have sufficient time to process the data. The participants from each firm were selected by our contacts in the three firms. The

survey was mainly distributed to different engineers and product developers, since these employees often work with projects in which creativity is both possible and desirable (Amabile et al. 1996). The questionnaire is web-based, and the design and distribution was completed through Qualtrics, a survey tool NHH uses to collect data from online surveys. To ensure each participant's anonymity, we have encrypted the ID of each respondent.

4.6 VALIDITY AND RELIABILITY

It is very common that measurements contain different errors (Ghauri & Grønhaug 2005). These errors will affect to what extent we are able to measure what we have specified in our hypotheses through the collected data. Two different factors are important to consider before we can draw credible conclusions from our statistical analysis; validity and reliability. In order to ensure validity and reliability, we will use different statistical methods. We will briefly explain the main features of these methods.

4.6.1 Validity

When our survey measures what it is supposed to measure and the differences found with the survey instrument reflect true differences among respondents drawn from a population, the measures are valid (Blumberg 2011). Validity is concerned with the integrity of the conclusions that are generated by a study (Bryman & Bell 2003). We will introduce the validity measures that are most common when conducting quantitative research, and the most relevant for our study.

Construct validity is concerned with measuring to what extent the variables are operationalized. This means that we want to ensure that our questionnaire (instrument) is designed so that it measures what it is intended to measure (Ghauri & Grønhaug 2005). A method used to assess the validity of measurements is factor analysis. Factor analysis is a generic name given to a class of multivariable statistical methods (Ghauri & Grønhaug 2005). The primary purpose of factor analysis is to analyse the structures of correlations in data sets consisting of many questions to determine whether there are common

underlying dimensions. In this study we conducted a factor analysis to avoid bias in the instrument. The factor analysis revealed that the construct of the instrument was good, but we did not feel the need to elaborate on this matter as the validity of our instrument has been well established in prior studies (Amabile et al. 1996; Amabile & Conti 1999).

Internal validity is concerned with the cause-effect relationship between the independent and dependent variables. It refers to what extent there exists a causal relationship between two (or more) variables. To establish internal validity in our study, we will look at the causal relationship through regression analysis. However, internal validity is generally weaker when conducting cross-sectional research. Cross-sectional refers to data that has been collected at a single point in time (Bryman and Bell 2003). Thus, this will be considered a limitation to our study.

External validity is concerned with the generalization of the research findings. Generalization means to what extent the research results in a study can apply to individuals other than those that participated in the study (Bryman & Bell 2003). Put simply, if the results from our sample can represent the population, we can make generalizations about the population with the same characteristics. This aspect will be discussed as a limitation to our study. If we consider the Norwegian oil and gas industry as our population, we might not be able to fully generalize the present study.

When we want to prove that there exists a causal relationship between the variables in a study, it is important that the relationships are statistically significant (Bryman & Bell 2003). This is referred to as *statistical conclusion validity.* It questions whether we can draw a valid conclusion from our data. We can look at the significance of the regression to make sure that the causal relationships between our variables exist and thus draw a conclusion.

4.6.2 Reliability

Reliability is a characteristic of measurement concerned with accuracy, precision, and consistency (Blumberg 2011). Reliability is a necessity, but not sufficient condition for validity. In our survey each scale is measured with multiple items. Measures based on multiple indicators reduce the random error in measurements and make them more robust.

Cronbach's alpha is an estimate of reliability used on scales and questionnaires. In order to assess reliability, we have examined the Cronbach's alpha coefficient of internal consistency in each scale. The alpha indicates if the items are measuring the same construct, and we want the items to be positively correlated. If the reliability of a scale is good, it is possible to combine the answers to all questions within the same scale and create a new variable. The Cronbach's alpha usually ranges from 0 to 1, but can in some cases be negative. Generally, an alpha of >0.7 is acceptable, but an alpha >0.8 is considered good reliability.

Replication is another method to establish reliability. Replication involves redoing an existing study, but with different subjects and time period. The main objective of replication is that the same results will be found each time the study is conducted. In our case, we are replicating the KEYS instrument into a different time period, country and context. Furthermore, replicability of our study is likely to be present as the procedures, measures, selection of sample, survey instrument, and the data analysis has been specified to a large degree (Burns & Burns 2008).

5.0 ANALYSIS

In this section of our thesis we will process and analyse the findings of our data collection. The objective of the analysis is to gain a better understanding of our results and to test our hypotheses. We have already reported the Cronbach's Alphas for each of the scales to make sure that reliability is maintained. We will start by presenting the results, which consist of a table of means, standard deviations, and correlations between our variables. We continue by testing different descriptive properties of the variables, before we run multiple regressions to see if we can accept or reject our hypotheses.

5.1 RESULTS

We have used SPSS Statistics 23 to process our collected data. In table 1 we present the means, standard deviations, and correlations between the different variables from our questionnaire. The mean values for the different scales range from 2.9 (lack of organizational impediments) to 4.04 (work group supports). Furthermore, the standard deviations of each scale range from 0.60 (work group supports) and 0.88 (challenging work). These results show that work group supports is the scale that the employees are most satisfied with. This suggests that there is a high degree of consensus that there exist open communication, trust, and idea support within the work groups of these organizations.

All of the participants answered that they had experienced downsizing in their respective departments, thus we excluded this variable from our analysis. This variable was included in our questionnaire to reassure that all the respondents in fact have been subject to downsizing in their department at one point during the past year.

We have several dependent variables, one for each of the KEYS scales, and one for the total model. All the variables are positively correlated expect for workload pressure and challenging work. These variables show no significant correlation at the 5%-level (r= -.004). The criterion scale, creativity, is positively correlated with all the stimulant scales and lack of organizational impediments

at the 1%-level. Realistic workload pressure is significant at the 5%-level (r= .167). If there exist a correlation between our dependent and independent variables, we can already now predict whether there is a possible relationship between these variables and indicate whether to accept or reject our hypotheses.

The first independent variable, anticipated downsizing, is only significantly correlated with the scales freedom (r= -.166, p< .05) and sufficient resources (r= .171, p< .05). Since this variable is not significantly correlated with more of the scales, we expect that we have to reject H1. The second independent variable, *job motivation,* seems to be a much stronger predictor of the perceptions of the work environment for creativity. This variable is significantly and positively correlated with all the scales, except for work group supports and realistic workload pressure. We believe this give a good indication in terms of accepting H2. Furthermore, job motivation is negatively correlated with job insecurity (r= -.241, p< .05).

The third independent variable is job satisfaction. This variable is correlated with all the scales at the 5%-level. Most notably are the high correlations with supervisory encouragement and organizational encouragement, where the correlation is more than 0.5. Taking this into consideration, we believe this strongly predicts that we can accept H3. Moreover, the variable is strongly correlated with job motivation (r= .671, p< .01). Finally, *job insecurity* is significantly and negatively correlated with all the dependent variables, except for work group supports (r= -.154) and realistic workload pressure (r= .041). Looking at these results, we see that job insecurity correlates with the same scales as anticipated downsizing. This is not that surprising bearing in mind the similarities between anticipated downsizing and job insecurity. Additionally, there are clear indications in favour of accepting H4. However, the regression analysis will confirm or reject the indicated relationships and is necessary to draw a complete conclusion.

Before we run a multiple regression analysis, we want to ensure that the correlation between our independent variables is not too high, as this may lead

to multicollinearity (Sannes 2005). When two or more variables are highly correlated, the dependent variable *y* is not able to determine which of the independent variables *x* in the regression that is associated with the changes in the dependent variable (Burns & Burns 2008). Generally, a very high correlation between two independent variables should be avoided. A rule of thumb is that the inter-correlation between the independent variables should not exceed 0.9, as this might suggest multicollinearity (Burns & Burns 2008). Our results do not indicate the presence of multicollinearity, as neither of our variables exceeds a correlation coefficient of 0.9. Additionally, we will include measures of collinearity diagnostics in the regression analysis to ensure that we do not have a problem with multicollinearity.

Table 1: Means, standard deviations, and correlations for the variables

	Mean	Std.	1	2	3	4	5	6	7	8	9	10	11	12	13
Stimulant Scales															
1 Freedom	3.11	.73	1												
2 Supervisory Encouragement	3.56	.85	.535**	1											
3 Challenging Work	3.84	.88	.373**	.437**	1										
4 Work Group Support	4.04	.60	.332**	.452**	.345**	1									
5 Organizational Encouragement	3.15	.76	.463**	.596**	.524**	.459**	1								
6 Sufficient Resources	3.50	.79	.259**	.356**	.283**	.376**	.458**	1							
Obstacle Scales															
7 Lack of Org. Impediments	2.90	.68	.484**	.415**	.415**	.257**	.749**	.387**	1						
8 Realistic Workload Pressure	3.09	.81	.216*	.259**	-.004	.261**	.267**	.516**	.291**	1					
Criterion Scale															
9 Creativity	3.24	.77	.449**	.498**	.437**	.414**	.673**	.406**	.589**	.167*	1				
Independent Variables															
10 Anticipated downsizing	.850	.36	-.166*	-.094	.118	-.037	.050	.171*	.077	.035	.045	1			
11 Job insecurity	3.03	1.21	-.355**	-.342**	-.228*	-.154	-.329**	-.159	-.342**	.014	-.252**	.081	1		
12 Job motivation	3.98	1.05	.387**	.323**	.551**	.140	.366**	.256**	.361**	.177*	.359**	-.008	-.179*	1	
13 Job satisfaction	3.52	1.20	.528**	.529**	.501**	.320**	.514**	.353**	.471**	.175*	.500**	-.075	-.355**	.617**	1

**p< .01, *p< .05

5.2 DESCRIPTIVE STATISTICS

Before we start our regression analysis, it is necessary to do some tests on the variables to ensure that they are suitable for this kind of analysis. We will test the distribution properties of each variable, namely measures of skewness and kurtosis. Skewness measures whether the distribution is skewed to the left or right (Ghauri & Grønhaug 2005). When we look at whether the actual distribution is more peaked or flatter than the normal curve, we measure kurtosis. For both these values, the statistics should be less than 2.52 (1%-level), alternatively 1.96 (5%-level) when we are using statistics based on normal distribution.

Table 2: Descriptive Statistics of the Variables

	N	Min	Max	Mean	Std. Dev	Skewness	S.E	Kurtosis	S.E
Freedom	100	1.50	5.00	3.11	.73	-.05	.24	-.52	.48
Supervisory Encouragement	100	1.29	5.00	3.56	.85	-.62	.24	-.23	.48
Challenging Work	100	1.25	5.00	3.84	.87	-.81	.24	.45	.48
Work Group Supports	100	1.86	5.00	4.04	.60	-.84	.24	1.08	.48
Organizational Encouragement	100	1.22	5.00	3.15	.76	-.12	.24	-.32	.48
Resources	100	1.00	5.00	3.50	.79	-.49	.24	1.04	.48
Lack of Org. Impediments	100	1.50	4.63	2.90	.68	.10	.24	-.29	.48
Realistic Workload Pressure	100	1.00	5.00	3.10	.81	-.24	.24	-.24	.48
Creativity	100	1.33	5.00	3.23	.77	-.09	.24	-.07	.48
Anticipated Downsizing	100	1.00	2.00	1.15	.36	2.00	.24	2.00	.48
Job Motivation	99	1.00	5.00	3.98	1.05	-1.10	.24	.89	.48
Job Satisfaction	100	1.00	5.00	3.52	1.20	-.49	.24	-.65	.48
Job Insecurity	99	1.00	5.00	3.03	1.21	-.06	.24	-.77	.48

From the descriptive statistics we see that our results gives good scores with regard to the regression analysis. The minimum, maximum, mean, and standard deviation values indicate that we have variation in our variables, and there is no problem with skewness or kurtosis at the 1%-level.

5.3 REGRESSION ANALYSIS

In order to test our hypotheses, we will perform a multiple regression analysis. We will run several regressions, one for each scale in KEYS in combination with the independent variables. In addition, we will run a regression with all the scales as one variable to measure how the total work environment for creativity is affected by the independent variables.

Table 3: Multiple Regression Analysis (Unstandardized Coefficients)

Independent Variables	Anticipated Downsizing	Job Motivation	Job Satisfaction	Job Insecurity	F	[1]R-squared
Dependent variables:						
Freedom	-.248	.084	.232***	-.111**	11.77	.303
Supervisory Encouragement	-.108	.006	.327***	-.121*	10.60	.280
Challenging Work	.356*	.323***	.178**	-.062	14.09	.346
Work Group Supports	-.012	-.051	.180***	-.022	2.93	.072
Organizational Encouragement	.204	.063	.258***	-.115**	10.39	.275
Sufficient Resources	.442**	.041	.209**	-.036	4.81	.133
Lack of Org. Impediments	.226	.078	.188**	-.117**	9.23	.249
Realistic Workload Pressure	.091	.081	.096	.053	1.14	.005
Creativity	.181	.062	.269***	-.061	8.71	.238
Total model	1.13	.687	1.937***	-.593*	19.07	.442

p< .01***, p< .05**, p< .10* [1]R-squared adjusted for degrees of freedom

Our questionnaire did not include a force response function, and therefore we have some missing values in our data set. The missing values in our data set were replaced with the mean value in order to have the same available data in all of the hypotheses. Hence, the sample size will remain n=100. We included age and gender as control variables, to see if these variables would add more variance to the dependent variable. From the analysis, we found that the control variables did not increase the total variation of outcomes explained by the model. Hence, these variables were excluded from the analysis. As mentioned, we included collinearity statistics to ensure that we did not have a problem with multicollinearity. The VIF (variation of inflation) ranged from 1.01 to 1.78. The VIF indicates whether a predictor (independent variable) has a strong linear relationship with other predictor(s). A rule of thumb is that a VIF exceeding 10 indicates a serious problem with multicollinearity, or when the average VIF is significantly greater than 1 (Field 2005). Hence, multicollinearity does not seem to be a

problem in our analysis. We will now present the results of the regression analyses in line with our hypotheses.

5.3.1 Hypothesis 1 – Anticipated Downsizing

In hypothesis 1, we expected that anticipated downsizing would be negatively correlated with the work environment for creativity. From the regression table, we found no significant relationship between anticipated downsizing and the *total* work environment for creativity. However, the variable is positively related to sufficient resources (β= .442, p< .05) and challenging work (β= .356, p< .10). In the regression model sufficient resources has a coefficient of determination (R^2) of 0.133. This means that 13.3% of the variation in sufficient resources can be explained in the model. Moreover, challenging work accounts for 34.6% of the variation in the model. These results indicate that we do not have support for H1.

5.3.2 Hypothesis 2 – Job Motivation

In hypothesis 2, we expected that job motivation would be positively correlated with the work environment for creativity. No significant relationship is found between job motivation and the *total* work environment for creativity. Job motivation is only significant and positively related to challenging work (β= .323, p< .01, R^2=0.346). Thus, we see it fit to reject H2. This is quite surprising given that job motivation was positively correlated with almost all the scales in our correlation matrix. This only suggests that the variables vary together, but has no linear relationship with the dependent variables.

5.3.3 Hypothesis 3 – Job Satisfaction

In hypothesis 3, we stated that job satisfaction would be positively correlated with the work environment for creativity. As we can see from the regression model, we found a strong relationship between the *total* work environment for creativity (R^2= .445, F=19.07) and job satisfaction (β= 1.937, p< .01). The *total* model explains 44.5% of the variance in the model. Moreover, we found that job satisfaction was positively related with all the scales, except for realistic workload pressure (β= .096, p> .10). We can conclude that we have support for H3.

5.3.4 Hypothesis 4 – Job Insecurity

In the last hypothesis, we expected that job insecurity would be negatively correlated with the work environment for creativity. Our results indicate a support for hypothesis 4, as job insecurity has a significant negative relationship with the *total* work environment for creativity at the 10%-level (β= -.593). Additionally, job insecurity is significantly related to the scales freedom (β = -.111, p< .05), supervisory encouragement (β= -.121, p< .10), organizational encouragement (β= -.115, p< .05), and lack of organizational impediments (β= -.117, p< .05). In the next section we will discuss our results and comment on our findings.

6.0 DISCUSSION

The purpose of this study is to explore the relationship between consequences of downsizing on the surviving employees, and their perceptions of the work environment for creativity and innovation in three firms that have engaged in downsizing during the past year. In this section we would like to comment on our results. These results will be discussed in light of previous theory and research, and our own assumptions about the industry. In the regression analysis we received support for hypotheses 3 and 4; however, we received little support for hypotheses 1 and 2. Some of the results are surprising and will need further comments.

6.1 ANTICIPATED DOWNSIZING

In hypothesis 1, we stated that anticipated downsizing would be negatively correlated with the work environment for creativity. Surprisingly, our results show that only two of the dependent variables, challenging work and sufficient resources, were related to the anticipation of further downsizing. Furthermore, these relationships were positive rather than negative (see table 3). Thus, we wish to discuss the possible causes for these outcomes and elaborate on our findings.

Our descriptive data revealed that 85% of our participants anticipate further downsizing in their department. From the provided theory, there is empirical evidence that anticipated downsizing is a predictor for decreased creative behaviour (Amabile & Conti 1999; Probst et al. 2007). Further, anticipated downsizing is expected to have a greater impact on employees than actual experienced downsizing. This is in accordance with the affective forecasting theory that claims that anticipation of a negative event may be less tolerable than the actual experience (Gilbert et al. 1998). A study conducted by Jalajas and Bommer (1999) examined the effects threat of future downsizing can have on the surviving employees. Their sample consisted of engineers in fifteen high-technology firms. The study suggests that the threat of downsizing has a negative impact on important factors for creative behaviour, namely the willingness to take risks, make suggestions to supervisors, and job motivation. We have mentioned that Amabile and Conti (1999) found that the employees who expect further downsizing in their department, reported of poorer work environment conditions for creativity. Similar to

our study, they used KEYS to assess the work environment for creativity. Considering that 85% expect further downsizing in their department, we had expected to find similar negative results.

The sufficient resources scale in KEYS represents access to appropriate resources, such as funds, facilities, and information. In our analysis, resources had an unexpected significant positive relationship with anticipated downsizing. This could suggest that the firms have not changed their budgets and that available resources have not been affected by downsizing. A pre-study conducted in the Norwegian oil and gas industry, asked a number of employees if the firms had changed their investments in innovation and R&D activities as a response to the downturn. From their results, 50% of the employees answered that the budgets has remained unchanged (Gjerde & Lindgren 2015). Given that we are studying the same economic downturn, we believe these results can be applied to our study as well. However, we know that the current economic downturn forces firms in the industry to reduce costs in order to stay competitive. This will most likely affect the funds available to the surviving employees. In our questionnaire the statement "The budgets of my projects are generally adequate" received an average score of 3.31. Moreover, it could indicate that with fewer employees within a department, more resources could be available to each employee, even though the amount of resources may have declined. It is difficult to find the exact reasons behind this relationship, and we believe the result is quite arbitrary.

The second significant relationship our analysis uncovered was a positive relationship with challenging work. Like resources, challenging work was expected to be negatively rather than positively related to the anticipation of further downsizing. We believe a possible reason for this relationship could be the difficult times these firms are currently experiencing. The work once performed by the laid off employees, may get transferred to the remaining workers. Some employees are faced with new tasks or responsibilities, which in turn could be perceived as challenging. In addition, the economic downturn in the industry challenges firms to rethink, increase the efficiency, and explore new ways of doing things.

When the employees where asked to answer to which extent their boss supports their work group, 50% of those that did *not* expect further downsizing answered "strongly agree", while 25.9% of those expecting further downsizing answered the same. This implies that perceived supervisory support may be undermined when you believe that there is a possibility of further downsizing within your own department. It may also be caused by the lack of trust and commitment to your supervisor due to downsizing activity (Noer 1993). This could indicate that the threat of further downsizing has a negative effect on the supervisory support for creativity. However, our results did not indicate a significant relationship between these variables.

Amabile and Conti (1999) found in their study that anticipated downsizing was positively correlated with job insecurity. Additionally, the employees reported lower levels of job satisfaction when they expected further downsizing. In our correlation matrix, we did not find any relationship between these variables. This could indicate that the different firms report different level of job insecurity and job satisfaction. Furthermore, how the downsizing have been conducted and communicated is an important factor to consider that could explain these particular findings.

6.2 JOB MOTIVATION

In hypothesis 2, we wanted to explore whether a high level of job motivation is positively correlated with the surviving employees perceptions of the work environment for creativity. Due to the importance of a work environment that motivates employees to creative behaviour and the motivational aspects of KEYS, we had expected a positive relationship between job motivation and the different scales in KEYS. However, our analysis indicates only one significant relationship, more precisely between job motivation and challenging work. In other words, we received little support for hypothesis 2 and further comments and discussion are necessary.

The positive relationship between job motivation and *challenging work* is not surprising, given that challenging work is a key factor for intrinsic motivation. In the scale "challenging work" participants answered to statements such as "The tasks in my work call out the best in me" and "I feel challenged by the work I am currently doing". As mentioned, job motivation makes the difference between what an employee can do, and

what he actually will do, and is absolutely necessary for creative behaviour to occur (Amabile 1998). Highly motivated employees who perceive their job as meaningful characterize a challenging work environment. Appropriately matching employees to work assignments based on their skills, capabilities, and interest can create a sense of positive challenge in the work, and significantly affect employees' intrinsic motivation (Amabile 1996; Ekvall 1996). In addition, it is important that the work is not too challenging or too monotonic. Challenging work got the second best overall score (3.84) in our questionnaire. This can indicate that the majority of the employees feel challenged by their daily work, and explain the positive relationship between this scale and job motivation.

Our results show that 74% of the participants agree or strongly agree to the statement "I feel motivated to carry out my work", and only 9% disagree or strongly disagree. This indicates that the majority of the surviving employees feel highly motivated to put an effort into their work and perform their assignments well. Based on previous research on downsizing, we expected a lower degree of motivation among the surviving employees. For instance, it has been found that survivors tend to display dysfunctional work behaviours and attitudes during and after downsizing activities, such as decreased motivation (Cascio 1993; Gandolfi & Hansson 2011). However, Jalajas and Bommer (1999) claims that past downsizing and the threat of future downsizing have a minor or insignificant influence on behaviours when compared to the degree a worker is motivated by the job itself, and they received support for this assumption in their research. Additionally, there is reason to believe that studies that find reduced motivation among surviving employees may have been in firms where the survivors were not particularly empowered, or more generally, where the intrinsic motivation of the job has diminished (Jalajas & Bommer 1999). The employees in our sample are highly educated engineers that we believe demand a certain degree of empowerment in their daily work, and with jobs that are made to be more intrinsically motivating. Moreover, this can explain the reason why we did not observe less motivated employees. In addition, we cannot be sure if the employees who have low job motivation experience this because of the downsizing activities. There are other possible reasons, and further research is necessary to draw a conclusion.

We have mentioned how the work environment can have a significant effect on employees' level of motivation, and that the KEYS model represents work environment characteristics that mainly affect intrinsic motivation. Therefore, we had expected a relationship between several KEYS scales and the participants' level of job motivation. We find it especially surprising that our analysis show no relationship between *organizational encouragement* and job motivation. We have previously stressed the importance of encouragement from the highest levels of management and organizational facilitation of work environment for individual creative behaviour. Organizations cannot order employees to be creative, but they can attempt to create an encouraging work environment of generosity, freedom, and safety in which innovation can flourish (Brand 1998). In the componential theory of organizational creativity and innovation, the organizational motivation to innovate is the most important component for individual creativity and innovation (Amabile 1997). This component is represented by the scales organizational encouragement and organizational impediments in KEYS. In our questionnaire, these scales achieved an average score of 3.15 and 2.90. The score of 2.90 is the lowest achieved in our questionnaire, while the score of 3.15 is among the lowest. Despite these low scores, there is a high degree of job motivation in these firms. This can indicate that the top management in the firms are struggling to create a motivating work environment, but there are clearly other factors that are able motivate the employees, such as challenging work. Other factors probably motivate employees, but our analysis did not show any other significant relationships.

One of the most important factors in the downsizing process is the remaining employees' perception of how fairly the terminated employees have been treated by the firm (Richey 1992). These perceptions will have a major impact on how the employees react during and after the downsizing and on the attitudes of the employee in general, such as job motivation and job satisfaction. Additionally, understanding the necessity of downsizing and the methods used is important to create a more positive work environment for those who remain in the firm. Since the surviving employees' motivation seems to be insignificantly affected by the downsizing, there is a reason to believe that the perceived fairness and the understanding of the choice to downsize are high.

6.3 JOB SATISFACTION

In hypothesis 3, we expected that job satisfaction would be positively correlated with the work environment for creativity. Our analysis indicates that job satisfaction has a significant relationship with all the scales in KEYS, except for workload pressure. Hence, we received support for hypothesis 3 and we will discuss some of the most important findings in our analysis.

We find the missing relationship between job satisfaction and *workload pressure* quite surprising, since we have previously mentioned how increased workload from downsizing can negatively influence job satisfaction (Cameron et al. 1991; Tsai et al. 2007). After workforce reduction fewer employees are often left to do the same amount of work, and this has an impact on what work gets done and how its gets done (Cameron 1994). The survivors often find themselves facing new tasks, new job responsibilities, increased pressure, and frequently have to increase their efforts to compensate for the reduced manpower. In addition, this increased workload is likely to distract the surviving employees from creative behaviour and innovation. A possible reason for the missing relationship can be the reduced activity level in the Norwegian oil and gas industry. The economic downturn in the industry has lead to fewer investments and less work, especially for the service companies. Moreover, there is reason to believe that the terminated employees could be excess manpower.

Work processes are always influenced one way or another by downsizing. For instance, downsizing breaks the network of informal relationships used by employees in organizations. Dougherty and Bowman (1995) call it entrepreneurial networking. This network is critical for innovation in terms of knowledge sharing, resources, and expertise between employees. Their research found that downsizing breaks this network and that the innovators had fewer ways to get resources and support. Further, connections between divisions and individuals can get cut or changed, and others in the firm can have little willingness and motivation to cooperate. As mentioned, our three firms have terminated nearly 3.000 employees, and all of our participants answered that they had experienced downsizing in their department over the past year. This indicates that the majority of the surviving employees have experienced someone in their formal

and/or informal network being laid off. These implications are related to work group support and will be discussed below.

Our analysis indicates that job satisfaction is significantly related to *work group supports.* In our questionnaire, work group supports are the scale that got the highest overall score from our participants (4.04) and has the lowest standard deviation (0.60). Key elements in the scale work group supports are trust, a willingness to help each other, and free and open communication. A work environment affected by downsizing is often characterized by a loss of trust and increased levels of individualism (Cameron 1994). Additionally, downsizing often damage communication by creating fear that causes employees to become more self-centred (Gandolfi & Oster 2009). This individualistic attitude has proven to hinder teamwork that can prevent creative behaviour and innovation. Successful innovation depends upon open communication and an active internal sharing of information and knowledge between employees (Brand 1998). The willingness to share knowledge between colleagues is directly affected by the culture and the work environment within the firm. Therefore, it is necessary to create an atmosphere that enables and encourages people to give help and draw help from others (Brand 1998). When employees suspect additional waves of downsizing, knowledge can become a new form of currency that is hoarded by individual employees and departments (Gandolfi & Oster 2009). Given that work group supports is the scale with the highest overall score, it seems that work group supports is relatively unaffected by the current downsizing activities and that the majority of the surviving employees are satisfied with their work group. Further, the statement "In my work group, people are willing to help each other" received the highest average score (4.31). In our sample there seems to be a lack of the individualistic attitude found in previous research, and the employees perceive their colleagues as highly cooperative. Davy et al. (1991) mention that job satisfaction is strongly related to getting along with your co-workers, and our findings are in accordance with this statement.

Furthermore, our analysis shows a positive relationship between job satisfaction and the total KEYS model. This indicates that employees satisfied with their job situation perceive the work environment as facilitated for creative behaviour. According to Davy et al. (1991) job satisfaction is related to freedom to use your own judgement, the

feeling of accomplishment in your job, and the chance to perform tasks that make use of your abilities. These characteristics are important for a work environment that facilitates for creativity, and can help us explain the positive relationship between the scales *freedom* and *challenging work* and job satisfaction. Creativity is fostered when employees and teams have relatively high autonomy in their daily work, a sense of ownership and control over their own work and ideas, and work that call out the best in the employees (Amabile et al. 1996). This is especially important for the job satisfaction of the participants in our study, who are mainly highly educated engineers. Thus, the positive relationship between freedom and challenging work and job satisfaction was expected.

Job satisfaction is the only independent variable that is significantly related to the criterion scale, creativity. This scale represents the employees' overall perceptions of the actual creativity and innovation of the work being done, and if they perceive the work environment as facilitated for creative behaviour. Our analysis shows a positive relationship between these two variables. The creativity scale includes statements such as "Overall, my current work environment is conducive to my own creativity" and "My area of this organization is creative". This indicates that satisfied employees feel that the firm facilitate the work environment for creativity, and can explain the overall significant relationship between job satisfaction and the different scales in KEYS.

Finally, our results show a negative correlation between the two independent variables job satisfaction and job insecurity. This is in accordance with previous research that has found increased perceptions of job insecurity to be related to decreased job satisfaction (Ashford et al. 1989; Davy et al. 1991; Probst 2000). Ashford et al. (1989) claim that downsizing diminishes job satisfaction because when firms choose to downsize employees often have little or no control over the outcome or the procedure. Lack of control is common when experiencing reduced job security, and will be discussed further down in this section.

6.4 JOB INSECURITY

In hypothesis 4, we expected that job insecurity would be negatively correlated with the employees' perceptions of the work environment for creativity. Our analysis indicates a

significant relationship between job insecurity and the scales freedom, supervisory encouragement, organizational encouragement, organizational impediments, and the total KEYS model for creativity. Based on this, we believe there is reason to support hypothesis 4, and some of our findings will be further commented and discussed.

From the results of our questionnaire, only 34% of the participants answered that they agree or strongly agree to the statement "I fear my job is insecure", whereas 31% answered that they disagree or strongly disagree. As mentioned, 85% answered that they anticipate further downsizing in their department within the next year. In other words, the majority expect further downsizing in their department, but they do not perceive their own job as especially insecure. We believe one of the reasons may be that since the firms already have been through one or more downsizing processes the most exposed employees have already been terminated.

Job insecurity showed no significant correlation with anticipated downsizing. An empirical study on how general media coverage of labour market policy on individual perceptions of job insecurity shows that bad news about the labour market policies had no effect on the perception of job insecurity (Garz 2012). This could indicate that some people react optimistically to negative news, which is called an *optimism bias*. This phenomenon is one of the most consistent and robust biases documented in psychology and behavioural economics. It can be defined as the difference between a person's expectations and the outcome that follows (Sharot 2011). In our case, the employees of these firms expect further downsizing in their department, but overall this expectation is not reflected in their own job insecurity. However, further analysis must be considered before making a clear conclusion on the matter.

Our analysis shows a significant negative relationship between job insecurity and *supervisory encouragement*. This is consistent with previous research from Probst (2000). Her research revealed that higher job insecurity is related to lower levels of supervisor satisfaction. This concerned especially employees who were highly invested in their jobs. Additionally, perceptions of job security did not significantly relate to co-worker satisfaction. Likewise, our analysis indicates no significant relationship between job insecurity and *work group supports*. We believe a possible reason for the negative

relationship with supervisory encouragement is that employees unconsciously or consciously blame their managers for the job insecurity they experience. The managers generally have an active role in the downsizing process, and they are rarely the first to be laid off, if they get laid off at all. Increased distrust toward management is mentioned as a common consequence of downsizing (Cascio 1993). However, the colleagues are often in the same situation facing the same uncertainty and risk of being laid off. Thus, it is easier to get a negative attitude toward your managers than toward your colleagues. The high average score on work group supports (4.04) supports this assumption, while supervisory encouragement achieved a lower average score (3.56). Amabile et al. (1996) mention the importance of encouragement for creative behaviour from management through an open interaction between managers and subordinates. A common change in the work environment during downsizing is a deterioration of communication at many levels (Gandolfi & Hansson 2011). Therefore, in order to maintain a trustworthy relationship, good and clear communication to all employees through the downsizing process is especially important for managers. Clear communication from managers will affect how survivors react to downsizing and reduce negative emotions such as uncertainty (Noer 1993). The statement "My boss communicates well with our work group" got an average score of 3.47 from our participants. This can indicate a potential improvement opportunity for managers.

It is worth mentioning that the two independent variables job insecurity and job motivation correlate negatively. If perceived job insecurity is high, surviving employees are more likely to feel unmotivated. As mentioned, job insecurity is a combination of perceived likelihood of job loss and perceived control (Brockner et al. 1992). The lack of motivation could indicate that the employees believe that there is hardly anything they or the organization can do to control or prevent the threat of downsizing. The perception of little control is likely to lead to feelings of helplessness, which in turn, attenuate motivation. From our results, we see that the participants perceive their job insecurity as relatively low. This is another factor that can help us explain the high motivation among the employees, despite the current threat of downsizing in the firms.

Our analysis indicates a negative relationship between job insecurity and *freedom.* Freedom in your daily work is important for creative behaviour, and is facilitated

through high autonomy in the day-to-day conduct of the work and a sense of ownership and control over own work (Amabile et al. 1996). Since job insecurity often reduce the perceived control among the survivors we believe it can reduce the feeling of freedom in your daily work as well, and help us clarify the significant negative relationship between the two variables.

Additionally, our regression analysis shows that job insecurity and *organizational encouragement* and *lack of organizational impediments* are negatively related. These scales addresses an organizational environment that encourages creativity and do not impede creative behaviour through criticism of new ideas, an avoidance of risk, and an overemphasis on the status quo (Amabile et al. 1996). Greenhalgh and Rosenblatt (2010) have studied the relationship between employees' reaction to job insecurity and organizational consequences. They found that job insecurity could lead to dysfunctional work attitudes, such as resistance to change, lower adaptability, and conservatism. These work attitudes can affect organizations ability to adapt to changing and challenging market conditions. This is especially important considering the current conditions in the industry, where continuous renewal and adaption is required to stay in business. Moreover, these organizational consequences of job insecurity can affect the innovative capability of organizations. Increased resistance to change, less tolerance of risk and failure will naturally affect creative activity (Gandolfi & Hansson 2011).

In our questionnaire the statements "People are encouraged to take risk in this organization" and " Top management is willing to take risks in this organization" are some of statements that received the lowest average score, with 2.34 and 2.61 respectively. Additionally, the statement "There is little emphasis in this organization on doing things the way we have always done them" received an average score of 2.65. These results can indicate a low tolerance of risk and a possible resistance to change that can hinder innovation in the three firms. This is not that surprising given the uncertainty in the industry. It is intuitive to assume that a priority of the management is to avoid risk given the unpredictable environment these firms currently operate in. In other words, it is not uncommon that management are resistant to change during difficult financial times. However, the orientation toward innovation and creativity should be especially important to the organization, and should primarily come from the

highest level of management. As Amabile et al. (1996) mention, it is important that firms have an offensive strategy of taking the lead toward the future – not an orientation toward maintaining the status quo.

We have previously mentioned how job insecurity can affect employees' job performance by reducing motivation and employees' commitment to their work. We would like to elaborate on this. Marques et al. (2014) conducted a study to analyse the effects of perceived job insecurity on the innovative behaviour of employees in an environment affected by downsizing. Their results showed that job insecurity has an indirect effect on innovative behaviour, through organizational commitment. We can define organizational commitment as "a strong belief in and acceptance of the organization's goals and values, a willingness to exert considerable effort on behalf of the organization, and a definite desire to maintain organizational membership" (Porter et al. 1974). We believe that job insecurity caused by downsizing can reduce employees organizational commitment because many employees feel that the organization have let them down. Noer (1993) points out lack of commitment as a typical reaction by the surviving employees. This is also confirmed by the expectancy theory; employees are more likely to feel motivated to commit their time and effort to the firm when they experience reciprocity from the organization, such as rewards (Baruch 1998). This reward could be job security, where the employer rewards the employee for the effort and the commitment to the organization.

Why are employees expected to feel committed and loyal to the organization, if there is not a promise of future employment? There is a possibility that employees in our three firms could feel less committed to putting an extra effort in creative activities and positively contributing innovation efforts, as they feel insecure about their employment prospects. Previous research has revealed that employees' productivity and effort increases for routine task, as an attempt to avoid being laid off (Probst & Brubaker 2001). However, this does not apply for knowledge-based tasks and creative behaviour necessary for innovation. When employees perceive their job as insecure, they try to avoid standing out negatively. Therefore, increased effort in terms of routine tasks is a safer choice than creative behaviour that could end in failure.

7.0 CONCLUSION

The purpose of this study was to examine the effects of downsizing on the work environment for creativity. More specifically, we have studied how anticipated downsizing, job motivation, job satisfaction and job insecurity influences creativity by assessing the employees' perceptions of the work environment in three firms in the Norwegian oil and gas industry.

Our study is inspired by previous research by Amabile and Conti (1999), who used the survey instrument KEYS to study the impact of downsizing on the work environment for creativity. Their main focus was to compare the work environment for creativity three points in time - before, during and after downsizing. The study found that downsizing had a negative impact on the work environment for creativity. Our objective has been to extend their research, and to study downsizing consequences and how it affects creativity in organizations.

Overall, we can conclude that we have support for two of our hypotheses, namely hypothesis 3 and 4. In other words, we found that job satisfaction and job insecurity are predictors that influence the perceptions of the work environment for creativity. More surprisingly, the results showed that job motivation and anticipated downsizing had no or few significant relationships with the work environment scales for creativity. This thesis provides us with both theoretical and practical implications. We will introduce the implications we consider most important compared to previous research and the implications that can have a possible impact on the three firms in our study.

7.1 THEORETICAL IMPLICATIONS

While past research has found that anticipated downsizing is negatively related to the work environment for creativity, our results do not yield a similar relationship (Amabile & Conti 1999). In contrast to their research, the firms in our study have already been through one or more rounds of downsizing. This could imply that the effect on the work environment have diminished over time. This assumption is supported by Armstrong-Stassen (1993) who reported that the surviving employees who had "seldom" or "never" experienced redundancy in their department exhibited more negative reactions than

those who had experienced numerous downsizings. As stated in our discussion, there is a clear gap between the employees' expectations of further downsizing in their department and how the employees consider their own job insecurity. In line with this, we believe that these employees are less affected by the downsizing, and thus the effect on the perceptions of the work environment diminishes.

Several studies show that downsizing activities affect employees' motivation (Cascio 1993; Kinnie et al. 1998), and decreased motivation is mentioned as one of twelve survivor reactions in Noer's research (1993). In contrast, our questionnaire indicated that the majority of the surviving employees in the three firms feel highly motivated in their job. Furthermore, our analysis did not support the expected relationship between job motivation and the work environment for creativity. This is quite surprising given the fact that the different KEYS scales represent characteristics that is supposed to affect the employees' motivation for creative behaviour (Amabile 1997). Even though we found no evidence of an existing relationship, there are clearly other factors that motivate the employees. One of these factors is the perception of challenging work. This is in accordance with previous research that claims that challenging work can trigger intrinsic motivation (Amabile 1997).

A fundamental assumption is that job insecurity demotivates workers. Our analysis shows a negative correlation between the independent variables job motivation and job insecurity. According to Greenhalgh (1982), implications of this is that firms must try to optimize job security when making decisions regarding change in order to minimize surviving employees' dysfunctional response - such as decreased motivation. Firms should not expect to get the best out of their employees when they feel uncertain about their future in the organization. Furthermore, increased job insecurity can reduce organizational commitment (Appelbaum et al. 1997; Marques et al. 2014). This commitment is important in terms of employees' willingness to exert considerable effort to achieve the firm's goals and vision.

Previous studies have analysed the effects of perceived job insecurity on the innovative behaviour of employees. The study conducted by Probst et al. (2007) found that job insecurity could have adverse effects on creativity. Their results indicated that a higher

level of job insecurity lead to decreased creative problem solving. Furthermore, Marques et al. (2014) identified that job insecurity had an indirect effect on employees' innovative behaviour, through organizational commitment. Our analysis provides resembling results – employees who feel that their job is insecure, have more negative perceptions of the work environment for creativity. Additionally, our analysis indicates that job satisfaction is an important predictor for positive perceptions of the work environment for creativity. This yields a similar result as found in a study conducted by Nerkar et al. (1996), where satisfaction was positively related to innovation.

The sample in our study shows few indications of the downsizing consequences, loss of trust and high levels of individualism, as found in previous research (Cascio 1993; Cameron 1994). The scale work group supports, where cooperation and trust are important factors, received the highest average score. However, there are indications of lower levels of supervisory encouragement when the employees perceive their job as insecure. This is most likely related to the fact that managers have an active role in the downsizing process, and therefore increased distrust toward management is common during downsizing (Noer 1993).

Given that the three firms accentuate creativity and innovation in their core values, we expected the firms to score higher on the criterion scale, creativity. During downsizing, the environment is generally characterized by uncertainty, chaos, and risk aversion (Cascio 1993; Amabile & Conti 1997). The main focus is often on short-term benefits and increasing cost efficiency, rather than investing time and resources in creativity and innovation. This is because of the risk involved and the length of time required producing sufficient returns from innovations (Mellahi & Wilkinson 2010). We believe these downsizing consequences can contribute to explain why the firms in our study scored relatively low on this scale.

7.2 PRACTICAL IMPLICATIONS

Although our analysis did not confirm all of our expected relationships, this study has contributed to knowledge about the relationship between downsizing reactions and the work environment for creativity and innovation. In addition, this research provides

suggestions for management about how to facilitate the work environment for creativity and innovation during downsizing, but also on a general basis.

In order to make the implementation of downsizing more successful and sustain creative and innovative during and after downsizing, the firms need to be aware of the emotions and reactions surviving employees can experience during downsizing. Better yet, they should try to avoid negative reactions by actively involving employees in the planning phase of any downsizing effort (Cascio 1993). In addition, clear and open communication from management can ensure greater acceptance for change and reduce the negative outcomes of downsizing (De Meuse et al. 1994). Furthermore, a number of previous studies argue that employee perceptions of fairness are important in explaining how surviving employees react to downsizing (e.g. Armstrong-Stassen 1993; Noer 1993)

During downsizing firms need to assure that top management is visible and provide a direction and overall vision (De Meuse et al. 1994). It is vital that the firms place a value on creativity and innovation in general, and that management stress the importance of an orientation toward risk and idea generation. The scales organizational encouragement and organizational impediments received relatively low average scores in all of the three firms. These results indicate a clear improvement opportunity for the firms. Management need to assess how they can improve certain work environment characteristics to facilitate for individual creativity in their organization.

It is worth noting that even though our questionnaire reported of high motivation among the surviving employees, the job satisfaction was generally lower. This can indicate that surviving employees feel motivated, but are not fully satisfied with their current work situation. This could have a connection with the current conditions in the industry, and the job insecurity that follows. The statement “Overall, my current work environment is conducive to my own creativity”, received an average score of only 3.19. This score points out that the employees are not completely satisfied with how the work environment is facilitated for their own creative behaviour. As mentioned, firms can create a work environment where individual creativity and innovation either is encouraged or stifled. Since we have found that, overall, the employees seem to be

motivated to carry out their work, we believe this is a good starting point to improve the work environment for creative behaviour and innovation in these firms.

It is important that firms who implement downsizing are aware and understand the effects on the work environment. The aim at becoming more cost efficient and increase operational effectiveness could come at the expense of the employees' creative behaviour and the firm's innovative capability. This is especially important in the current market conditions in the Norwegian oil and gas industry, where renewal and adaption is important in order to survive the economic downturn. If firms are able to focus on innovation, while at the same time successfully cut costs, firms can gain long-term benefits. Therefore, it is important that these firms encourage innovation and facilitate their work environment for creativity and innovation.

7.3 LIMITATIONS AND FURTHER RESEARCH

Our study is based on a sample of three firms in the Norwegian oil and gas industry and assesses the perceived work environment for creativity during an economic downturn. This means that we assess one specific context, which in turn limit the generalizability of the study. Each downturn is unique and different in terms of scope, time period, and other factors.

A limitation of this study is the relatively small sample size. The sample size has implications for the level of generalizability and the power of statistical testing. The timing of our data collection was very unfortunate for the firms, as the firms in we contacted were in the midst of a downsizing process. This can explain why the sample size became smaller than what we expected. Some of the firms we contacted said "they did not want to burden or put additional pressure on their remaining employees during a period of readjustment and were sorry to inform us that they could not contribute to our study".

The interpretation of the Likert-scales used in the survey may also be a weakness to our study. Individuals may for instance interpret "strongly disagree" or "disagree" in different terms. Furthermore, the translation of the questionnaire could result in bias responses in cases where the translation leads to misinterpretation. However, the

translated version of the questionnaire was tested in order to avoid such errors. The independent variables, anticipated downsizing, job motivation, job satisfaction, and job insecurity were measured with a single item, preventing any measure of reliability of these variables. For further research, a model should be developed and tested that includes more than one item to increase the validity and reliability of these variables.

Another limitation of our research is the randomness of responses. Our questionnaire was voluntary in the sense that the selected employees could choose whether or not to participate, without any reward or punishment. In other words, we cannot be completely certain that the responses reflect the existing variation of perceptions within our sample. In addition, there might exist internal differences in the three firms that have not been discussed in this study and could have an impact on our results.

Due to time limitation, our study is based on cross-sectional data. This made it impossible to assess whether the perceptions of the work environment for creativity has changed as a response to the current downsizing and the economic downturn in the industry. For further research it would be interesting to conduct a longitudinal study to assess variations over time. For instance, how the employees' perceptions of the work environment for creativity evolve over time from before, during, and after downsizing, and whether the work environment affected by downsizing is able to gradually rebuild. By conducting a before and after study on the impacts of downsizing on these dimensions, we would achieve a higher degree of internal validity. Amabile and Conti (1999) performed a similar study, and it would be interesting to see if a comparable study conducted in a Norwegian context would yield similar results.

Another interesting aspect for further research is to assess the relationship between different survivors feelings and attitudes and the employees' perceptions of the work environment for creativity – such as organizational commitment, morale, and perceived fairness of the downsizing process. On a final note, we believe that a qualitative research in terms of interviews with employees could enrich our thesis and add complimentary value to our results.

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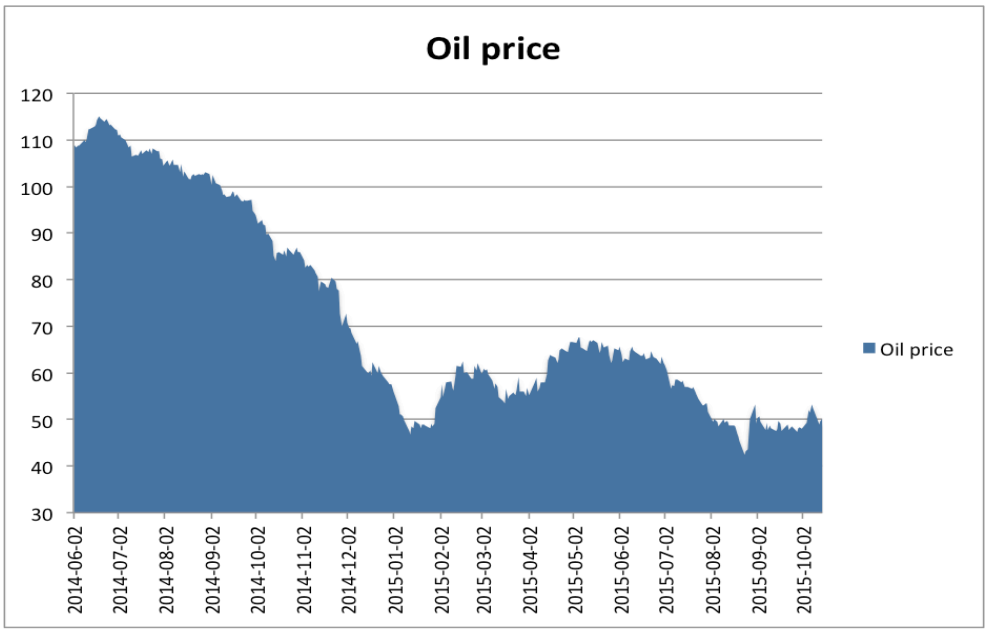
Appendix I:

MARKET CONDITIONS IN THE NORWEGIAN OIL AND GAS INDUSTRY

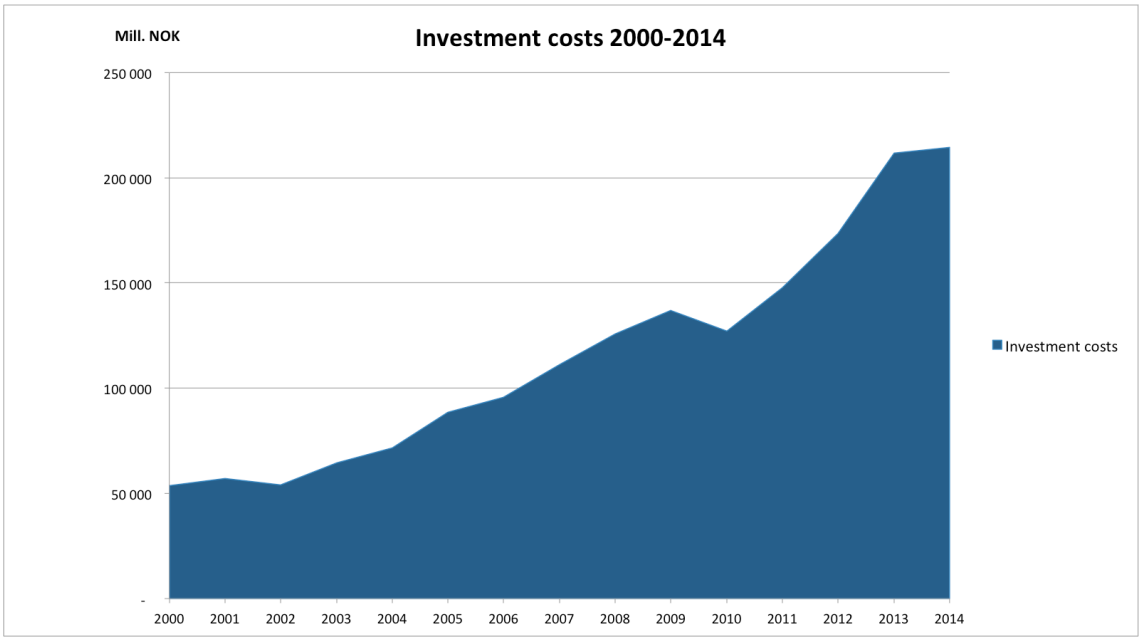
We will give a short introduction to the changing market conditions in the Norwegian oil and gas industry that is the reason why many firms in the industry today engage in downsizing activities. As mentioned, downsizing is affected by economic cycles, and firms experiencing difficult economic times are more likely to downsize. The oil and gas industry has for the past eighteen months been characterized by uncertainty. The reason being a combination of a major drop in the oil price and high development and operating costs in the industry. This has lead to a significant slowdown in the activity level on the Norwegian continental shelf, and many firms chose to reduce their workforce in order to adapt to the changing market conditions.

In the second half of 2014, the oil price fell sharply, and brought an end to a nearly four-year period of a stable oil price at around $110 a barrel. Since June 2014 prices have been more than halved, from $114 a barrel to $42 a barrel in august 2015. It is difficult to identify the exact reasons behind the price drop, but it boils down to the simple economics of supply and demand (Nytimes.com 2015). Key factors are the increasing oil production in North America and a weaker growth in the global oil consumption. In addition, the oil cartel OPEC is determined not to cut production as a way to prop up prices. This causes the oil stocks around the world to fill up and falling oil prices (Norskpetroleum.no 2015).



Brent spot price development 01.01.2014-22.09.2015 (DN.no)

During the recent years, there has been a considerable growth in investments on the Norwegian continental shelf. The amount invested in the Norwegian oil and gas industry became four times higher in the period between 2000-2014. The growth is explained by high demand and high prices for Norwegian oil and gas. In addition, the increasing investments lead to a high demand for labour, machines, and materials. This has driven the price level to increase, and resulted in an extremely high cost level in the industry.



Investment costs Norwegian continental shelf 2000-2014. (SSB.no)

Today, many firms in the industry have dropped or postponed investments as the decrease in the oil price makes projects unprofitable. With the high development and operating costs firms are dependent on a high oil price. The current activity level in the oil and gas industry impacts workplaces and structure within in oil companies, but also gives repercussions for companies that provide services to the oil and gas industry. The reduced activity level makes the oil and gas industry dependent on cost-efficient solution in order to stay competitive in the future. In light of this, many firms chose to reduce their workforce in order to cut costs. As a result of the downturn, over 27.000 jobs are gone in the Norwegian oil and gas industry (Aftenbladet.no 2015). Among the largest firms, Statoil and Aker Solutions have cut respectively 5500 employees and 2400 employees of their workforce (Aftenbladet.no 2015). Downsizing activities in the oil and gas industry is the main reason for the overall unemployment in Norway has increased from 3,2% in the spring 2014 to 4,5% in just over a year (E24.no 24.06.2015).

Appendix II:

Hei,

I forbindelse med vår masterutredning ved NHH trenger vi hjelp fra dere til å svare på en spørreundersøkelse. Den omhandler hvordan arbeidsforholdene i organisasjoner er tilrettelagt for kreativitet og innovasjon. Tanken bak oppgaven er viktigheten av å tenke nytt og satse på innovasjon i den pågående nedgangstiden i oljebransjen. Undersøkelsen tar ca. 8 min å gjennomføre. På første side kan du selv velge språk, norsk eller engelsk. Alle som deltar er selvsagt anonyme.

Bedriften har godkjent den enkeltes deltakelse i undersøkelsen.

Vi er helt avhengig av din deltakelse for å realisere studien, og setter derfor stor pris på ditt bidrag. Dersom du har spørsmål, ta kontakt med Kristine Lobekk Dahl på 97608532 eller *kristine.dahl@student.nhh.no*

På forhånd tusen takk.

Med vennlig hilsen,
Kristine Lobekk Dahl & Karoline Male Kolberg

NHH

KEYS: Assessing the Work Environment for Creativity

The purpose of this survey is to assess the work environment for creativity and innovation in organizations affected by the current economic downturn. You will now be asked to answer to what extent you agree/disagree with statements regarding your daily work environment. The scales represent 1= "Strongly disagree", 2=Disagree 3=Neither Disagree or Agree, 4=Agree, and 5="Strongly Agree". We highly appreciate your participation. Please answer all the questions if possible.

Freedom

In the following section we would like you to answer to what extent you disagree/agree with the statements concerning your daily work.

I have the freedom to decide how I am going to carry out my projects.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

I feel little pressure to meet someone else's specifications in how I do my work.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

I have the freedom to decide what project(s) I am going to do.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

In my daily work environment, I feel a sense of control over my own work and my own ideas.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Challenging Work

In the following section we would like you to answer to what extent you disagree/agree with the statements regarding your daily work.

I feel that I am working on important projects.
- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

The tasks in my work are challenging.
- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

The tasks in my work call out the best in me.
- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

I feel challenged by the work I am currently doing.
- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Supervisory Encouragement

In the following section we would like you to answer to what extent you disagree/agree with the statements concerning your supervisor(s).

My boss's expectations for my project(s) are clear.
- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

My boss clearly sets overall goals for me.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

My boss communicates well with our work group.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

My boss values individual contributions to project(s).

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

My boss is open to new Ideas.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

My boss supports my work group within the organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

I get constructive feedback about my work.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Realistic Workload Pressure

In the following section we would like you to answer to what extent you disagree/agree with the statements concerning the perceived workload in your daily work.

I do not have too much work to do in too little time.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

There are realistic expectations for what people can achieve in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

I have sufficient time to do my project(s).

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Organizational Encouragement

In the following section we would like you to answer to what extent you disagree/agree with the statements regarding the organizational work environment.

People are encouraged to solve problems creatively in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

New ideas are encouraged in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

People are encouraged to take risks in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Ideas are judged fairly in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Failure is acceptable in this organization, if the effort on the project was good.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

People are recognized for creative work in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

There is an open atmosphere in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

In this organization, there is a lively and active flow of ideas.

- ❍ Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Overall, the people in this organization have a shared vision of where we are going and what we are trying to do.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Lack of Organizational Impediments

In the following section we would like you to answer to what extent you disagree/agree with the statements concerning the presence of organizational impediments.

There is no destructive competition within this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

People in this organization are not concerned about protecting their territory.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

People are not critical of new ideas in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Destructive criticism is not a problem in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

People are not concerned about negative criticism of their work in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Top management is willing to take risks in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

There is little emphasis in this organization on doing things the way we have always done them.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Procedures and structures are not too formal in this organization.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Work Group Supports

In the following section we would like you to answer to what extent you disagree/agree with the statements regarding your colleagues.

My co-workers and I make a good team.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

There is a feeling of trust among the people I work with most closely.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Within my work group, we challenge each other's ideas in a constructive way.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

People in my work group are open to new ideas.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

In my work group, people are willing to help each other.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

There is a good blend of skills in my work group.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

There is free and open communication within my work group.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Sufficient Resources

In the following section we would like you to answer to what extent you disagree/agree with the statements concerning your resources in your daily work.

The facilities I need for my work are readily available to me.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Generally, I can get the resources I need for my work.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

The budget for my project(s) is generally adequate.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Creativity

In the following section we would like you to answer to what extent you disagree/agree with the statements whether you perceive the organization as overall creative.

My area of this organization is innovative

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

My area of this organization is creative.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Overall, my current work environment is conducive to my own creativity.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

A great deal of creativity is called for in my daily work.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Overall, my current work environment is conducive to the creativity of my work group.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

I believe that I am currently very creative in my work.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Background Information

General information about your current work situation. Remember, your answers are strictly anonymous.

Gender

- ❍ Male
- ❍ Female

Age

- ❍ 20-30
- ❍ 30-40
- ❍ 40-50
- ❍ 50+

I have experienced downsizing in my department in the last year.

- ❍ Yes
- ❍ No

I anticipate future downsizing in my department within the next year.

- ❍ Yes
- ❍ No

I fear that my job is insecure.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

I feel motivated to carry out my work.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

I am satisfied with my work situation.

- ❍ 1 Strongly Disagree
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 Strongly Agree

Appendix III:
DESCRIPTIVE STATISTICS OF EACH STATEMENT

Freedom Scale

	N	Minimum	Maximum	Mean	Std. Deviation
I have the freedom to decide how I am going to carry out my projects.	100	1	5	3.47	.937
I feel little pressure to meet someone else's specifications in how I do my work.	100	1	5	2.88	.967
I have the freedom to decide what project(s) I am going to do.	100	1	5	2.29	1.038
In my daily work environment, I feel a sense of control over my own work and my own ideas.	100	2	5	3.81	.787

Challenging Work

	N	Minimum	Maximum	Mean	Std. Deviation
I feel that I am working on important projects.	100	1	5	3.90	.959
The tasks in my work are challenging.	100	1	5	4.06	.952
The tasks in my work call out the best in me.	99	1	5	3.64	1.035
I feel challenged by the work I am currently doing.	100	1	5	3.77	1.062

Supervisory Encouragement

	N	Minimum	Maximum	Mean	Std. Deviation
My boss's expectations for my project(s) are clear.	100	1	5	3.67	.965
My boss clearly sets overall goals for me.	100	1	5	3.22	1.031
My boss communicates well with our work group.	100	1	5	3.47	1.123
My boss values individual contributions to project(s).	100	1	5	3.69	1.089
My boss is open to new Ideas.	100	1	5	3.66	1.056
My boss supports my work group within the organization.	99	1	5	3.85	1.004
I get constructive feedback about my work.	100	1	5	3.39	1.024

Realistic Workload Pressure

	N	Minimum	Maximum	Mean	Std. Deviation
I do not have too much work to do in too little time.	100	1	5	2.96	1.034
There are realistic expectations for what people can achieve in this organization.	100	1	5	3.23	.962
I have sufficient time to do my project(s).	100	1	5	3.08	1.061

Organizational Encouragement

	N	Minimum	Maximum	Mean	Std. Deviation
People are encouraged to solve problems creatively in this organization.	100	1	5	3.41	1.036
New ideas are encouraged in this organization.	100	1	5	3.54	.968
People are encouraged to take risks in this organization.	100	1	5	2.34	1.047
Ideas are judged fairly in this organization.	100	1	5	3.08	.907
Failure is acceptable in this organization, if the effort on the project was good.	99	1	5	3.25	1.024
People are recognized for creative work in this organization.	99	1	5	3.21	1.033
There is an open atmosphere in this organization.	99	1	5	3.39	.946
In this organization, there is a lively and active flow of ideas.	100	1	5	2.99	1.030
Overall, the people in this organization have a shared vision of where we are going and what we are trying to do.	99	1	5	3.06	1.058

Lack of Organizational Impediments

	N	Minimum	Maximum	Mean	Std. Deviation
There is no destructive competition within this organization.	99	1	5	3.15	1.004
People in this organization are not concerned about protecting their territory.	99	1	5	2.65	1.053
People are not critical of new ideas in this organization.	100	1	5	3.11	.863
Destructive criticism is not a problem in this organization.	98	1	5	3.26	.956
People are not concerned about negative criticism of their work in this organization.	99	1	5	3.05	.885
Top management is willing to take risks in this organization.	97	1	5	2.61	.963
There is little emphasis in this organization on doing things the way we have always done them.	98	1	5	2.65	1.036
Procedures and structures are not too formal in this organization.	100	1	5	2.79	1.008

Work Group Supports

	N	Minimum	Maximum	Mean	Std. Deviation
My co-workers and I make a good team.	99	1	5	4.11	.698
There is a feeling of trust among the people I work with most closely.	100	1	5	4.10	.745
Within my work group, we challenge each other's ideas in a constructive way.	100	1	5	3.84	.884
People in my work group are open to new ideas.	99	1	5	3.89	.891
In my work group, people are willing to help each other.	100	2	5	4.31	.720
There is a good blend of skills in my work group.	100	2	5	3.86	.954
There is free and open communication within my work group.	100	2	5	4.16	.762

Sufficient Resources

	N	Minimum	Maximum	Mean	Std. Deviation
The facilities I need for my work are readily available to me.	100	1	5	3.69	.961
Generally, I can get the resources I need for my work.	100	1	5	3.50	1.020
The budget for my project(s) is generally adequate.	100	1	5	3.31	.940

Creativity

	N	Minimum	Maximum	Mean	Std. Deviation
My area of this organization is innovative.	99	1	5	3.16	.987
My area of this organization is creative.	100	1	5	3.36	.938
Overall, my current work environment is conducive to my own creativity.	100	1	5	3.19	.929
A great deal of creativity is called for in my daily work.	100	1	5	3.33	.995
Overall, my current work environment is conducive to the creativity of my work group.	99	1	5	3.16	.889
I believe that I am currently very creative in my work.	98	1	5	3.21	.997