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Supportive leadership at distance:

The effect of innovation processes and climate

Relationship with Individual, Team, and Organizational variables

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Abstract

The rapid growth in use of home office creates the opportunity for leaders to embrace new ways of working in order to drive innovation. This study aims to investigate how leaders can support employees to foster an innovation climate that can lead to better innovation processes, when working from home. To gain a more in-depth understanding, this study examines how innovation processes and innovation climate are related to each other. Moreover, the aim is to investigate to what extent the individual dimensions (work engagement, age, and gender), the team dimension (social support) and the organizational dimensions (autonomy, home office and supportive leadership) predict innovation processes and innovation climate. Furthermore, it is desired to study to what extent the patterns of relationships are similar for innovation processes and innovation climate when investigating the effects from the three levels.

To conduct this study a quantitative method was used where data was collected from 1531 participants representative of the Norwegian workforce during Covid-19. Reliability and validity were tested by factor and reliability analyses. Furthermore, a correlation analysis and multiple hierarchical regression analyses were conducted. The findings indicate a strong relationship and effect between innovation processes and innovation climate; thus, these two concepts reflect a strong predictability between each other. This study showed a complex association between age and gender with innovation processes and climate. Moreover, the results show that giving autonomy in the working method, increasing work engagement, providing social support, and having a leader that is supportive, have a positive effect on the innovation processes. However, supportive leadership presented no effect in one component of the innovation processes. There is a similar pattern for innovation climate, but in this case supportive leadership presented a stronger relationship and effect with innovation climate. Despite the stigma around the use of home office, this study revealed a favourable relationship between innovation processes and climate. Nonetheless the results of this study suggest further research on use of home office, age, and gender with innovation climate.

Preface

The two years on this master program at Business School at the University of Stavanger (UiS) have given us better knowledge and a deeper understanding of several areas of interest and importance for our professional and personal life. We would like to thank all the professors that have shared their knowledge and challenged our understanding over the last two years.

We would like to thank our outstanding supervisor, Reidar Johan Mykletun, for his immaculate and continuous support and advice throughout this master's thesis. We are thankful for the work he has put into helping us and making this an enjoyable and learning experience. The continuous conversations with Mykletun have been an inspirational and captivating experience. The guidance has been utterly helpful, and his support has continued to exceed our expectations - Thank you.

Finally, we want to express our gratitude to family and friends for their continuous help and support through this 2 years master's program. We want to especially thank Bjørnar Saurdal for his support through this thesis. In addition, we would like to give our appreciation to our fellow business and administration students and the student community for 2 wonderful years at the Business School at UiS.

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Table of Contents

List of Figures

List of Tables

1 Introduction

The purpose of this study is to investigate the relationship between the use of home office due to Covid-19 restrictions and supportive leadership, innovation climate, and creativity and innovation. The latter consists of three phases: idea generation, support for idea development, and idea implementation. For this thesis there will be a sum-score of the three variables from creativity and innovation, that will be used as one variable called the innovation processes. Furthermore, the aim is to understand the significance of different relationships between the independent variables divided into individual, team, and organizational levels against the dependent variables of innovation processes and innovation climate. In this chapter, the purpose and background of this study, the thesis structure, the motivation for the topic, and the research questions will be presented.

1.1 Background of Study

This research examines the relationship amongst independent variables organized theoretically into individual level (work engagement, age, and gender), team level (social support) and organizational level (autonomy, home office, and supportive leadership) as antecedents of the two outcome variables: creativity and innovation (innovation processes) and innovation climate. These levels can also be referred to as dimensions in the research questions. The chosen independent variables and their relationship to the two outcome variables will be analyzed using a positive-focused perspective.

Innovation involves the complete process that brings an idea from creation to implementation (Garud et al., 2013). Creativity and innovation are essential determinants for the long-term success and sustainability of organizations (Pitouli & Fragouli, 2021, p.195). Creativity can be described as the productive shift in viewpoint that leads to new discoveries, innovations, and knowledge (Khessina et al., 2018). On the other hand, innovation can be identified as the development and effective implementation of new ideas (Amabile & Pratt, 2016). To establish a foundation for encouraging creativity and innovation, organizations might profit from creating an innovation climate (Hunter et al., 2007). Earlier research has been studying innovation climate in relation to individual level, team level, and organizational level (Anderson et al., 2014; Übius et al., 2013). Innovation climate can be described as the extent to which an

organization supports and encourages its employees to take initiative to look for new ways to innovate that can influence the actual innovation in the organization (Übius et al., 2013). Previous literature on the topic of innovation processes and innovation climate is ambiguous, and it has been discovered that these variables are often defined and studied interchangeably. Therefore, through this study the variables are researched and hypothesized separately to get a better understanding of the innovation processes and innovation climate.

The individual, team and organizational factors that will be focused on in this thesis as antecedents of innovation processes and innovation climate on an individual level are age, gender, which will have a theorical and practical meaning rather than being used as control variables, and work engagement. Work engagement is defined as a work- related state of mind that is positive and fulfilling, it is characterized by vigor, dedication, and absorption (Schaufeli et al., 2002). Further, social support is recognized to drive behavior, influences effect, and lessens the stress associated with demanding jobs (Jolly et al., 2021). Employees could give valuable information to one another; hence social support is seen as an important component of the workplace, making it easier to provide assistance when there is a work challenge (Sias, 2009, p.70). However, earlier studies on social support are mostly connected to stress, burnout, and the nursing profession. For that reason, it is of greater importance to study this relation through this thesis.

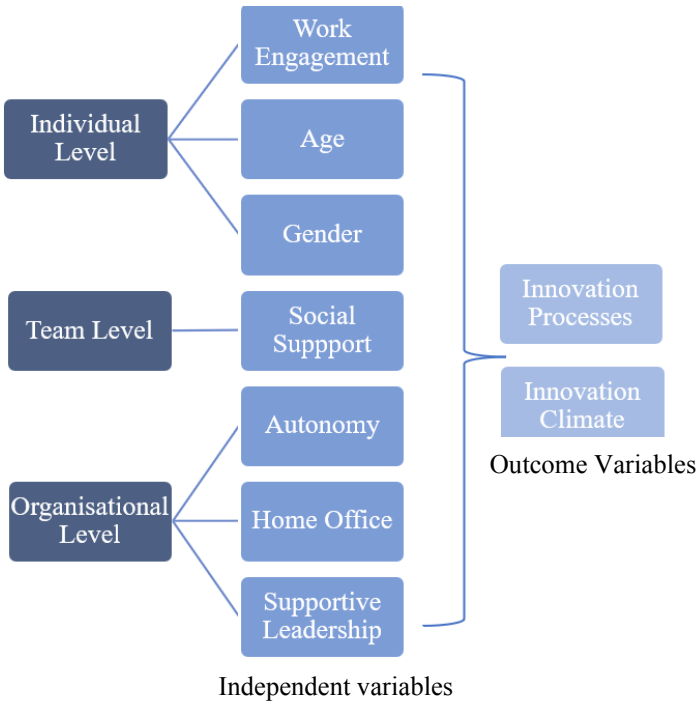
Finally, autonomy, home office and supportive leadership will be the focus on an organizational level. Autonomy refers to an employee's ability to choose how they will be handling their responsibilities (Lazear & Gibbs, 2014, p. 171). Working from home (home office), telework, or virtual teams, are identified as interdependent groups of people who work across space, time, and organizational boundaries and rely heavily on advanced information technologies to communicate (Hambley et al., 2007; Contreras et al., 2020). Covid-19 has allowed rapid growth in the way technology is used and has changed the dynamics in the work environment (Contreras et al., 2020). This growth has led to new ways of working, such as working from home, which could be considered an effective way of working, particularly when a task demands focus and concentration (Vallo Hult & Byström, 2022). Transitioning to these new ways of working often requires an understanding that digital technology is a component of the social working environment that demands changes in leadership (Vallo Hult & Byström, 2022). Through the research process of identifying the relationship between innovation processes and innovation climate with home office it became clear there was a lack of research on the topic.

Still, there was some research exploring these relationships, which will be further presented. Leadership is an important element in creating an environment that keeps employees interested in their work and encourages them to be more creative and innovative (Lee et al., 2020; Pitouli & Fragouli, 2021, p. 203). Leadership can be defined as the process through which a person effectively uses their influence to lead and inspire another person or group to accomplish a common goal (House et al., 2004, p. 22). Although there are different leadership styles, this thesis particularly focuses on supportive leadership. This can be described as a leader who supports and encourages people to take initiative, by addressing challenging problems and acting in an open, honest, and fair manner (Schmidt et al., 2014). Supportive leadership plays an important role in creating an environment that promotes the skills and routines required to influence innovation in circumstances such as when using home office (Franken et al., 2021).

To create an overview of the aim of the study these factors of independent variables are represented in Figure 1. Data from parts of National Survey of Norwegian Working Life that was completed in September 2021 will be utilized in this study. This survey had 1531 respondents from workers in different industries across Norway and constitute a representative sample of Norwegian workforce.

Figure 1

Antecedents of innovation processes and innovation climate



1.2 Thesis Structure

The study is divided into six chapters. This first chapter presents an introduction to the thesis' topic and gives some insight into the purpose of the study. Furthermore, it includes the background of the study, the motivation, and the research questions. Chapter two shows the theoretical framework of the outcome variables, innovation processes and innovation climate and the independent variables: work engagement, age, gender, autonomy, social support, home office, and supportive leadership. A variety of theories will also be presented in this chapter, creating several hypotheses regarding their relationships. The third chapter will present the methodological choices based on the quantitative data collected. Chapter four will present the results of the analyses. All the hypotheses will be either confirmed, partially confirmed, or rejected in this chapter. The fifth chapter will include a discussion of the findings from the results and relevant theories presented in the second chapter. Lastly, chapter six will present the limitations of this study, implications for further research and a conclusion to the findings, answering the research questions.

1.3 Motivation

To decide what topic to focus on for our master's thesis, we determined what was most interesting to us personally and professionally. Our specialization is "Leadership in Digital Economy.", which includes several exciting topics to choose between. However, since we are an international group, where we come from two separate bachelor's programs from different countries, we took this into consideration to find a topic that is not country-specific but of international relevance. We looked at the different topics each of us has dealt with over the years and the direction we want our professional careers to take. It all led to leadership and digitalization. When making the final decision, we focused on what topics would be important to us and what we wanted to deepen our knowledge of.

We decided to focus our thesis on home office and leadership and their relation to innovation processes and innovation climate. Our interest in researching deeper how home office affects leadership emerges from the rapid speed of digital work environments combined with our field of specialization. From a quick review of the topic of remote leadership, we found some interesting obstacles to further research. For us, the people in organizations are what excites us;

therefore, we want to gain a deeper understanding of how working remotely affects the employees' innovation process and its innovation climate.

1.4 Research Questions

The working dynamic has been exponentially affected due to the rapid growth of technology, the internet, and extraordinary situations such as the pandemic. In recent times, new ways of working, such as use of home office, have become more demanding. Organizations nowadays must keep a flexible dynamic and use strategies that encourage fast changes. It has become critically important for future leaders to understand what implications the use of a home office from a professional perspective has and learn how to promote the information among employees. Therefore, to learn more about the variables covered in this study and connect them to relevant theories, it is reasonable to design research questions that seem interesting, justifying the need for more investigation. The research questions are as follow:

1. How do the innovation processes, and innovation climate relate to each other?
2. To what extent do the individual dimensions (work engagement, age, and gender), team dimension (social support), and organizational dimensions (autonomy, home office and supportive leadership), predict the innovation processes?
3. To what extent do the individual dimensions (work engagement, age, and gender), team dimension (social support), and organizational dimensions (autonomy, home office and supportive leadership) predict innovative climate?
4. To what extent are the patterns of relationships similar for the innovation processes, and innovation climate when predicting from the individual dimensions (work engagement, age, and gender), team dimension (social support), and organizational dimensions (autonomy, home office and supportive leadership)?

2 Theory

The theoretical basis of the thesis focuses on factors that justify what role the organizational, team, and individual variables have on innovation processes, and innovation climate, and the relation between them. In the introduction, Figure 1 presented an overview of the antecedents of the innovation processes, and innovation climate.

2.1 Innovation Processes

The distinction between creativity and innovation lies in the focus of each concept. Creativity focuses on the individual cognitive activity, producing new perspectives, concepts, or problem-solving methods. On the other hand, innovation is the implementation of these ideas and goes beyond this, by focusing on the acceptance, application, and effective execution of these ideas, perspectives, and methods (Amabile et al., 1996). These processes can happen at the individual, team, organizational dimensions and bring recognizable benefits in one or more of these areas (Anderson et al., 2014).

The process of innovation in organizations starts with recognizing the occurrence of creativity at both the individual and team level. At this stage, individuals or teams brainstorm ideas that will eventually be implemented throughout the organization (Amabile, 1988; Amabile & Pratt, 2016). Table 1 summarizes Amabile's componential model of organizational innovation. This model outlines four components that impact innovation: motivation, organization's support, tasks characteristics and creativity. The latter is considered to be an essential component of an organization's innovation process (Amabile, 1988).

Table 1

Componential Model of Organizational Innovation summary

Components	Description
Creativity	Generation of new and useful ideas by individuals or teams within the organization.
Motivational Factors	Internal and external factors that drive individuals to be creative and contribute to innovation, such as personal interests, recognition, challenge, resources, and supportive work environment.
Organizational Factors	Systems, processes, and structures within the organization that either support or hinder innovation, such as leadership, culture, strategy, communication, and resources.
Task Characteristics	Specific aspects of the task or project at hand that affect the likelihood of innovation, such as ambiguity, complexity, interdependence and constrains.

(Amabile, 1988).

Farr and Ford (1990) defined Innovative Work Behavior as *"the proactive behavior of individual's actions that strive to bring useful and innovative processes, products, or procedures within their workplace, team or organization"*. This multi-dimensional measurement evaluates the innovation process in four dimensions: idea exploration, idea generation, support for idea development, and implementations of innovation (as cited in, De Jong & Den Hartog, 2010).

Three of these dimensions—idea generation, support, and implementation— will be examined later to construct the innovation processes, since the idea exploration is not part of the measurement in the data provided. For idea generation, employees need to be aware of gaps and issues related to their work. To foster the development of ideas, it is crucial to encourage interaction and collaboration among colleagues, which means that teamwork and support from leaders are imperative for advancing ideas to the next stage. To implement the idea, it should be concrete, tested, and put into practice (Janssen, 2000). It is essential to have a work environment that generates significant job demand and provides employees with a perception of fair rewards. This, in turn, helps to foster high employee performance, enabling them to meet

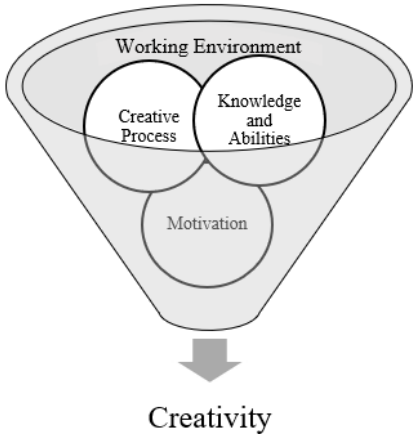
the necessary requirements for innovation (Janssen, 2000; Janssen, 2001). The process is crucial for the thesis as it helps to establish a connection between supportive leadership and the support provided by organizations for innovation, both of which are vital for maintaining a sustainable innovation process. To understand the innovation processes from a deeper perspective, creativity and innovation will be presented as separate concepts to find their connections.

2.1.1 Creativity

Creativity is the generation of innovative and useful ideas by an individual or a small group working together (Amabile, 1988). In accordance with the investment theory of creativity, one can find creative potential in every situation. A new idea may be controversial, confusing, or unknown at first, however once people get it, it can be sold as highly creative (Sternberg & Lubart, 1991). The investment theory of creativity addresses factors beyond cognitive skills that might affect creativity, such as intellectual process, knowledge, personality, motivation, and environment (Sternberg, 2006). Similarly, the componential theory of creativity considers the generation of innovative ideas or results relevant to some objectives. Furthermore, this theory states that creativity requires knowledge in applicable abilities, creative process, task motivation, and the social working environment (Amabile, 1988; Amabile, 2012). Figure 2 summarizes the factors that determine creativity by combining these two theories and using comparable components. The working environment is the outside component that affects the individual components (creative process, motivation, knowledge, and abilities).

Figure 2

Components of Creativity



(Amabile, 1988; 2012; Sternberg, 2006).

Individual and organizational creativity is a crucial component of organizational development. According to the theory of organizational creativity, individuals cooperating in a complicated social system create worthwhile practical new goods or services through organizational creativity (Woodman et al., 1993). Creativity is seen by many as a key part of innovation, growth, and the improvement of society. Organizations continue to view creativity as a crucial tool for thriving in changing environments, addressing unanticipated challenges, and developing new skills by themselves (Zhou & Hoever, 2014). For the direction of this thesis, according to these theories, the observations agree on one thing: creativity is the core from which innovation emerges. It requires individual factors, such as knowledge, and organizational factors, such as the environment, to foster or discourage the exploration and experimentation of new ideas.

2.1.2 Innovation

Innovation can be described as a multi-step procedure that might begin with the recognition of a need and continues through the application of innovative ideas and solutions that are tested, transmitted, and challenged (Hartley et al., 2013). The most common innovation can be either radical or incremental and can come from a completely new creation or be adopted and modified from an already existing innovation (Tran, 2008; Damanpour & Schneider, 2009). The differentiated radical and incremental theory suggests that different approaches are required for managing radical and incremental innovation. According to this theory, promoting a distinctive strategy, centralizing decision-making, and increasing collaboration from top management can lead to successful radical innovation. On the other hand, a more traditional, market-focused, and challenging approach can lead to incremental innovation (Ettlie et al., 1984). Although radical and incremental innovation have provided significant insights, there are other types of innovations with a more comprehensive approach (Henderson & Clark, 1990).

According to Henderson & Clark (1990), the architectural innovation theory outlines the focus on how organizations can drive innovation such as development of new products, services, and business models, as well as increased operational efficiency and effectiveness, through changes in their core design and interactions with their surroundings. The disruptive innovation theory states that disruptive innovation typically begins in new markets, acquires popularity, and market share over time, and eventually displaces well-established goods and businesses in an existing market, often because they are less difficult to produce and use (Christensen, 1997; Yu

& Hang Chang, 2008). Additionally, the theoretical framework for open innovation describes innovation as a distributed process, that relies on carefully managed flow of knowledge across organizations. This opens the possibilities to collaborate internally and externally regardless of location (Chesbrough & Appleyard, 2007).

Having a solid foundation of knowledge is essential in fostering innovative capabilities. The more knowledge one possesses, the better they can incorporate past experiences and shape present-day innovations (Le Bas & Poussing, 2014). Innovation capabilities can be represented by two dimensions, macro dimension and micro dimension. The macro dimension describes what facilitates or constrains the organization's adoption of innovation. The micro dimension describes what the organizational members perception is that facilitates or constrains innovation use (Damanpour & Schneider, 2009). From an individual perspective innovation is driven by employees' regular work tasks and training that promotes creativity, ideas, competence, and problem-solving thinking (Høyrup, 2010). An effective resource of innovation is employee driven innovation. This focuses on creative methods developed by employees who are motivated by their knowledge, training, ideas, creativity, and competence (Høyrup, 2010). From an organizational perspective innovation is driven by organization, strategy, learning, processes, and network (Tidd & Bessant, 2020 p.415).

The focus on these theories is particularly relevant for this thesis, as they have been widely studied and provide insight on how complex innovation is and how it can be handled and promoted in many ways. The different types of innovation—radical, incremental, architectural, disruptive, and open (Christensen, 1997; Chesbrough & Appleyard, 2007; Henderson & Clark, 1990; Tran, 2008) look at multiple aspects of the innovation processes and emphasize the importance of strategy, collaboration across the organization, and the value of knowledge and learning. Moreover, leaders can benefit a lot from knowing about the different types of innovation because it can help them see the different opportunities and challenges that come with each type and come up with the best ways to manage and encourage innovation in their organization.

2.2 Innovation Climate

A growth in empirical research on the concept of innovation climate at both team and organizational level has accrued over the last two decades. However, the definitions of innovation climate vary across two dimensions, whether the focus of innovation climate is at team or organizational level. Additionally, if innovation climate is conceptualized as an employee's individual perception or shared perception (Newman et al., 2020). In this study innovation climate concerns the individual's perception of innovation climate at team and organizational level. A study done by Mumford (2000) has shown that fostering innovation can be done by developing an internal working climate that encourages and supports innovation through leadership. This type of work climate has been classified as *innovation climate* (Anderson & West, 1998). Innovation climate refers to the shared perception of the extent to which team or organization processes encourage and enable innovation, both on team and organizational level (Newman et al., 2020).

Measuring innovation climate

Innovation climate is commonly measured on team and organizational level. There are several measures for innovation climate. One of the most extensively utilized scale for team innovation climate is the Team Climate Inventory (TCI) (Anderson & West, 1998). TCI is designed to capture the collective perceptions of individuals regarding the innovation climate within a team. It compromises four dimensions: *Participative safety, support for innovation, vision* and *task orientation*. The TCI scale has been assessed in several languages including Norwegian (Mathisen et al., 2004). On the other hand, the most commonly employed measure for assessing innovation climate at the organizational level is *the climate for innovation scale* developed by Scott and Bruce (1994), this measure comprises 22 items and aims to evaluate the overall climate for innovation within an organization.

Innovation climate as a moderator

Research based on empirical evidence has initiated the exploration of how the innovation climate acts as a moderator, influencing the connections between various factors and their effects on outcomes across different levels (Newman et al., 2020). One area of research has investigated whether team innovation climate can strengthen the impact of team-level characteristics on innovative outcomes at both individual and team levels (Mathisen et al., 2006; Newman et al., 2020). Another direction has examined the influence of employees' perceptions

of the innovation climate within the organization, particularly how these perceptions and attitudes shape the extent to which innovation outcomes are achieved (Newman et al., 2020). In addition, previous research has investigated whether the organizational innovation climate increases the effect of organizational practices on company achievements (Shanker et al., 2017; King et al., 2007; Newman et al., 2020).

The outcome of innovation climate

Previous research has investigated individual, team, and organizational outcomes of innovation climate. The research concerning organizational outcomes linked with innovation climate is limited, especially compared to research on individual and team-level outcomes (Newman et al., 2020). Research has shown that organizational innovation is fostered by an organizational innovation climate where employees' innovative behavior is enhanced (Shanker et al., 2017). Some earlier research also examined the relationship between organizational innovation climate and organizational performance. Popa et al. (2017) identified a link between an innovative organizational climate and inside-out open innovation.

When it comes to previous research on the effect of innovation climate on individual-level, a study has shown that team innovation climate fostered employees' innovative behavior. By doing so it enhanced employees' passion for inventing, and as the audacious climate increased the relationship between innovative climate and interest in inventing became stronger (Kang et al., 2016). In addition, studies have found a relationship between employee perceptions of the organizational innovation climate and their work behavior such as creativity and innovative behavior (Hsu & Chen, 2017; Hsu & Fan, 2010, Park & Jo 2018, Yu et al., 2013).

2.2.1 Innovation Process and Innovation Climate

Encouraging creativity and innovation is necessary to survive today's rapid growth. Newman et al. (2020), emphasizes that the innovation process must be managed strategically and requires creating a climate that fosters innovation. Hence, examining the organizational climate cannot be considered a standalone effort, as it intersects with related concepts like leadership, support, collaboration, creativity, and innovation (Shanker et al., 2017). Innovation climate plays a crucial role in creating strategies at the organizational level, as it promotes a creative mindset in employees which helps in the idea generation (Waheed et al., 2019).

The innovation climate has a significant impact on various organizational processes that contribute to the idea development and implementation. These include problem-solving, decision-making, communication, and collaboration. As well as knowledge, creativity, motivation, and engagement, which are important for the innovation process (Olsson et al., 2019). In an innovative climate, leaders provide employees with opportunities to develop their abilities through challenging assignments, fostering motivation, and encouraging their contribution to the innovation process. This, in turn, reinforces the cycle giving employees the ability to contribute to enhance the overall innovation climate within the organization (Waheed et al., 2019). Overall, the innovation climate plays a significant role in the innovation process. Encouraging a climate that fosters creativity and innovation is crucial for organizations to thrive in today's rapidly changing business. It impacts various organizational processes and psychological factors that are essential for the successful implementation of innovative ideas. Therefore, for this study the following hypothesis has been developed:

Hypothesis 1: Innovation climate will be positively related to the innovation processes.

2.3 Antecedent Variables

This chapter will discuss the antecedent variables that were selected from the National Survey of Norwegian working life that took place in September 2021. This thesis will investigate the extent to which the antecedent variables can predict the two outcome variables: innovation processes and innovation climate on an individual, team and organizational level.

2.3.1 Individual Level

Work engagement

Work engagement in this study is measuring several elements defined in previous research. Schaufeli et al. (2002) described work engagement as an enthusiastic work-related state of mind, that can be measured in three dimensions. These includes vigor, which refers to the high level of energy to perform work related tasks. Dedication, which refers to the intense participation and feeling of importance. Lastly, absorption which refers to the ability to focus intensively on one's tasks without effort. According to Kahn (1990), in work engagement the employee's involvement in their professional obligations is expressed by their physical, intellectual, and emotional contributions to their job role. Studies have shown that engaged

employees show high self-efficacy, energy, and positivism. Moreover, they describe their job activities as pleasant and do not see working extra time as being a "workaholic" (employees with an inner drive of work hard) but rather as a fun activity (Bakker & Demerouti, 2008; Schaufeli et al., 2002).

According to Bakker & Demerouti's (2008) work engagement model, there are two drivers that contribute to predict work engagement. The first driver is job resources, which refers to aspects that contributes to reach the employee's work goal to make the job easier, such as social support from co-workers and managers, autonomy and learning opportunities. These job resources prevent the physical and mental exhaustion called burnout (Huhtala & Parzefall, 2007). The second driver is personal resources, which refers to the individual's perception of their ability to influence and manage their surroundings. This includes their goals, motivation, satisfaction, and career development (Bakker et al., 2011; Bakker & Demerouti, 2008).

The work engagement dimensions effectively meet the conditions for Innovative Work Behaviour (De Spiegelaere et al., 2014; Xu et al., 2022). Vigor promotes the cognitive flexibility of employees to explore new ideas. Absorption helps employees to focus on developing innovative ideas and solutions. Furthermore, dedication offers the motivation to generate, promote, and implement ideas (Xu et al., 2022). Job resources associated to work engagement help employees to feel good about their jobs and boost creativity and innovation (Huhtala & Parzefall, 2007). Innovative behaviour is frequently considered as part of job performance in research on employee engagement (Kwon & Kim, 2020). Job performance may be separated into two categories: in-role and extra-role. The first category relates to behaviours and results that are necessary for the job, while the second refers to discretionary behaviours that enhance an organization's operation, although not seen as a prerequisite for the job (Mäkinen, 2013; Kwon & Kim, 2020). Several research innovative behaviours are seen as a different type of performance consequence of employee's engagement being transcendent from in and extra-role (Kwon & Kim, 2020). In accordance with these arguments, the following hypothesis will be tested:

Hypothesis 2A: Work engagement will be positively related to the innovation processes.

A previous study has found that managers with work engagement are positive towards modernization, as well as trying to improve their team to function in a better way to achieve

their joint agreed goals, and endorse the drive to strive, which improved innovation climate (Bakker et al., 2011). Work engagement has also been found to have a mediating effect between autonomy and innovative working behavior, as well as a direct effect (De Spiegelaere et al., 2016). Therefore, the following has been hypothesized:

Hypothesis 2B: Work engagement will be positively related to the innovation climate.

Age

Age is a controversial topic when it comes to the workplace. An earlier systematic review has identified and analyzed age stereotypes in the workplace, finding that the aging process frequently produces inaccurate perceptions of stereotypes that can have a negative effect on employees (Posthuma & Campion, 2009). Age stereotypes at a workplace are viewed as assumptions made about employees depending on their age (Hamilton & Sherman, 1994, as cited in Posthuma & Campion, 2009). Stereotypes frequently reflect unfavorable, inaccurate, or erroneous perceptions of members in a certain group (O'Cinneide, 2005). In the work environment, managers can hold negative stereotypes about older employees that are barely noticeable or unconscious, yet these beliefs may have an impact on how they think about their employees. Thus, it may result in age discrimination during work or even before employment (Posthuma & Campion, 2009). According to Snape and Redman (2003), age discrimination is rather common in the workplace and has a detrimental influence on employee attitudes, affecting performance and productivity when discrimination is directed at both the young and the old. This study will be focusing on chronological age, as is only a component of how we perceive age and aging and it is an administrative measure of the working lifespan (Weiss & Weiss, 2022). Although this study will consistently refer to "younger" or "older" employees to differentiate chronological age.

Because of demographic shifts and rising standards of living, economies are increasingly focused on identifying and capitalizing on the factors and occupational resources that foster innovation processes in their aging workforce (Binnewies et al., 2008; Frosch, 2011). Ng and Feldman (2008) addressed the stigma around elderly and several dimensions of job performance, in a meta-analysis they found no significant relationship between age and creativity. Other researchers have found little or even a negative association between idea generation and aging; however, these results can vary, which suggests that moderators play a part in this relationship (Binnewies et al., 2008). For instance, these moderators can have

individual qualities such as personality, motivation, and cognitive abilities. Contextual factors such as work environment and interpersonal interactions can have a direct impact on creativity and innovation (Rietzschel et al., 2016).

The reaction of an age-diverse workforce to the job demands is largely determined by its members' cognitive ability (Hernaus et al., 2019). Research on creativity states that it is possible to predict an employee's level of creativity and innovation by testing both their malleability (fluid) and rigidity (crystallized) of cognitive capabilities (Rietzschel et al., 2016). A study suggests that the capacity to think quickly "fluid" cognitive capability, helps in early stages of innovation and begins to decline around the age of 20. Whereas "crystallized" cognitive capability contributes to implementing the idea, starts to decline round the age of 60 (Salthouse, 2012). A study on job demands and innovative work behavior found that younger and older employees are equally creative and innovative when job innovation requirements are placed upon them. However, younger employees demonstrated higher levels of creativity and innovation when given assignments that were more complex and job innovation demands were high (Hernaus et al., 2019). Based on the literature and their findings, it appears that age is influenced by natural aging circumstances rather than the ability of older or younger employees to innovate when the right conditions are met. Therefore, the following hypothesis was developed:

Hypothesis 3A: Age will be negatively related to the innovation processes.

A previous study trying to find the effect of average age of employees on innovation climate at organizational level found the need to discuss age diversity as a mediator between the two. The study found that the average age of employees is negatively related to innovation climate through employees' aggregate focus on opportunities, but only when age diversity is low. However, the same study did not find a significant relation between average age and innovation climate when the age diversity was high (Rudolph & Zacher, 2022). Furthermore, Rietzschel et al. (2016) indicate that when there are negative age stereotypes, team members of different ages do not view the innovation climate in the same way. From these findings it has been hypothesized:

Hypothesis 3B: Age will be negatively related to the innovation climate.

Gender

Gender inequality in the workplace can be attributed by an organizations' practices, policies, and organization's structures. Women are less likely to be hired and promoted than men, which lowers their socioeconomic standing. Being stigmatized has an impact on women's physical and mental health, job satisfaction, and work engagement, all of which influence their performance (Stamarski & Son Hing, 2015).

Research has shown that women often have higher levels of education. Nevertheless, there is still a domain associated with men in certain job positions (Kwaśniewska & Necka, 2004). Multiple factors contribute to the underrepresentation of women in innovation-related positions. Among these factors, self-confidence plays a crucial role as it affects one's motivation and level of success. Social factors, such as peer support, having a role model, age, role expectations, and willingness to take risks, also play a significant part (Nählinder, 2010). Women in innovative jobs are perceived to be less prevalent than males, therefore occupational choices become different between them (Nählinder, 2010; Tonoyan & Boudreaux, 2023). This is because men are considered to be intellectual, self-centered, and goal-focused, whereas women are people oriented (Gibson, 1995).

Apart from these perceptions, countries like Norway have a reputation for actively promoting gender equality (Foss et al., 2013). Norway ranked second in the Gender Development Index (which measures, income per capita, education and expectancy at birth) in 2021, just below Switzerland (Human Development Reports, 2023). This creates an advantage bringing different skills and mindsets to increase innovative ideas and generate solutions. Creativity and innovation in less developed economies benefit from gender diversity, as it enables them to close the gap with more developed economies (Tonoyan & Boudreaux, 2023). Having an organizational with more gender diversity improves the environment for creativity and innovation (Foss et al., 2013; Tonoyan & Boudreaux, 2023). Research conducted to examine the impacts of diversity in creative and inventive teams discovered a beneficial influence in performance when gender diversity is present, contributing to cognitive heterogeneity (Garcia Martinez et al., 2017). Based on this literature, the following hypothesis has been constructed:

Hypothesis 4A: Being female will be negatively related to the innovation processes.

Studies on gender in organizations suggest that innovation processes are biased in gender. In the case of women, regardless of their position in the firm, the gender factor may contribute to an unfavorable perception of the innovation climate. The perception is that men is typically considered higher in value than women, therefore ideas will be implemented higher for men than women (Foss et al., 2013; Nählinder, 2010; Kwaśniewska & Necka, 2004). According to research conducted on more than 14,000 employees throughout the United States, men are given more encouragement to be creative than women, which results in more innovative behaviors due to this gender bias. Moreover, these researchers found that including factors such as gender could provide a better understanding on how to provide talented employees with a better innovative climate (Taylor et al., 2020). Based on these findings, the following hypothesis has been constructed:

Hypothesis 4B: Compared to women, men will have a higher perceived innovation climate.

2.3.2 Team level

Social Support

Social support is a comprehensive concept including a variety of constructs. A recent integrative review presents the concern for lack of definitional clarity on social support, which makes it challenging to compare findings across studies concerning social support, as well as getting an understanding of social support at work. This review has identified that social support can vary in terms of form, source, and type, which could lead to different effects (Jolly et al., 2021). Firstly, the *form* of social support can be divided into perceived support (support perceptions) or actual behaviors (received support) (Haber et al., 2007; Jolly et al., 2021). Secondly, the variety of social support varies in terms of *content* (Cohen & McKay, 1984). This concerns four categories: emotional support (e.g., empathy and caring), instrumental support (e.g., resources that enable an individual in need to directly address a demand), informational support (e.g., general information that enable an individual address a demand), and lastly, appraisal support (e.g., the information that help an individual in need to evaluate themselves) (House, 1981, as cited in Jolly et al., 2021). Finally, social support can come from various *sources,* including supervisors, coworkers, and family (French et al., 2018). In this thesis social support concerns the *form* of perceived support, the *content* of emotional and informational support from the *source* of coworkers and supervisors.

Perceived social support positively influences diverse intelligence, which also decreases pitfalls such as task flexibility and interpersonal conflicts and drives employees to focus on a common goal towards innovation (Chen et al., 2019). In the context of the workplace, support for innovation refers to the expectation, approbation, and actual support of initiatives to bring new and improved methods that benefit the organization (Burningham & West, 1995, p.108). An element of social support that encourages innovation at the individual level is *supervisor support*, which refers to the extent to which managers give employees either psychological (expressing sympathy, offering guidance, and permitting mistakes) or physical (facilitating tools and knowledge) support to improve work progress and outcomes (Messmann & Mulder, 2013).

Social support works as a facilitator especially in the idea implementation because it brings the right resources and employee's collaboration for the analysis and continuous improvement in the innovation process (Stephan, 2022; Messmann & Mulder, 2013). A study performed on innovation process indicated that professors with insufficient social support for creativity could be afraid of criticism from colleagues and managers, which would decrease the adoption of the innovation process. Moreover, this evidence suggested that believing in original thinking is valued and having a supportive work environment encouraged these professors to put their ideas into practice (Binnewies & Gromer, 2012). According to the theory it is therefore hypothesized:

Hypothesis 5A: Social support will be positively related to the innovation processes.

A supportive climate for innovation is usually created by employees from different backgrounds being open to different points of view that help to develop innovative solutions (Chen et al., 2019; Messmann & Mulder, 2013). On an organizational level, there is a social support component that facilitates creativity. This is a *supportive climate* for innovation, which refers to the extent to which new ideas are accepted or encouraged (Messmann & Mulder, 2013). This concept is quite similar to the innovation climate concept, making it difficult to research two distinct concepts. Additionally, by researching the relationship between social support and innovation climate, it became apparent that the study on social support has significantly lessened over time.

There is a previous study done where the effect of social support on innovative behaviors depends on whom the support comes from. This study has found that social support from work-

related sources during and after innovation projects' termination is of more importance than from other sources. More precisely, it suggested that having social support from organizations has a positive relationship with the adaptive capacity of leaders and innovators (Todt et al., 2018). Due to these earlier research indicators, the hypothesis is the following:

Hypothesis 5B: Social support will be positively related to the innovation climate.

2.3.3 Organizational Level

Autonomy

Work autonomy is defined as the flexibility to complete the work as one considers appropriate; discretion in scheduling, decision making, and methods of completing a task (Hackman & Oldham, 1975). According to self-determination theory by Deci et al. (2017), motivation at work has an impact on an employee's performance and well-being. This theory suggests that supporting individual autonomy in the workplace improves work outcomes such as employee satisfaction, effectiveness, and work engagement within the organization. Moreover, employees' perceptions of their managers' support for autonomy improves their overall motivation (Deci et al., 2017). Studies have separated autonomy into the following subcomponents: work scheduling, method, decision making, and criterion autonomy. These subcomponents are related to positive work outcomes (Breaugh, 1985; Morgeson & Humphrey, 2006). Breaugh (1985) measured autonomy using three of these components, including work scheduling autonomy, which refers to the extent to which an employee can pick or adjust their working hours. Criterion autonomy refers to the extent to which an employee has freedom to determine the criteria for assessing their performance. Lastly, work method autonomy refers to an employee's flexibility to pick the approach for carrying out their work (De Spiegelaere et al., 2016). Method autonomy will be the variable further examined in the analysis.

Theoretical and empirical research has shed light on the significance of work method autonomy, creativity, and innovation, finding positive effects of giving employees freedom in their work decisions, deadlines, and procedures to create, develop and implement solutions (Acar et al., 2019; Spiegelaere et al., 2014). A high degree of autonomy is required for an employee to be able to feel more accountable and focus on multiple aspects of a complex job that requires innovative results. Moreover, the lack of control contributes to employees' motivation to

perform their work tasks and gives more room to find better solutions and provide original work (Volmer et al., 2012). Based on the information, the following hypothesis has been developed:

Hypothesis 6A: Autonomy will be positively related to the innovation processes.

As mentioned earlier, there is a previous study on how work method autonomy affects work engagement and further how this affects the innovative working behavior of employees. The findings show that autonomy directly affects work engagement as well as innovative working behavior. Along with findings that work engagement has a mediating effect between work method autonomy and innovative working behavior. This research found a positive relation for work method autonomy with innovative working behavior (De Spiegelaere et al., 2016). The authors also found a positive relation between work method autonomy and innovative working behavior by itself (De Spiegelaere et al., 2014), according to the theory it is therefore hypothesized:

Hypothesis 6B: Autonomy will be positively related to innovation climate.

Home Office

With the introduction of computers, phones, and the internet, teleworking is referred to the accessibility for employees to work from home or somewhere else (Baruch, 2001; Messenger & Gschwind 2016). Today, teleworking is no longer regarded as a technical breakthrough, but rather an alternate work format that is considered a flexible approach to manage working tasks (Bridoux & Taskin, 2005). Through time this concept has evolved into a three-generational process: home office, mobile office, and virtual office. *Home office* is a workplace that is located in, or near an employee's house. It is environmentally friendly and inexpensive, but it also creates a geographical boundary with sedentary employees. The *mobile office* using the phone as the primary work instrument has not been widely accepted due to a lack of confidence in the working arrangements. The third notion is *virtual office* work, which is a sort of work that can be done on the move owing to technology accessibility (Messenger & Gschwind 2016). In one way or another these concepts share the same core: the use of technology and being outside of an office, enabling employees to effectively perform the work tasks, which will be the matter in this study.

Before Covid-19, teleworking, home office or working from home was only practiced by a few professions (Xiao et al., 2021). However, now it has become more commonly utilized in a broader spread of professions and younger generations prefer their own working space and time, making it easier to adapt to home office (Birimoglu Okuyan & Begen, 2022). Working from home has been shown to have both positive and negative effects. It allows for a more adaptable work schedule, reduces commuting time, and provides additional time with family. However, the negatives are difficulties separating work and family life and commitments, as well as fewer social interactions between coworkers (Birimoglu Okuyan & Begen, 2022). Furthermore, other issues related to the home office include effective leadership, job incentives, promotion opportunities, and work engagement (Baruch, 2001). A study performed before Covid-19 suggested that there are certain conditions needed for the home office to be effective and prevent negative effects. These include, the nature of the job, the organization's support, home facilities and personality or attitude towards working from home (Baruch & Nicholson, 1997).

A study suggested that creativity and innovation can be positively related during the use of home office as employees were able to handle problems creatively if their normal working conditions were conservative and constrained (Vega et al., 2015). Occupational risk detected in the past have been overcome with Covid- 19, acting as an important driver for the use of home office and innovation (López Peláez et al.,2021). Employees in home offices have shown to be more receptive to adopting the innovation process when there is open collaboration, access to technological resources, and knowledge exchange, which are crucial elements for creativity and innovation (Allen et al., 2015; Konrad-Maerk, 2023). Previous research examined the relationship between remote work and open innovation and concluded that working from home affects the innovation process. To be more precise, having an open mindset, embracing digital transformation, trusting others, and being resilient are factors that positively impact innovation (Konrad-Maerk, 2023). Based on theoretical considerations, it appears that Covid-19 may have had a positive impact on innovation for some individuals, when specific conditions are met. Employees have shown that they can perform their work just as well, regardless of their work environment. Therefore, for this thesis it is hypothesized:

Hypothesis 7A: Home office will be positively related to the innovation processes.

Working from home can present challenges for an organization's innovation climate and leadership. Although studies have indicated that it can also yield positive innovative outcomes,

leadership is crucial for achieving such outcomes (Pister, 2021). Another study has suggested that teleworking can create innovation opportunities, but it may also be difficult to achieve. To foster innovation during remote work, three conditions have been identified as crucial: employee autonomy, networking, and reduction of work overload. By managing these conditions innovation during home office is possible, but still not evident (Burleson et al., 2022). A previous study found that over 60% of managers believe that the organizational environment during remote work is less creative and innovative. This study proposed that innovative ideas can arise from informal conversations between colleagues, and the lack of such opportunities may reduce the innovation climate and opportunities in the company (Criscuolo et al., 2021). As an example of the perception that managers have from working from home, nearly a decade ago the CEO of Yahoo banned the opportunity to work from home, because she was concerned that it would harm innovation and speed of delivery (Pathak et al., 2015). However, in this current era of technological advancements, it is worth revisiting whether this remains true, or if it is just the manager's perception created based on lack of trust between them and the idea of working from home. Based on the findings it is therefore hypothesized:

Hypothesis 7B: Home office will be negatively related to the innovation climate.

Supportive Leadership

Supportive leadership has received attention in a variety of different research fields including leadership, occupational stress as well as the mentoring field (Rafferty & Griffin, 2006). House (1981) defines a supportive leader as one who provides emotional (which comprises of displaying sympathy, demonstrating affection, showing concern, and actively listening), informational, instrumental, and appraisal support to followers (as cited in, Rafferty & Griffin, 2006). Supportive leadership occurs when leaders express concern for and take account of followers' needs and preferences when making decisions (Rafferty & Griffin, 2006). Supportive leader behavior can be associated with positive follower attitudes and facilitating accomplishing goals by guiding the employees to be effective and learning their positioned tasks (Banai & Reisel, 2007). In this study the presence of supportive leadership was measured by asking the participants if their leaders encourage involvement in important decisions making and different thinking, helps with skills development, and if they were treated fairly and impartial.

A supportive leader inspires and promotes a pleasant work atmosphere, which improves employee performance. Employees cope better with job pressures when their leaders show a supportive attitude (Khalid et al., 2012). On the other hand, when leaders demonstrate a lower support in their teams, productivity declines, stress levels rise, and fewer people are willing to try new things (Hauff et al., 2022). This type of leadership style has been found interesting to investigate and is particularly relevant in extraordinary circumstances like Covid-19 or the use of home office. Its aim is to provide people access to resources, support, and encouragement when facing challenges (Lee et al., 2020).

An early meta-analytic review on *leadership, creativity and innovation* suggests that out of several leadership styles (e.g., LMX, transformational leadership, and Authentic leadership), supportive leadership has the largest relative association with creativity and innovation (Lee et al., 2020). Supportive leadership has been found to be positively related to creativity and innovation, when there is an elevated level of autonomy, task, and goal interdependence (Byron et al., 2023). This leadership style is not for every employee, as an earlier study found that supportive leadership had a weaker relationship with innovation, specifically in knowledge-intensive sectors, this is due to employee's high intellectual level and the need of less support from their leaders. In contrast, this type of leadership could lead these employees to feel less autonomy, trust in their knowledge and capacity, thus leading to less creativity (Burnett et al, 2015; Lee et al., 2020). For this thesis, the relationship between leadership and innovation has been found to be complex. The effectiveness of this leadership style in promoting innovation depends on various contextual factors that support employees such as giving high trust and autonomy. Based on these findings the following is hypothesized:

Hypothesis 8A: Supportive leadership will be positively related to the innovation processes.

An earlier study using The General Nordic questionnaire for psychological and social factors at work (QPSNordic) have shown that a professional supportive leadership style is associated with higher perception of innovation climate (Martinussen & Davidsen, 2021). Previous research revealed that innovation climate promotes supportive leadership. According to the findings, the degree to which employees adhere to power distance orientation functions as a moderator between the innovation climate and supportive leadership (Yu, 20017). Moreover, an innovative work environment can benefit from a leader who fosters and promotes such a climate. By doing so, the leader motivates employees to embrace the cultural and behavioral

standards that serve as the basis for creativity and innovation. As a result, the leader becomes a valuable asset in the workplace (Shin, 2015). From these findings the following is hypothesized:

Hypothesis 8B: Supportive leadership will be positively related to the innovation climate.

3 Research Method

This chapter will present an exhaustive and logical framework that will lead to an empirical answer to the research questions. The selected research method will determine the specific analyses to develop the study. The structure of the thesis is as follows: an explanation of the research method, followed by a descriptive analysis of the sample and data. Further, the importance of reliability and validity when doing research is considered, followed by statistical analyses of each variable separately. Lastly, ethical considerations will be presented.

3.1 Quantitative Research Method

There are two main types of research methodologies: qualitative and quantitative. Qualitative research is an approach that generates and handles non-numerical data. This research method focuses on the importance of understanding the world by examining the participants' interpretation of that world using several different techniques (Bell et al., 2019, p. 356). In contrast, a quantitative method focuses on adopting a scientific model through numerical data (Bell et al., 2019). Quantitative research consists of several approaches that attempt to measure and count social phenomena and the relationship between them (Bell et al., p.163). However, most often, quantitative methods have a deductive logic, signifying a theory as a starting point and testing it (Bell et al., 2019). It is common to continue with the order where hypothesis is deducted from theory and then tested in several statistical analyses. This thesis has taken the deductive approach to get a deeper understanding of concepts of innovation, creativity, and leadership, as well as several stigmatizations in working life. This was done by using the collected data, analyzing it, and testing the developed hypotheses.

3.1.1 Advantages and disadvantages of a Quantitative Research Method

There is a diverse range of quantitative research methods available for conducting a study; some being field experiments, simulations, surveys, correlational studies, and multivariate analyses (Queirós et al., 2017, p.380). In this thesis, it was opted to analyze the advantages and disadvantages of employing surveys as a tool for data collection.

Surveys are widely utilized as they enable the direct gathering of data from individuals through a set of structured questions that reflect their perceptions and opinions as a group. The significant advantage of surveys is their capacity to produce a representative sample from an entire population, thus emphasizing the measurable elements of social behavior, rather than solely exploring personal interpretations and subjective meaning. Moreover, the use of quantitative methods can be less time consuming than the use of qualitative methods (Rahman, 2017). Surveys can be low cost and easier to collect, as they can be conducted in person, through internet, phone and more (Green et al., 2015). The limitation of this method is that the reliability of the data is based on the quality in the structure format and precise responses. Moreover, surveys can sometimes be limited to a specific period of time, making it challenging to see changes in behaviors of the people who are being questioned (Queirós et al., 2017).

For this thesis it was decided to use a quantitative research approach to adequately address and evaluate the many hypotheses and consider the above strengths and limitations. A quantitative strategy has provided more testable responses. Also, as the survey questions used for data collection were the same, this enabled the gathering of similar data from more respondents.

3.2 Sample and Data

In September 2021, Norstat Norway (www.norstat.no) collected data using an electronic questionnaire. The sample included 1531 respondents who were selected from Norstat's panel of 85,000 active participants. This sample was representative of the Norwegian working population in terms of socio-demographic structure of the working population based on Statistics Norway's description. The respondents were informed of the study's objective, their right to withdraw at any time, and that the data collected would be used for research purposes only. They were also granted anonymity through a two-step procedure in which their identities were accessible to Norstat for future follow-up studies, but not shared with the researchers. Norstat complies with the Directive 95/46/EC General Data Protection Regulation and Norwegian data protection laws, as well as the research standards and guidelines outlined in ICC/ESOMAR and ISO9001:2015. The Norwegian Centre for Research Data had no objections to the research plan, and the complete, anonymized data file was made available to the research group. This data was collected prior to the start of the current thesis.

3.3 Measurements

Reliability and Validity

It is important to test reliability and validity to increase the research trustworthiness and to avoid the research to be misleading (Roberts & Priest, 2006). Reliability refers to the degree to which the data of a concept is consistent and how it is collected and analyzed (Bell et al., 2019, p.172). In other words, it concerns how a particular test, tool, or procedure, for instance a questionnaire, will produce similar results in different circumstances, assuming nothing else changes (Roberts & Priest, 2006). When it comes to using questionnaires to collect data, as done in this thesis, reliability highly relies on the quality of the survey structure and the accuracy and quality of the answers collected from the respondents (Querós et al., 2017). The reliability of a scale increases with a larger number of items and a stronger correlation between these items (DeVellis, 2017, p. 39-40). There are several methods to measure reliability, however, a commonly used test to determine the internal consistency of an instrument is Cronbach's coefficient alpha (Heale & Twycross, 2015). Therefore, Cronbach's alpha and factor analysis were employed to investigate the internal consistency in the scale. The factor analysis presented in subchapter 3.3.1 gave a good indicator of both the reliability and validity of the scale.

Measurement of validity concerns whether a measure of a concept actually measures the concept (Bell et al., 2019, p. 174). It refers to how closely something is thought to be measured, to what is intended to be measured (Roberts & Priest, 2006). When it comes to quantitative research, there are two types of validity that are most typical: internal and external (Johnson, 1997). Internal validity is referred to as the ability to draw valid conclusions regarding the casual effect between one variable and another. It depends on to what extent the researcher has controlled for any extraneous variables. In this study, internal validity was insured by controlling extraneous variables, which are conditions not part of the study. This was done by randomizing and analyzing the covariance (Vogt, 2005, p.114-157). External validity refers to the findings of a study and to what extent they are generalizable beyond the sample that is studied (Baldwin, 2018). More precisely, to what extent can the findings be generalized to the population the sample is drawn from, in this case, the Norwegian working population. By implementing a random selection of participants and repeating the research can improve the internal and external validity, which will also improve the generalizability of the data. Each scale for the variables used in this thesis has been previously tested and published, therefore indicating reliability and validity for use in this study.

3.3.1 Descriptive Statistical Analyses

Several statistical analyses were conducted for the purpose of this study. Firstly, analyses measuring frequencies and descriptive data of all the dependent and independent variables were conducted. This descriptive analysis can provide basic information about all the variables in the dataset to get a more comprehensive understanding of the variables. This analysis consisted of several values, including mean, standard deviation, kurtosis, and skewness. An acceptable skewness distribution is between -2 and 2. Through the descriptive analyses an acceptable skewness distribution was provided for all the collected scores. Secondly, both the reliability and validity were tested. The reliability was first tested through a calculation of Cronbach's alpha (see Appendix 1). Then, a Kaiser-Meyer-Olkin (KMO) and Bartlett's test were done to all the dependent and independent variables in the factor analysis. These tests are indicators of how well the data fits for a factor analysis, and in this study, they were all within acceptable levels. Further, the factor analysis was conducted to determine the validity, to understand the variance explained and to explore the internal consistency of the scales (see Appendix 2). By loading all items in the scale to only a single factor to determine the correlation between the items and factor, which indicated if the scale measured is joint under one underlying construct. These tests are indicators of how well the data are fit for a factor analysis. Together with an acceptable Cronbach's alpha coefficient, it was reasonable to conclude that the validity and reliability of the sum scores were sufficient for further analyses.

The results of the KMO and Bartlett's tests were confirmed to be within an acceptable range. Followed by these descriptive analyses, a correlation test was conducted to measure the strength of the relationship of two variables at a time. This measure provided an understanding of which variables have a significant relationship and whether the relationship is positive or negative. Lastly, five multiple hierarchical regressions were conducted, one of them being an alternative regression. This was done to identify the effect of variables on different levels. When a multiple regression is hierarchical, it means that the regression is carried out in several steps increasing the number of variables being included in each step. In this case, to differentiate between individual, team, and organizational levels.

3.3.2 Dependent Variables Scales

A dependent variable, also referred to as an outcome variable, is influenced by other independent variables, whether that influence is caused by the dependent variable itself (Vogt, 2005, p.86). The dependent variables in this thesis consisted of innovation processes (idea generation, support for idea development and idea implementation) and innovation climate.

Innovation processes

The source of scale for innovation and creativity used in this thesis came from a study from Onne Janssen called "Fairness Perceptions as a Moderator in the Curvilinear Relationships between Job Demands, and Job Performance and Job Satisfaction" from 2000, and a study called "Joint impact of interdependence and group diversity on innovation. Journal of Management" Van der Vegt and Janssen in 2003. The scale consisted of 9 items in total with 5 response alternatives each, with the scale ranging from 1 to 5. On this scale, 5 was the highest response on innovative activity, 3 the mid-point representing a neutral response, and 1 was the lowest response. Each item in this scale represented one of the three dimensions of creativity and innovation, such as: idea generation, support for idea development and idea implementation. An example of one of the items in idea generation is "Looking for new ways of doing work - How often do you do this?" The reliability of the utilized scale has already been calculated to have a strong reliability with a Cronbach's alpha of .96 in previous publications (Janssen, 2000; Van der Vegt & Janssen, 2003). This is aligned with the relatively strong alpha values for the three variables in the innovation processes in this study.

Idea generation had the highest collected mean sum score of the three scales in the innovation process, with a value of 3.36, and a standard deviation of .78. The reliability of the idea generation scale was considered good as Cronbach's alpha was .84. When all items loaded to a single factor, it explained 75.53% of the total scale of variance of idea generation, where the factor loadings varied from .77 to .83, this indicated that the scale measured one dimension and had an acceptable validity.

The collected mean sum score for support for idea development was 3.20, with a standard deviation of .84. The Cronbach's alpha at .89 indicated that the scale for support for idea development had good reliability. The factor analysis showed that all items loaded only a single factor which explained 81.83% of the total scale variance, where the factor loadings varied

between .84 to .87, this indicated that the scale measured one dimension and had an acceptable validity.

The data collected of idea implementation from this study had a mean sum score of 3.10, with a standard deviation of .86, which was just over the mid-point on a scale from 1 to 5. When testing the reliability of the scale for idea implementation Cronbach's alpha was .88, which indicates good reliability. A factor analysis was done to further determine the reliability and validity of the scale. The factor analysis found that all items loaded only one factor, which explained 81.07% of the total scale variance of idea implementation. The factor loadings varied between .88 to .91, this indicated that the scale measured one dimension and had an acceptable validity.

Innovation climate

The source of scale for innovation climate came from a study named "Validating the organizational climate measure: links to managerial practices, productivity and innovation" by Patterson et al. in 2005. This scale consisted of 6 items with responses from 1 to 5. On this scale, 5 was the highest response on innovation climate, 3 the mid-point representing a neutral response, and 1 was the lowest response. One of the items in this scale is "It is easy to get help to develop new ideas".

From the collected data for this study, the mean sum score for innovation climate was 3.44. This was a relatively high mean value, with .44 over the midpoint on the scale. Having a standard deviation of .86 it showed the data mostly clustered around the relatively high mean. The scale's reliability was tested in the source of scale for innovation climate, which resulted in a Cronbach's alpha of .86 (Patterson et al., 2005). This indicated a good reliability and was sustained through reliability testing of the scale in this thesis. The Cronbach's alpha value in the innovation climate scale in this study was .89, this indicated almost excellent reliability. Additionally, a factor analysis was done to further test the reliability and validity of the scale. The findings showed that when all items are loaded on a single factor it explained 63.87% of the variance, this was lower than the scores in innovation processes, but still acceptable. The factor loadings varied from .76 to .85, indicating that the scale measured one dimension and had an acceptable validity.

3.3.3 Independent variables scales

The independent variables were the presumed cause in the study and can be used to predict or explain the value of another variable (Vogt, 2005, p.151). In this study, work engagement, age, gender, social support, autonomy, home office and supportive leadership were the independent variables that were included in the analysis to investigate the influence of these variables on each other and the dependent variables.

Work engagement

The scale for work engagement used in this thesis comes from "An ultra-short measure for work engagement", a study by Schaufeli et al. in 2019. This study created a 3- item version of Utrecht work engagement scale. The scale was originally in English and has not previously been used in Norway. Therefore, it was translated to Norwegian for this project by Reidar Johan Mykletun, the supervisor of this thesis. This scale consisted of 3 items with 5 response alternatives each, with the scale ranging from 1 to 5. In this scale, 5 was the highest response on work engagement, 3 the mid-point representing a neutral response, and 1 was the lowest response. Three dimensions of work engagement such as vigor, dedication and absorption were represented by one item each.

The mean sum score for work engagement in the collected data was 3.38 with a standard deviation of .86. When testing the reliability of the scale used for work engagement Cronbach's alpha scored at .81. Along with the scale presented by Schaufeli et al. (2019) where the Cronbach's alpha varied in different countries, but every value was considered high, as presented in Table 2. Thus, all the values above .70 are considered reliable for the scales of work engagement. Further factor analysis was conducted to extend the test of validity and reliability. The results showed that all items loaded on only one factor, which explained 72.29% of the total scale variance. The factor loadings ranged from .81 to .89, indicating that the scale measures one dimension and had an acceptable validity.

Table 2

Cronbach's Alpha for work engagement scale in various countries

Countries	Cronbach's Alpha
Finland	.80
Japan	.85
The Netherlands	.82
Flanders (Belgium)	.85
Spain	.77

(Schaufeli et al., 2019).

Age and Gender

When it comes to measuring age and gender there were no scales used. The participants were asked to write down their exact age, which meant there was only one item for this variable. The average sum score for age was 45.57. Regarding the gender variable there was also just one item since the participants was asked to only answer one question on whether they were male or female. The results showed that women were slightly outnumbered with 45.5% and males with 54.5%. Since these two variables did not come from a scale and only have one item each, they did not have Cronbach's alpha.

Social support

Social support was measured on a scale from QPS-Nordic AAW and published in English, Finnish, Danish, Norwegian, and Swedish (Pahkin et al., 2008). It was a 6-item scale with 5 response alternatives each, ranging from 1 to 5. In this scale, 5 was the highest response on social support, 3 the mid-point representing a neutral response, and 1 was the lowest response. One of the items in the scale was "If you need it, are you able to receive support and help in your work from your colleagues? - How does teamwork work in your team?". For this study the mean score of the social support scale was 3.95, which was a high value on the scale ranging from 1 to 5, and the standard deviation was .80. The Cronbach's alpha scores in the original source of the social support scale used in this thesis varied from .82 when tested on co-workers and .85 when tested on superiors (Pahkin et al., 2008). Through reliability testing in this study the Cronbach's alpha was .88, higher than .70, meaning that social support had a great reliability level. Further, a factor analysis was conducted to test the reliability and validity of the scale.

The factor analysis on social support showed that all items loaded with only one factor, explaining 63.50% of the variance, which was low, but still acceptable. The factor loading for each item was from .72 to .86, which indicated that the scale measures one dimension and had an acceptable validity.

Autonomy

The scale for autonomy in this study was also taken from QPS-Nordic AAW (Lindström et al., 2007; Pahkin et al., 2008). In total the scale consisted of 8 items regarding autonomy considering working methods and time management. However, for this study, only the 4 items regarding autonomy in working methods were used. These items have 5 response alternatives each, with the scale ranging from 1 to 5. In this scale, 5 was the highest response on autonomy, 3 the mid-point representing a neutral response, and 1 was the lowest response. One item in the scale is "Can you influence decisions that are important to your work? - What and how much can you decide yourself in your work?". The mean score on this scale was 3.02, which is just at the mid-point of the scale with a standard deviation of .85. When testing the reliability of the autonomy scale Pahkin et al. (2008) Cronbach's alpha test scored to be .68, which is close to the optimal value at .70. Also, the Cronbach's alpha conducted in this study was considered acceptable with a score of .76, making the autonomy scale reliable. The factor analysis conducted to determine the scales validity and reliability found that all items loaded on only one factor which explained 58.38% of the variance. The factor loading varied from .73 to .79. From this it can be concluded that the scale for autonomy had an acceptable level of reliability and validity.

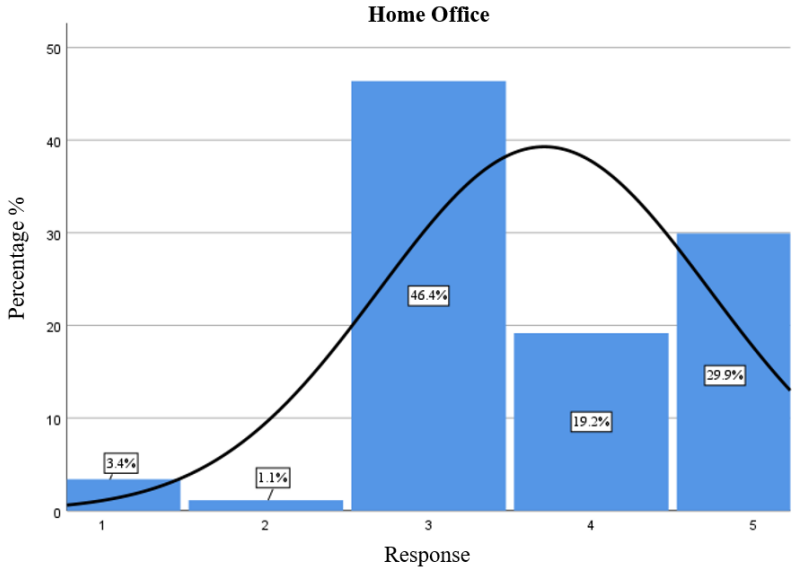
Home office

The original scale used for home office variable in this study was written by Grødem in 2020. However, only one item was used in this study. Thus, the measure of use of home office did not consist of a scale, but a single item variable where the participants were asked if the use of home office had increased on a scale from 1 to 5. The lowest score of 1 was "Much less than before", 3 was the mid-point, which represented a neutral response and the highest was 5 "Much more than before". The most answered alternative was between 3 to 5, and the most answered was the alternative for no change in demand with 45%. However, 19.2% answered that there was more demand from their leaders, and as much as 29.9% found the demand much greater than before. Further, the scale consisted of the question, "Have the corona restrictions caused you to use digital communication tools in your work more than before?". The median for home

office was 3, and Figure 3 displays the frequency distribution for this variable. This demonstrates the uneven distribution, since it had an orthogonal measurement. Therefore, the mean and standard deviation values were not adequate to mention for home office, and the median value has been used instead.

Figure 3

Frequency Distribution for Home Office



Supportive leadership

Supportive leadership was also measured by a scale taken from QPS-Nordic AAW by Pahkin et al. (2008). The scale consisted of 5 items, with 5 different response alternatives each, ranging from 1 (*rarely*) to 5 (*often*). In this scale, 5 was the highest response on supportive leadership, 3 the mid-point representing a neutral response, and 1 was the lowest response. The sum mean score on this scale was relatively high, with a value of 3.45. Additionally, supportive leadership had a high standard deviation in this study at .94. The Cronbach's alpha test of supportive leadership done by Pahkin et al. (2008) had the lowest value at .81 and highest at .86, which was considered reliable values. Joined with an even higher Cronbach's alpha at .88 for supportive leadership scale used in this study. Since all the values were higher than .80, the scale was deemed to have good reliability. To further test the reliability and validity of the supportive leadership scale, a factor analysis was conducted. All items were loaded to a single factor, thus reflecting one underlying construct. It was found that all items loaded on only one factor which explained 67.95% of the variance. The factor loading varied from .80 to .86.

Therefore, it was concluded that the supportive leadership scale had good reliability and validity.

3.4 Ethical Considerations

The data used for this study was collected by Norstat from voluntary participation. The data was anonymized by Norstat so that no information could be used for the researchers to identify the respondents. Only Norstat had access to the participants' identities for future research. Norstat operates accordingly with the Norwegian law for data protection as well as in line with the Directive 95/46/EC General data Protection Regulation. Additionally following the main research standards and guidelines described in ICC/ESOMAR and the Quality Management System ISO90001:2015. There were no comments made on the research plan by The Norwegian Center for Research Data. Thus, an anonymized complete data file was made available for the research group.

4 Results

This chapter will provide the statistical analyses and results gathered from the data collection described in the method chapter. IBM's Statistical Package of the Social Science (SPSS), version 28.0.1.1 was used to conduct statistical analysis. The results will be presented in different tables, including a correlation matrix and five multiple regressions.

4.1 Descriptive Statistics and Correlation Analyses

In Table 3, the descriptive statistics, including the mean, standard deviation, Cronbach's Alpha, and correlation for each variable are presented. Most of the variables exhibited mean scores above the midpoint of the scale, which is 3, on a 5-point Likert scale. This suggested that respondents had a positive overall experience with these variables.

The mean scores for the outcome variables innovation climate and innovation processes (idea generation, support for idea development, and idea implementation) indicated that the group of individuals perceived a positive innovation process, and even better innovation climate. Among the variables, social support, home office and supportive leadership demonstrated the highest mean scores of all variables, the two last being highly relevant for this thesis. However, as presented in Figure 3, home office was a variable with a rather uneven distribution using an ordinal measurement, and the mean and standard deviation values were not adequate to mention. On the other hand, autonomy exhibited the lowest mean score, relatively close to the midpoint of the scale. This implied that participants experienced some level of autonomy in their work.

The purpose of the correlation analysis in this study was to determine the strength of the relationship between the different variables, to better predict the variables in the regression analyses (Taylor, 1990). This study investigated the relationship between the independent variables alone, and their relationship with the two dependent variables. The correlation matrix presented in Table 3 displays the correlation between all the variables. However, this correlation was only presented between two variables and did not consider the influence of others.

The correlation matrix indicated a positive and significant correlation between the innovation processes and innovation climate. Meaning when there was a positive innovation climate, there was expected to be a positive effect on the innovation processes and vice versa. The correlation analysis showed that there was a significant and positive correlation between idea generation and the independent variables of work engagement, social support, autonomy, and supportive leadership, except for age and home office. This meant that the higher scores a respondent had on one of these independent variables, the higher their idea generation score was. Gender was also significant but negatively related to idea generation, meaning that female workers were less involved in idea generation. When it comes to support for idea development, the same pattern followed. However, home office became significant and positive. This meant that work engagement, social support, autonomy, home office, and supportive leadership were all significant and positively related to idea development, and female workers continued to be less involved. The same went for idea implementation and the independent variables. For innovation climate, both age and gender were not significant. However, work engagement, social support, autonomy, home office, and supportive leadership were all significant and positively related to innovation climate.

Table 3

Mean, Standard Deviation, Cronbach's alpha, and Correlations (n=1503)

Variables	Mean	SD	Alpha	1	2	3	4	5	6	7	8	9	10
1. Idea Generation	3.36	.78	.84										
2. Support for Idea Development	3.20	.84	.89	.68**									
3. Idea Implementation	3.10	.86	.88	.68**	.81**								
4. Innovation Climate	3.44	.87	.89	.28**	.42**	.39**							
5. Work Engagement	3.38	.86	.81	.31**	.39**	.36**	.39**						
6. Age	45.6	13.8	—	-.04	.04	.01	.05	.13**					
7. Gender	—	—	—	-.11**	-.08**	-.11**	-.02	-.01	-.10**				
8. Social support	3.95	.80	.88	.16**	.29**	.25**	.57**	.37**	-.06*	.01			
9. Autonomy	3.02	.85	.76	.33**	.40**	.41**	.35**	.34**	.08**	-.25**	.35**		
10. Home Office	—	—	—	.05	.12**	.11**	.10**	.08**	.08**	-.05	.07**	.25**	
11. Supportive leadership	3.45	.94	.88	.25**	.40**	.38**	.61**	.39**	-.05	-.05	.73**	.42**	.15**

Significance Level: *p <.05, **p < .01

4.2 Multiple Hierarchical Regression Analysis

The use of multiple regression analyses provided a deeper examination of how independent variables can effectively and distinctively predict the dependent variable. It was opted to conduct hierarchical regression analyses at individual, team, and organizational level which are presented as models, this to obtain an insight into how the variables interact with one another. These models were separated and gradually added one by one, to obtain a clearer understanding of the relationship between the independent variables. This approach made it possible to observe how an independent variable changed when a new set of variables was introduced. Additionally, comparing the standardized beta values to the correlation values in the correlation matrix in Table 3 enabled this study to further examine these changes.

For this study a two-step model hierarchical regression analysis has been used for innovation climate, and a three-step model hierarchical regression analysis for the innovation processes. The regression analysis for innovation climate excluded social support from the team level to ensure supportive leadership was not compromised. However, to comprehensively evaluate the impact of social support, an alternative regression analysis model was used. This model incorporated the social support variable as a predictor on team level, while excluding the supportive leadership variable on organizational level due to the high correlation between these two variables. This approach allowed to thoroughly test the hypotheses and make informed conclusions, also regarding the role of social support as a relevant predictor of innovation climate in the analysis.

4.2.1 Innovation Climate Hierarchical Regression Analysis

The first part of the analysis was conducted in a two-step model, which showcased the varying prediction at the individual and organizational levels for the innovation climate. As illustrated in Figure 4, the model shows that the team level (social support) was removed, to keep the focus on supportive leadership. The effect of the antecedent variable on the innovation climate was assessed through a hierarchical regression analysis. As shown in Table 4, the regression was analyzed in two models, and the results will be further explained in this chapter.

Figure 4

Antecedents of innovation climate model

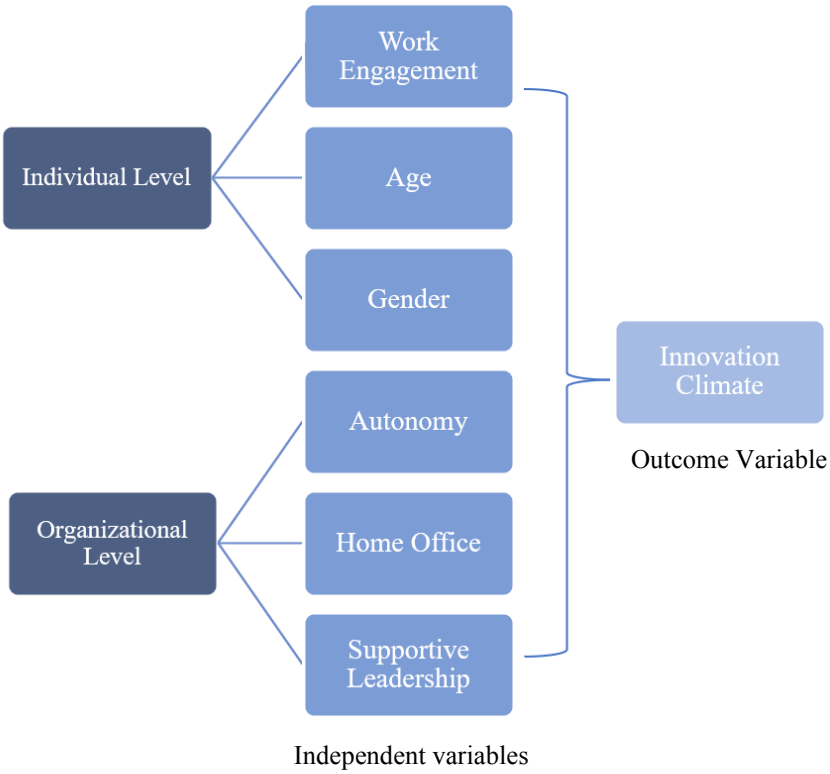


Table 4

Effects of the antecedent variables on innovation climate in a multiple hierarchical regression (n=1531)

Variables	**Innovation Climate**	
	Model 1 β	Model 2 β
Work Engagement	.39***	.15***
Age	-.01	.05**
Gender	-.01	.04
Autonomy		.09***
Home Office		-.01
Supportive Leadership		.52***
R2	.15	.40
R2 change	.15	.25
Sig. F Change	<.01	<.01

Significance Level: **p <.05, ***p <.01

Individual Level

The first model in the hierarchical regression analyses for innovation climate consists of the independent variables on an individual level: work engagement, age, and gender. From Table 3 concerning the correlation matrix it was seen that age was not significant, but due to age being a controversial topic in innovation, it was decided to keep the variable in the regression analyses.

As illustrated in Table 4, the results from model 1 indicated that work engagement was positively and significantly related to innovation climate. However, age and gender did not have a statistically significant effect on the dependent variable. The R-square value was .15, which means that 15% of the variance in innovation climate explained the independent variables in the first model. The regression results were consistent with the correlation results presented in Table 3, showing a similar trend between the variables where work engagement was positively correlated with the innovation climate, while age and gender were not significant. This implies that higher work engagement will predict and might even have a positive effect on the innovation climate.

Organizational Level

The last model of the hierarchical regression adds the independent variables from the organizational level: autonomy, home office and supportive leadership. When including all independent variables, there was an effect on the beta values from the previous model. Due to the high correlation between autonomy and supportive leadership with work engagement, this variable got a lower beta value but was still significant. Age became significant in this model, and gender got a higher beta value but remains not significant. Autonomy becomes an important predictor of the innovation climate with a significant beta value. Home office was not significant, and supportive leadership had an especially high significant beta value, the highest value from the regressions including the values from innovation processes. Supportive leadership was an important predictor for innovation climate, this implied that higher supportive leadership might have had a positive effect in the innovation climate, however, the reverse relationship might also have been the case. The R-square increased to a significant value of .40, meaning 40% of the innovation climate variance is explained.

4.2.2 Innovation Climate at the Team Level: Introducing an Alternative Model

This study also analyzed an alternative hierarchical regression model that looked at the effect on social support and innovation climate. As shown in Figure 5, supportive leadership was removed from the model and social support was introduced at the team level. This provided clearer information to test the hypothesis with social support. The alternative regression analysis presented in Table 5, was implemented in a three-step model. However, the regression analysis for the individual level in this alternative model yielded the same results as in Table 4. Therefore, only the results at the team and organizational levels will be further explained in this chapter.

Figure 5

Alternative Model for the Antecedents of Innovation Climate

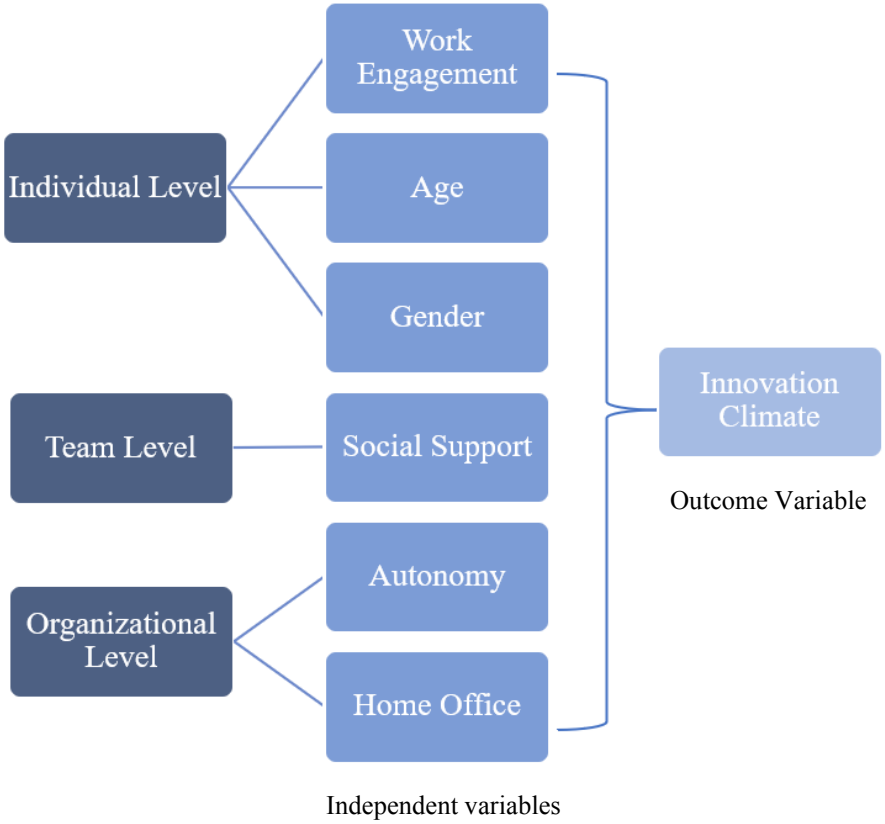


Table 5

Effects of the antecedent variables on innovation climate in a multiple hierarchical regression (n=1531)

Variables	Innovation Climate		
	Model 1 β	Model 2 β	Model 3 β
Work Engagement	.39***	.20***	.17***
Age	-.01	.05**	.04**
Gender	-.01	.01	.01
Social Support		.50***	.46***
Autonomy			.12***
Home Office			.03
R2	.15	.36	.37
R2 change	.15	.21	.01
Sig. F Change	<.01	<.01	<.01

Significance Level: **p< .05, ***p<.01

Team Level

In the second model of the hierarchical regression analysis, social support was added. The introduction of social support (team level) influenced the beta values of the independent variables from model 1. For instance, work engagement decreased its beta value considerably, but remained significant. Age became significant in model 2 and gender remained non-significant. Social support showed a high significance level with innovation climate. In fact, it was almost as high as the beta value between supportive leadership and innovation climate illustrated in Table 4. The R-square increased from .15 to .36, meaning 36% of the innovation climate variance was explained. These values indicated that the inclusion of social support had an important and positive impact on the innovation climate.

Organizational Level

The last model of this hierarchical regression analysis added the independent variables from the organizational level: autonomy and home office, leaving out supportive leadership as this was studied in the previous regression. When including all the independent variables, there was a slight decrease in the beta values for work engagement, social support, and age, all being significant. Gender, however, remained insignificant. Autonomy was significant and home

office remained insignificant. The R-square got slightly higher with a value of .37, meaning 37% of the innovation climate variance is explained.

4.2.3 Innovation Processes Hierarchical Regression Analysis

The regression analysis for the innovation processes was conducted in a three-step model, showing prediction levels at the individual, team, and organizational levels. The conceptual model is illustrated in Figure 6. In this case, the antecedent variable, innovation climate, predicted social support. As shown in Table 6, three multiple regression analyses were conducted to assess the effect of the antecedent variable on the innovation processes for idea generation, support for idea development, and idea implementation. The results will be further explained in this chapter.

Figure 6

Antecedents of innovation processes model

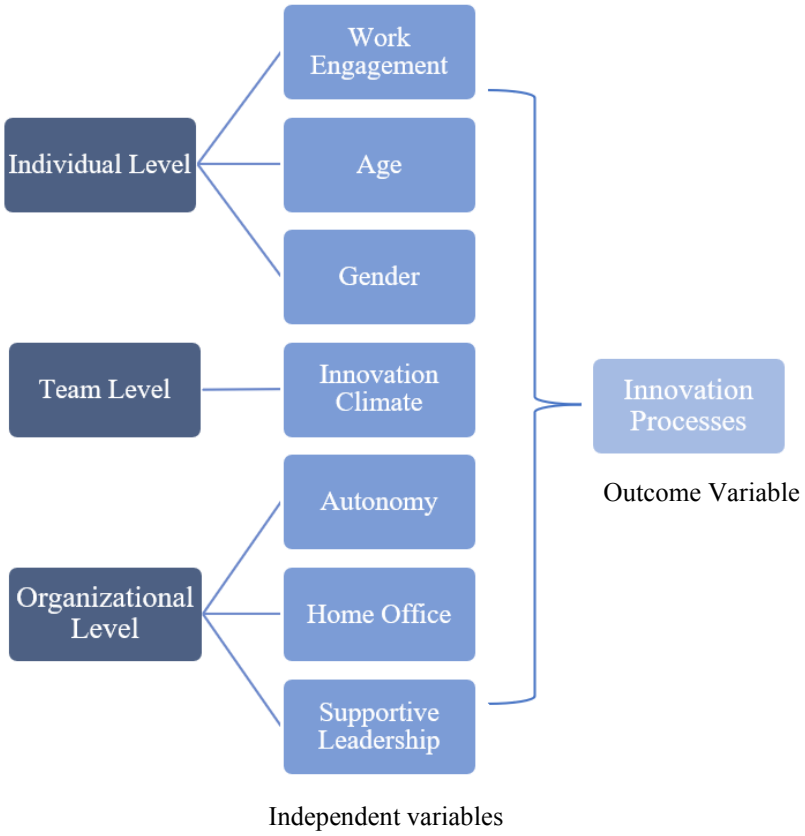


Table 6

Effects of the antecedent variables on Innovation Processes in a multiple hierarchical regression (n=1531)

Variables	Idea Generation			Support for Idea Development			Idea Implementation		
	Model 1 β	Model 2 β	Model 3 β	Model 1 β	Model 2 β	Model 3 β	Model 1 β	Model 2 β	Model 3 β
Work Engagement	.32***	.25***	.20***	.40***	.27***	.20***	.34***	.25***	.17***
Age	-.09***	-.09***	-.09***	-.02	-.02	-.01	-.04	-.04	-.04
Gender	-.11***	-.11***	-.06**	-.08**	-.07**	-.01	-.11***	-.10***	-.04
Innovation Climate		.18***	.13***		.31***	.20***		.29***	.19***
Autonomy			.22***			.22***			.23***
Home Office			-.03			.01			.01
Supportive Leadership			-.01			.11***			.10***
R2	.12	.14	.18	.16	.24	.30	.14	.21	.27
R2 change	.12	.03	.04	.16	.08	.05	.14	.07	.06
Sig. F Change	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

Significance level: **p<.05, ***p<.01

Individual level

The first model in the hierarchical regression for innovation processes consisted of the independent variables on an individual level: work engagement, age, and gender. For the same reason as mentioned in the regression analyses for innovation climate, age was decided to remain in these regression analyses.

In the first model, all the variables on individual level had a significant beta value with idea generation. This meant that work engagement had a strong and positive effect on idea generation before including other variables on team and organizational level that could affect this relation. The other variables at the individual level such as age, and gender, had a negative effect on idea generation. This suggested that being older and being female is a disadvantage in idea generation. The R-square was .12, indicating that the independent variables in this first model measured 12% of the variance in idea generation.

Work engagement and gender had a significant beta value with support for idea development in this first model. Work engagement had a high beta value on support for idea development, implying that work engagement is a strong predictor on support for idea development. Gender negatively affected support for idea development, meaning that being female was a disadvantage when it came to support for idea development. Age had no effect in support for idea development. The R-square in this first model was .16, indicating that the independent variables in the first model measured 16% of the variance of the support for idea development.

The case is the same for idea implementation. Work engagement and gender were found to be predictors of idea implementation by demonstrating a significant beta value. Gender had a negative effect, meaning being a female was a disadvantage for idea implementation. The R-square was .14, indicating that the independent variables in this first model measured 14% of the variance in idea implementation.

Team Level

In the second model of the multiple regressions, the dependent variable of innovation climate was added. The introduction of innovation climate decreased the beta values of the independent variables from the first model. Innovation climate showed significant beta values in all three variables in the innovation processes: idea generation, support for idea development and idea implementation. Further, for idea generation, both age and gender had no change when

implementing innovation climate; both continued to have a negative effect. Work engagement still positively influenced idea generation, although the influence was reduced. The R-square increased by .02 in this model. Thus, the independent variables in the first and the second model measured 14% of the variance in idea generation.

Regarding support for idea development, work engagement decreased the beta value, but the significance level remained the same. Support for idea development continued to be slightly negatively influenced by gender when implementing innovation climate to the model. Age remained with no effect. The R-square increased by .08 in this model. Thus, the independent variables in the first and the second model measured 24% of the variance in support for idea development.

A similar pattern was found for idea implementation, work engagement still had a highly positive effect on idea implementation but reduced compared to the first model. Gender continued to be slightly negative, and age was unchanged. The R-square increased by .07 in this model. Thus, the independent variables in the first and the second model measured 21% of the variance in idea implementation.

Organizational level

In the last model of the multiple regressions the independent variables from the organizational level (autonomy, home office and supportive leadership) were added. For autonomy the beta value was significant and consistent in the three innovation processes variables (idea generation, support for idea development, and idea implementation). Home office did not have a significant beta value with any of the variables in the innovation processes. Moreover, supportive leadership did not present a significant beta value for the idea generation, but it had significant beta values for the rest of the innovation processes. This meant that supportive leadership may have encouraged support for idea development and idea implementation.

When implementing the independent variables on an organizational level the beta values from model 1 and model 2 were affected. For idea generation, the effect on both work engagement and innovation climate got reduced. The effect of gender was nearly reduced by half, meaning there was still a small disadvantage of being a female in idea generation. The R-square increased by .04 in this model. Thus, the independent variables in total explained 18% of variance from idea generation.

The relationship between work engagement and support for idea development in this model got a significant beta value reduced to half, compared to the value in the first model. Most likely, caused by the implementation of supportive leadership to the model. The effect of innovation climate was also highly reduced, although the effect was still strong. Age continued to have no effect along with gender losing its significant beta value with support for idea development. The R-square increased by .06 in this model. Thus, the independent variables in total explained 30% of variance from support for idea development.

The influence of work engagement and innovation climate on idea implementation for this model, was reduced. The effect of work engagement got reduced to half compared to the first model. Age remained with no effect and gender had no significant beta value with idea implementation anymore. This indicated that being a female had no effect on the idea implementation when organizational variables were introduced. The R-square increased by .06 in this model. Thus, the independent variables in total explained 27% of variance in idea implementation.

The three most outstanding variables with highly significant beta values in these regressions were work engagement, innovation climate, and autonomy. Supportive leadership had a strong influence on work engagement and innovation climate when it concerns support for idea development and idea implementation. It seemed like supportive leadership was important for enhancing idea development and idea implementation, and it reduced the importance of work engagement and innovation climate. However, supportive leadership had no effect on the idea generation, but presented significant beta values in the support for idea development and idea implementation. This could be explained through earlier findings in the theory chapter, due to this part of the process being more of an individual internal process where other factors contribute to its development.

4.3 Hypotheses

Based on the findings from the analyses, a comprehensive summary of all the hypotheses and their results can be found in Table 7. In addition, a detailed conclusion for each hypothesis is provided.

1) *Hypothesis 1* was confirmed. This stated that innovation climate was positively related to the innovation processes. The correlation presented a positive relationship between these variables. Moreover, the innovation climate was used as an independent variable for the multiple regressions in the innovation processes, which demonstrated a significant beta value confirming this hypothesis.

2) *Hypothesis 2A* and *2B* were confirmed. The first stated that work engagement was positive related to the innovation processes, and *hypothesis 2B* that work engagement was positively related to the innovation climate. In both cases, work engagement demonstrated a positive relationship in the correlation matrix. The regressions had a significant beta value with the innovation processes, as well as the innovation climate in all steps including in the alternative model.

3) *Hypothesis 3A* was partially confirmed, this stated that age was negatively related to the innovation processes. Age showed a negative relationship with innovation processes in the correlation matrix and a negative effect only for idea generation in the regression analyses. *Hypothesis 3B* was rejected, this stated that age was negatively related to the innovation climate. Age presented no relationship with innovation climate in the correlation matrix and the regression analysis showed a positive effect.

4) *Hypothesis 4A* was partially confirmed. This hypothesis stated that being female was negatively related to the innovation processes. Gender and innovation processes had a negative relationship in the correlation. However, the regression did not consistently show significant beta values throughout all the models. *Hypothesis 4B* was rejected. This hypothesis stated that being female was negatively related to the innovation climate. In the correlation and regression analyses gender and innovation climate showed neither a relationship nor an effect.

5) *Hypothesis 5A* and *5B* were confirmed. The first stated that social support was positively related to the innovation processes. Social support and innovation processes showed a positive relationship in the correlation. In the regression social support was replaced with innovation climate due to the interfering correlation between social support and supportive leadership. This regression showed significant beta values in all models. *Hypothesis 5B* stated that social support was positively related to the innovation climate. Social support showed a positive relationship with innovation climate in the correlation. The regression in the alternative model showed a significant beta value in all models.

6) *Hypothesis 6A* and *6B* were confirmed. The first hypothesis stated that autonomy was positively related to the innovation processes, and *hypothesis 6B* that autonomy was positively related to the innovation climate. Autonomy demonstrated a positive relationship between both outcome variables, as well as significant beta values throughout both regression analyses.

7) *Hypothesis 7A* was partially confirmed. This hypothesis stated that home office was positively related to the innovation processes. Home office showed no relationship with idea generation, however, there was a positive relationship between home office and support for idea development and idea implementation. The regression did not show an effect with innovation processes. *Hypothesis 7B* was rejected. This stated that home office was negatively related to the innovation climate. The correlation suggested the opposite, were the relationship showed to be positive. The regression had no effect.

8) *Hypothesis 8A* was partially confirmed. It stated that supportive leadership was positively related to the innovation processes. The correlation showed a positive relationship between the variables. The regression analysis had only significant beta value for support for idea development and idea implementation. *Hypothesis 8B* was confirmed, this stated that supportive leadership was positively related to the innovation climate. Both the correlation and regression analyses showed a positive relationship and effect.

Table 7

Hypothesis Overview

Hypothesis	Results
1: Innovation climate will be positively related to the innovation processes.	***Confirmed***
2A: Work engagement will be positively related to the innovation processes.	***Confirmed***
2B: Work engagement will be positively related to the innovation climate.	***Confirmed***
3A: Age will be negatively related to the innovation processes.	***Partially Confirmed***
3B: Age will be negatively related to the innovation climate.	***Rejected***
4A: Being female will be negatively related to the innovation processes.	***Partially Confirmed***
4B: As compared to women, men will have a higher perceived innovation climate.	***Rejected***
5A: Social support will be positively related to the innovation processes.	***Confirmed***
5B: Social support will be positively related to the innovation climate.	***Confirmed***
6A: Autonomy will be positively related to the innovation processes.	***Confirmed***
6B: Autonomy will be positively related to innovation climate.	***Confirmed***
7A: Home Office will be positively related to the innovation processes.	***Partially Confirmed***
7B: Home Office will be negatively related to the innovation climate.	***Rejected***
8A: Supportive Leadership will be positively related to the innovation processes.	***Partially Confirmed***
8B: Supportive Leadership will be positively related to the innovation climate.	***Confirmed***

5 Discussion

This study makes contributions to the theories of innovation processes and innovation climate. The study investigated the relationship between these two concepts and explored the influential role of individual, team, and organizational dimensions as antecedents (see Figure 1). The insights presented in this chapter are derived from a quantitative approach, involving a survey of 1531 participants from diverse industries in the Norwegian working environment, conducted in September 2021. Within this chapter, the study thoroughly discusses the results and statistical analyses, drawing comparisons to various relevant theories integrated into this thesis. Furthermore, this study introduces new findings relevant to the Norwegian working life. Ultimately, the findings address the following research questions initially presented in the introduction, providing comprehensive answers.

1. How do the innovation processes, and innovation climate relate to each other?
2. To what extent do the individual dimensions (work engagement, age, and gender), team dimension (social support), and organizational dimensions (autonomy, home office and supportive leadership), predict the innovation processes?
3. To what extent do the individual dimensions (work engagement, age, and gender), team dimension (social support), and organizational dimensions (autonomy, home office and supportive leadership) predict innovative climate?
4. To what extent are the patterns of relationships similar for the innovation processes, and innovation climate when predicting from the individual dimensions (work engagement, age, and gender), team dimension (social support), and organizational dimensions (autonomy, home office and supportive leadership)?

In addition to exploring the impact of supportive leadership on the innovation processes and innovation climate when working from home, this study shows valuable insights into other variables that play an important role in innovation. Specifically, the results indicated that work engagement, social support, and autonomy are predictors of the innovation processes and climate. These findings highlight the multifaceted nature of innovation and the importance of considering other factors that contribute to a supportive work environment, by considering not only the role of supportive leadership but also the influence of work engagement, social support, and autonomy, organizations can create a more holistic approach to foster innovation during home office. This chapter will provide a deeper explanation of this study and the relationship

between all variables, highlighting the interesting finding that predicts innovation processes and innovation climate.

5.1 The relationship between the Innovation Climate and Innovation Processes

The results of this study showed that the innovation climate and the innovation processes are positively related to each other; therefore, *hypothesis 1* was confirmed. According to the correlation, idea generation, support for idea development, and idea implementation were positively related to innovation climate, with a particularly strong relationship observed for support for idea development. Moreover, in the regression, innovation climate was used as a predictor of the innovation processes, showing a positive effect between these variables. There is no firm evidence; however, this possibly implies that the relationship between the innovation climate and innovation processes is reciprocal, with each factor serving as predictor of the others.

Furthermore, the results presented in this study contribute to the literature found earlier (Mumford, 2000; Newman et al., 2020; Shanker et al., 2017). This literature claims that innovation climate is an important factor to encourage employees to innovate. Moreover, Waheed et al. (2019) states the importance of leaders motivating employees to contribute to innovation processes, which in turn reinforces the cycle where employees nourish the innovation climate. This is interesting because in this study, supportive leadership had a strong relationship with the outcome variables, especially the innovation climate, reinforcing the idea that if organizations want to promote, generate, develop, and implement innovative ideas, a strong predictor for this is supportive leadership. To reflect on these findings, innovation climate and the innovation processes are essential for fostering a culture of innovation and driving organizational success in today's rapidly evolving and competitive environment.

5.2 Predicting the Innovation Processes: The Role of Individual, Team, and Organizational dimensions

This study indicated that work engagement positively influenced the innovation processes. Thus, *hypothesis 2A* was confirmed. According to the correlation and regression results, work engagement demonstrated a positive relationship and strong effect within all the stages of the

innovation processes. However, the effect of work engagement during the regression analyses was reduced when the team and organizational variables were introduced. Nonetheless, work engagement was found to be a strong predictor of the innovation processes, regardless of the influence from other variables.

The results of this study are consistent with previous studies (De Spiegelaere et al., 2014; Xu et al., 2022). These studies established a relationship between work engagement's dimensions and the innovation processes, highlighting the important role of work engagement in driving innovation processes. Xu et al. (2022) states that the dimension *vigor* enables employees to explore and generate innovative ideas. The dimension *absorption* helps employees concentrate by working intensively to develop innovative ideas and solutions. The dimension *dedication* serves as a motivational driver for employees to actively generate, promote and implement ideas. Interestingly, in this study, work engagement was found to have the strongest effects on the innovation processes before other variables were introduced. This strong effect was only surpassed by autonomy, with not much in the third model. From the point of view of this study, this could imply that work engagement by itself is an incredible drive in every step of the innovation processes. Therefore, when organizations and leaders think about how to drive innovation, keeping employees engaged could be an important factor in making this happen.

The study's findings regarding the negative relationship between age and the innovation processes partially confirmed *hypothesis 3A*. The correlation between age and the innovation processes did not reach statistical significance. However, it was decided to include age in the regression analyses, due to the controversy surrounding the connection between age and innovation, found in previous research (Ng & Feldman, 2008). The regressions presented a negative effect on the idea generation being consistent at individual, team, and organizational level while on the support for idea development and idea implementation remained with no effect. This implies that being younger has a greater effect on the idea generation. The results are consistent with previous studies, such as Salthouse (2012), which explains that while the capacity to think quickly is beneficial in the early stages per example in idea generation, this capacity starts to decline around the age of 20. A more rigid way of thinking is characterized by accumulation of experience-based knowledge, increased insights in the organisation and network, helps with the implementation of ideas and starts to decline around the age of 60. Moreover, Hernaus et al. (2019) found that older employees have lower innovative work behavior in relation to cognitive capabilities when complex job tasks are in place compared to

younger people. However, a study performed by Ng and Feldman (2008), found no effect at all between age and innovation.

This literature emphasizes the complexity of the relationship between age and innovation processes, and how age may be affected when other factors, such as cognitive capabilities and job demands, are in place. The results of this study found that being younger is an advantage for the idea generation. Surprisingly, there was no effect between age and support for idea development and idea implementation. This could be an interesting finding, as it could imply that age alone may not directly predict the last two stages of the innovation processes. Nonetheless, additional research is required to further support these findings and investigate what other factors could have influenced the relationship between age and the innovation process in this study.

The findings of this study partially confirmed *hypothesis 4A*, which suggested a negative relationship between being a woman and the innovation processes. The results in the correlation and the regression analyses, showed a negative relationship and effect between gender and innovation processes. However, the regression for support for idea development and idea implementation, showed no effect in the third model, when the organizational variables were introduced. Previous studies (Nählinder, 2010; Tonoyan & Boudreaux, 2023) suggest that women are perceived to be less suitable for innovative job roles leading to have different occupational choices. There are different factors contributing to this underrepresentation of women in innovative roles; these include role expectations, support form colleagues, willingness to take risks among others (Nählinder, 2010). The result of this study offers preliminary insights in the negative relationship and effect between women and innovation processes, although the inconsistent findings from the regression analysis, could possibly indicate the need for additional research in this area. The Norwegian working population is still gender-segregated horizontally (women in lower positions and men in leadership positions) and vertically (in female- and male-dominated branches and occupations). These differences might hide different conditions for innovative work behaviour and organizational resources for support and implementation of innovations. Therefore, understanding the impact of gender on each stage of the innovation process is crucial for promoting inclusivity and unlocking the full potential of diverse perspectives in driving innovation forward.

This study found a positive relationship between social support and the innovation processes, confirming *hypothesis 5A*. The results concluded that social support had a positive relationship with innovation processes. Although in the regression analyses innovation climate was used instead of social support, and it demonstrated a strong effect between social support and all stages of the innovation process. However, when organizational variables such as autonomy and supportive leadership were introduced, the effect of social support was reduced, yet it was still a predictor of innovation processes.

These results align with earlier studies in this field (Stephan, 2022; Messmann & Mulder, 2013), reinforcing the theoretical understanding that social support works as a facilitator in innovation processes. According to Messmann and Mulder (2013), leaders are important elements of social support; they provide psychological support and facilitate tools in the work environment to promote innovation. Moreover, employees who perceive social support feel more encouraged to put ideas into practice (Binnewies & Gromer, 2012). The results of this study provide insights into the relationship between social support and the innovation processes. This is not strong evidence, but it emphasizes the importance of social support in creating an environment conducive to innovation and highlights the need for organizations to prioritize and enhance social support mechanisms.

The results confirmed the positive association between autonomy and innovation processes. Therefore, *hypothesis 6A* is confirmed. The findings demonstrated that autonomy had a positive relationship with the innovation processes. Interestingly, when compared to other independent variables in the context of the innovation processes, autonomy exhibited the highest correlation. Furthermore, in the regression analysis, when autonomy was introduced in model three, it showed the highest effect, emphasizing its importance as a predictor of the innovation processes. These findings are consistent with the literature presented in the theory chapter, where researchers have consistently shown that granting autonomy in work methods enables employees to create, develop, and implement innovative solutions (Acar et al., 2019; Rietzschel et al., 2016; De Spiegelaere et al., 2014). In this study, work method autonomy surprisingly got higher effect than other variables such as work engagement, social support, and supportive leadership. This result may imply that granting autonomy to employees should be considered top of mind in order to empower them to find solutions in all innovation processes.

The results of this study regarding the positive relationship between home office and the innovation processes partially confirmed *hypothesis 7A*. The correlation showed a positive relationship between home office and support for idea development and idea implementation, but not for idea generation. For the regression analyses home office showed no effect with the innovation processes, leading to the partial confirmation of this hypothesis. These are interesting findings because it suggests that the use of home office as a predictor of the innovation processes may be weak or not statistically significant. In other words, changes in the home office variable may have limited influence on the overall innovation processes. However, it is important to note that a weak predictor does not imply no influence at all; rather, the effect of the home office is relatively less important compared to the other variables under consideration.

A study during Covid-19 done by Pister (2021) points out that working from home has both advantages and disadvantages when impacting on innovation depending on different conditions such as leadership capabilities and organizational culture. Other researchers such as Vega et al. (2015) have found that some employees have demonstrated the ability to perform just as well in their working tasks while working from home because the working conditions were not conservative or restrictive. Employees who work at home are strongly encouraged to innovate when there is collaboration, access to technology and an open mindset (Allen et al., 2015; Konrad-Maerk, 2023). There are still some questions left on this topic, as there is not a clear answer on the effects that home office has on innovative processes. According to the results from this study, there is a possibility that the use of home office has neither negative nor positive effects in the innovation processes directly. However, these findings cannot be fully validated due to the lack of effect and inconsistent relationship between the variables. Nonetheless, these results shed light on the possibility that working from home is by no means detrimental to innovation processes. On the contrary, one may speculate that the use of home office triggered innovation processes as a way of coping with this new working context.

The findings of this study regarding the positive relationship between supportive leadership and the innovation processes partially confirmed *hypothesis 8A*. This study showed a positive relationship between supportive leadership and the innovation processes components. Moreover, the beta coefficients for the relationship between the supportive leadership variable and two of the three innovation processes variables were significant and positive. A possible reason supportive leadership had no effect in the idea generation, is due to the high correlation

between supportive leadership and innovation climate. Much of the variance between these variables is accounted for by the first entered variable, in this case innovation climate. Therefore, the results can partially confirm this hypothesis, implying that the impact of supportive leadership may vary across different stages in the innovation process.

These findings align with the theoretical framework presented in this study (Khalid et al., 2012). According to this literature, supportive leadership helps employees cope better with job pressures, providing them with the necessary support to enhance their performance and stimulate critical thinking. This, in turn, encourages employees to take risks and think creatively, ultimately promoting innovation. Overall, the results of this study highlight the importance of supportive leadership in fostering innovation within organizations. However, this study did not fully validate the relationship between supportive leadership and the innovation process for idea generation. The varying impact of supportive leadership across different stages of the innovation process emphasizes the need for further investigation and understanding of the role of supportive leadership in driving innovation at early stages such as promoting creativity.

5.3 Predicting the Innovation Climate: The Role of Individual, Team, and Organizational dimensions

The result of this study indicated a positive effect and relationship between work engagement and innovation climate, thus *hypothesis 2B* was confirmed. The correlation analysis showed a positive relationship between work engagement and innovation climate. In addition, the regression suggested that work engagement had a highly positive effect on innovation climate on an individual and organizational level, although on organizational level the effect decreases by more than half. This suggests that work engagement has a greater impact on innovation climate at the individual level than when variables such as autonomy and supportive leadership are included at the organizational level. These results are aligned with Bakker and Deroutti's (2008) work engagement model, according to which one of the drivers that contribute to the prediction of work engagement is job resources such as autonomy and social support from colleagues and managers. This contributes to explaining this study's results of the decreasing effect of work engagement when autonomy and social support variables are introduced. There could be different possible explanations for this finding. It does not necessarily mean that work

engagement is less important when considered at the organizational level. However, a possible explanation is that autonomy, social support, and work engagement are proven to influence each other (Bakker & Derouttі, 2008; De Spiegelaere et al, 2016).

The results of this study regarding the negative relationship between age and innovation climate were rejected in *hypothesis 3B*, as there was no relationship between them in the correlation matrix. The beta values in the multiple regression between age and innovation climate had a positive effect on an organizational level. This means that age had a weak but positive effect on innovation climate when all other predicting variables were introduced in the final step of the regression analysis, meaning that being older has a small advantage on innovation climate. Nevertheless, previous studies have shown both positive and negative effects of age on innovation (Ng & Feldman, 2013). An earlier study found that the innovation climate is lower when employees are older and there is low age diversity. However, when there is high age diversity, age has no effect on innovation climate (Rudolph & Zacher, 2022). Although it is not possible to determine the age diversity of respondents' colleagues in this study, the results contradict the statement that the innovation climate is negatively affected by older employees (Rudolph & Zacher, 2022). While the analysis in this study suggests only a small positive relationship between age and innovative climate, it nonetheless contributes to research that contradicts the most common stereotyping of ageism. The stigma that age is a disadvantage to innovation is still at odds with the findings of this study, considering the negative relationship between age and idea generation. Therefore, the relationship between innovation processes and innovation climate, and the age of the workers, requires more research.

The results of this study regarding gender and innovation climate, could not confirm that men will have a higher perceived innovation climate in comparison to women. Consequently, *hypothesis 4B* was rejected. Both the correlation analysis and regression analysis did not yield statistically significant results for this relationship. The combination of the result in this study and the previous research mentioned makes it important to discuss due to found gender discrimination in the workplace. Previous research suggests a bias against women in terms of opportunities for innovative roles (Foss et al., 2013; Kwaśniewska & Necka, 2004; Nählinder, 2010). This bias is further supported by a recent large-scale study conducted in the United States, which found that men receive more encouragement to be creative than women (Taylor et al., 2020). The results in this study cannot completely approve or disapprove with previous research due to the lack of effect found with gender. However, this lack of findings between

gender and innovation climate in this study demonstrates that gender differences are irrelevant. This raises the question of why gender is treated differently in organizations. Yet, as female workforce is less inclined to display innovative behavior as discussed above, additional research is necessary to gain a deeper understanding of the complexities underlying gender in innovative environments and the factors that contribute to an inclusive and supportive innovation climate.

In the results of this study, social support was found to be positively related to innovation climate, confirming *hypothesis 5B*. A strong and positive correlation was found between social support and innovation climate. The alternative regression analysis, in which supportive leadership was excluded to minimize potential interference, also confirmed the hypothesis that social support has a highly positive influence on innovation climate. When examining the relationship between social support and innovation climate, it became evident that research focusing specifically on social support has diminished over time. Instead, there has been a shift towards examining the importance of a supportive climate for innovation (Messmann & Mulder, 2013). This evolution in the conceptualization of social support is closely related to the concept of innovation climate. The strong relationship between social support and innovation climate observed in the analyses can be explained by the fact that these two concepts encompass similar values and merge into each other. These findings confirm the validity and reliability of this study and highlight the critical importance of social support in fostering a creative environment in teams and organizations. They also underscore the importance of greater research and understanding the relationship between social support, innovation climate, and its influence on innovation processes.

The results of this study show that autonomy is positively related to innovation climate. Further, they suggested that due to the positive relationship and effect in both correlation and regression analysis, *hypothesis 6B* was confirmed. The correlation between autonomy and innovation climate was found to be highly positive and significant. However, the multiple hierarchical regression showed that the effect of autonomy in the last model was lower than the relationship indicated in the correlation. Previous studies are consistent with the results of this thesis. De Spiegelaere et al. (2014) found a positive relationship between autonomy and innovation climate. In this thesis, method autonomy was the type of autonomy analyzed. Although, in later research De Spiegelaere et al. (2016) suggest that autonomy is divided to *work method autonomy* and *work location autonomy*, where *work method autonomy* is positively related to work engagement and *location autonomy* is the one positively related to innovative working

behavior. Moreover, this research also suggests that *work location autonomy* positively affects *work method autonomy*. The results in this study suggest that providing autonomy in the working method could be an important predictor for innovation climate, confirming previous findings on the positive relationship between work method autonomy and innovation climate.

The results of this study refuted the hypothesis that use of home office is negatively associated with innovation climate. In fact, they indicated a positive and significant correlation between home office and innovation climate, which contradicts some previous research (Criscuolo et al., 2021). However, when home office was included in the regression analysis, no effect on innovation climate was found. Consequently, *hypothesis 7B* was rejected. The positive significant value found in the correlation analysis indicated the opposite relationship than what was hypothesized in this thesis. Although some previous studies suggest that working from home may have a positive relationship with innovation when the normal working conditions are conservative and restrictive (Vega et al., 2015). Most findings from previous research suggest that use of home office can be challenging and make it more difficult to foster a climate of innovation (Burleson et al., 2022; Pister, 2021). Burleson et al. (2022) states that to create a climate of innovation when working from home, some conditions such as providing autonomy and social support need to be met. The results in this study showed that both use of home office, autonomy and social support are positively correlated to innovation climate. This supports Burleson's et al. (2022) conditions to foster an innovation climate during the use of home office. Because of this somewhat unusual result, it opens the possibility for further research on this topic.

The findings in this study indicated that supportive leadership is positively related to innovation climate. Thus, *hypothesis 8B* is confirmed. The correlation between supportive leadership and innovation climate showed a strong positive relationship. Furthermore, when supportive leadership at organizational level was introduced into the regression, it was found that supportive leadership had the largest effect on innovation climate. This is aligned with previous research such as Martinussen and Davidsen (2021), which suggested that supportive leadership is associated with higher perceptions of innovation climate, this supports the correlation in this study. Additionally, a previous literature supports the regression results indicating the positive impact of supportive leadership on innovation climate, as it was shown that supportive leaders have significant value in workplaces that strive for an innovative climate (Shin, 2015). However, there have also been studies that indicated that the innovation climate is what

positively impacts supportive leadership (Yu, 2017). This is an interesting aspect of the topic that was not analyzed in this thesis but could be further explored in future research.

5.4 Predicting the Innovation Processes and Climate: Exploring the patterns across Individual, Team, and Organizational dimensions

When exploring the different variables' pattern for each dependent variable, innovation processes and innovation climate, both similarities and differences become evident. Despite the rather inconclusive research on age and innovative behavior, this study's findings challenge the stigma of elderly and innovation. Specifically, in terms of the internal creative process of idea generation, there is a modest yet statistically significant advantage for younger individuals over the elderly. However, in the broader context of innovation analysis, age does not exhibit any significant influence at the individual, team, or organizational levels. Surprisingly, on the organizational level, there is a fascinating and contradictory result regarding the innovation climate, wherein older individuals gain an advantage.

Moving on, gender seems to play a relatively more substantial role at the individual and team levels within the innovation processes, as being female appears to be a disadvantage. However, gender does not influence the innovation climate. Lastly, autonomy emerges as a moderately important factor in both outcome variables yet being more important for the innovation processes than for the innovation climate. Consequently, three variables stand out as noteworthy in the analysis of the innovation processes and innovation climate. These are work engagement, home office, and supportive leadership.

Work engagement had a similar positive relationship and effect with the innovation processes and innovation climate, therefore the hypotheses for both outcome variables were confirmed. The values in the regression analyses started with a high positive effect in the first models (individual level) and continued to decrease drastically when the second and third models were implemented at the team and organizational level. Regarding the innovation processes, this could mean that if work engagement is studied when other variables are included, leaders might consider this as an important predictor, but the effect is slightly more relevant to consider for autonomy. Whereas for innovation climate, leaders might consider it more important to provide employees more work engagement than autonomy. However, being a supportive leader and

providing social support is still more important to create a greater effect in the innovation climate. The results of the correlation analysis showing a high correlation between work engagement and supportive leadership may be the reason why the value of work engagement at organizational level decreases drastically when autonomy is included. This could be because work engagement includes factors such as autonomy and social support and therefore may affect the contribution of work engagement in the analysis (Bakker & Deroutti, 2008).

The use of home office is interesting to explore further due to the contradicting findings in this study with previous research, social stigma, and the relevance for the further research (Burleson et al., 2022; Criscuolo et al., 2021). Regarding the patterns between home office and both the innovation processes and innovation climate, there seem to be some contradictory results. Based on previous research, this study hypothesized and partially confirmed a positive correlation between home office and innovation processes. Regarding innovation climate, a negative correlation was suspected but rejected.

From innovation climate and the three components of the innovation processes, only idea generation showed no relationship in the correlation analysis with working from home. In addition, none of the regressions yielded significant values. Although most of the results of this analysis pointed to a consistent pattern that working from home does not have an effect in the innovation processes or climate, it raises interesting points for discussion. It highlights the importance of the concept of the home office in today's society, and the many unanswered questions about how leaders and organizations can manage the growing trend toward telecommuting and its impact on employees. It is particularly interesting to observe these results given that previous research suggests working from home has the opposite effect on innovation processes compared to the innovation climate. Previous research suggests several difficulties for innovation and leadership follows with working from home, indicating that fostering innovation climate from a distance is challenging for leaders (Baruch, 2001; Criscuolo et al., 2021). This appeared to be the opposite to some extent in this study, where home office had a positive effect on innovation climate. This unexpected finding is to some degree strengthened by other previous research, that suggests there are several positive effects from working from home with innovation and creativity (Allen et al., 2015; Pister, 2021). One research suggests working from home could contribute to less restrained working conditions which makes it possible to handle problems more creatively (Vega et al., 2015).

These contradicting research and findings underscore the need for further exploration and understanding of this phenomenon, considering the conflicting evidence and its implications for both individuals and organizations. Where some of the reasons for the contradicting views could be stigma or lack of long-term exposure around working from home due to this being a relatively new phenomena, or the effect of various factors due to Covid-19 interfering with the research on this topic. Previous research supports this by suggesting that some factors appearing due to Covid-19 is acting as an important driver between home office and innovation (López Peláez et al., 2021).

Supportive leadership, despite being a concept that lacks a unified definition, has been identified as having the most substantial relative association with creativity and innovation (Lee et al., 2020). As a result, it was hypothesized that supportive leadership would exhibit a positive relationship with both the innovation processes and innovation climate. The hypothesis was partially confirmed for innovation processes and fully confirmed for the innovation climate. The analysis clearly demonstrates that supportive leadership holds greater significance for the innovation climate compared to the innovation processes, with the lowest correlation and no significant effect observed on idea generation within the innovation processes. This could be attributed to the fact that idea generation is primarily about creativity, and an individual and internal capability (McAdam & McClelland, 2002). Therefore, this individual capability potentially diminishes the influence of leadership in the innovation processes**.**

A possible explanation for the high effect of supportive leadership on innovation climate, as well as its relatively lower impact on the innovation processes, could be attributed to the role of a supportive leader in fostering autonomy, work engagement, and social support. Previous research has revealed a positive relationship between supportive leadership, creativity, and innovation when accompanied by a high level of autonomy, task independence, and goal setting (Byron et al., 2023). The correlation analysis conducted in this study supports these findings, showing highly positive and significant correlations between supportive leadership and variables such as work engagement, autonomy, and social support. These results suggest that when these variables are included, they could either interfere with or strengthen the significance of supportive leadership. These findings are significant contributions to the earlier research on this topic, as they help clarify the role of supportive leadership in promoting innovation processes, and the specific factors that contribute to its effectiveness. To conclude, through research and analyzing supportive leadership, it is evident that supportive leadership is

embodying several important factors that contribute to innovation processes and innovation climate. This underpins the importance of a supportive leader for a creative and innovative organization.

6 Limitation of the Study

One of the main limitations of this study is that the data collection was based on self-report using a quantitative method through a questionnaire. The participants had to answer the same set of questions, regardless of their circumstances. In addition, there was no way to control how accurately the questions were answered. Due to the possibility of errors in interpretation, subjective responses, and motivation, these responses may be altered. Furthermore, since team and organizational level variables are answered based on individual perceptions of phenomena assumed to be at levels above the individual. This may result in inaccurate responses to the items considered in the questionnaire, which may influence the data. This might cause some manipulation of the responses, making the data less accurate to interpretate.

Further, this study has the limitation of using a cross-sectional design which prohibits conclusions regarding cause-and-effect interference because it cannot be demonstrated. This is due to this design only analyzing data from a single point in time, and unfortunately does not allow for a multilevel analysis of the data. If a multilevel analysis was included, it could have given an understanding of how the different levels affect each other. This cannot be demonstrated in this study due to the lack of more than one level of aggregated data. A multilevel analysis of the data at the individual, team, and organizational level could have influenced the outcome of the analyses and slightly changed the conclusions.

Additionally, the collection of the data was done during the Covid-19 pandemic, which could limit the data to a specific scenario and leverage the responses. Continuingly, most previous research on home office discussed in study was either concerning this concept before the dramatic increase of home office use, or from during this crisis, and not from now when it is normalized. This lack of data collection from several periods limits the ability to connect the previous research to the collected data as well as the ability to interpret the results concerning this concept in this study with further research.

Finally, the fact that the data is concerning only the Norwegian workforce is also a limitation of this study. Even though the dataset is a large random sample, it does not include other countries with different socio-demographics and cultures. Due to the geographical, socio-demographic and culture limitations of the data collection, the contribution of this study's

ability to apply to other countries could be reduced. Therefore, if the representative sample included the workforce in other countries, it would have allowed for a broader and deeper study on the topic.

6.1 Implications for further research

A theoretical implication from this study is the importance of social support when it comes to innovation climate. Social support was found to have a substantial effect on innovation climate, along with a strong relationship with supportive leadership. These findings contribute to the interest to further explore the effect of social support given by the leaders, as previous research is shedding light on how the influence of social support on innovative behaviour depends on whom the social support comes from. Since previous research on social support has lessened over time, along with it predominantly considering the health and nursing sector, it could be beneficial for further research to investigate the effect of social support on other fields in the workforce.

An important practical implication is regarding the use of home office. Since the data used in this thesis is proven to be reliable, the findings on the use of home office and innovation will have a practical implication. They suggest that working from home can have a positive effect on innovation climate, which is contradicting to the stigma around working from home and some previous research on the topic. This is the reason for hypothesizing a negative relationship between home office and innovation climate in this study. However, the result in this study rejects this hypothesis, and on the contrary suggesting a positive relationship between the use of home office and innovation climate. Home office have shown to have a positive relationship with support for idea development, idea implementation and innovation climate. These findings uncover a paradox indicating the use of home office being positive instead of negative for innovation processes and innovation climate. These relationships should be further explored in future research as the use of home office is becoming more common. This finding invites the idea that leaders and organizations should not be sceptical and are recommended to use home office even in innovative climates.

6.2 Conclusion

The purpose of this study was to look at the effect that supportive leadership has on innovation climate and innovation processes when working from home. To study these effects, individual, team and organizational dimensions were analyzed to find to what degree they predict innovation processes and innovation climate. As well as looking into the correlating effect between innovation processes and innovation climate and comparing the patterns of them.

The findings in this study suggest that providing an innovative climate could have a positive effect on innovation processes. Furthermore, it was found that there is a complex relationship between age and gender and innovation processes. The results suggested that giving employees autonomy in the method of working, having work engagement, providing social support, and having a supportive leader while working from home has a positive influence on the innovation processes. However, the influence of supportive leadership varied across the different components of the innovation processes. For innovation climate, the study found a similar pattern, work engagement and autonomy had a positive effect on innovation climate, but there was an even stronger relationship and effect with social support and supportive leadership on innovation climate. However, age and gender did not influence innovation climate to the same degree they influenced innovation processes. Furthermore, the use of home office was found to have a positive relationship with innovation climate, despite the contradicting stigma and previous research.

There are several new questions raised during the discussion between these thesis findings and previous literature that need to be explored in further research. Implications in this study suggest to further explore the importance of social support and supportive leadership's effect on innovation climate. As well as further research on the possible positive impact working from home can have on innovation climate in an organization. Through this study a paradox indicating home office can have a beneficial impact on innovation climate has been uncovered. The aim of this study was to provide more insights to today's supportive leaders and organizations on how to foster an environment that is conducive to innovation, and how employees can be encouraged to participate in the innovation processes, when normal working conditions, such as working at the office, are challenged.

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Appendix 1: Reliability

Reliability Statistics

	Cronbach's Alpha	N of Items
Innovation climate	.89	6
Autonomy	.76	4
Social support	.88	6
Work engagement	.81	3
Supportive leadership	.88	5
Idea generation	.84	3
Support for idea development	.89	3
Idea implementation	.88	3

Appendix 2: Factor Analysis

Work engagement

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.68
Bartlett's Test of Sphericity	Approx. Chi-Square	1569.25
	df	3
	Sig.	.000

Component Matrix[a]

	Component 1
Jeg er entusiastisk når det gjelder jobben min - Trivsel og arbeidsglede	.89
Jeg får mye energi på jobben - Trivsel og arbeidsglede	.85
Jeg er oppslukt av arbeidet mitt - Trivsel og arbeidsglede	.81

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Autonomy (Working methods)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.75
Bartlett's Test of Sphericity	Approx. Chi-Square	1437.86
	df	6
	Sig.	< .001

Component Matrix[a]

	Component 1
Kan du påvirke beslutninger som er viktige for ditt arbeid? - Hva og hvor mye kan du selv bestemme i arbeidet ditt?	.79
Kan du påvirke avgjørelser om hvilke personer du skal samarbeide med? - Hva og hvor mye kan du selv bestemme i arbeidet ditt?	.78
Kan du påvirke mengden av arbeid som blir tildelt deg? - Hva og hvor mye kan du selv bestemme i arbeidet ditt?	.76
Hvis det finnes flere forskjellige måter å utføre arbeidet ditt på, kan du selv velge hvilken framgangsmåte du skal bruke? - Hva og hvor mye kan du selv bestemme i arbeidet ditt?	.73

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Social support

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.81
Bartlett's Test of Sphericity	Approx. Chi-Square	5364.90
	df	15
	Sig.	.00

Component Matrix[a]

	Component 1
Om du trenger det, kan du få støtte og hjelp i ditt arbeid fra din nærmeste leder? - Hvordan fungerer samarbeid i ditt team?	.86
Om du trenger det, er din nærmeste leder villig til å lytte til deg når du har problemer i arbeidet? - Hvordan fungerer samarbeid i ditt team?	.85
Blir dine arbeidsresultater verdsatt av din nærmeste leder? - Hvordan fungerer samarbeid i ditt team?	.81
Om du trenger det, er dine arbeidskolleger villige til å lytte til deg når du har problemer i arbeidet? - Hvordan fungerer samarbeid i ditt team?	.78
Blir dine arbeidsresultater verdsatt av dine arbeidskolleger? - Hvordan fungerer samarbeid i ditt team?	.76
Om du trenger det, kan du få støtte og hjelp i ditt arbeid fra dine arbeidskolleger? - Hvordan fungerer samarbeid i ditt team?	.72

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Supportive leadership

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.82
Bartlett's Test of Sphericity	Approx. Chi-Square	4159. 78
	df	10
	Sig.	.000

Component Matrix[a]

	Component 1
Oppmuntrer din nærmeste leder deg til å si fra når du har en annen mening? - Her ber vi deg svare på spørsmål om forholdet mellom deg selv og din leder.	.86
Hjelper din nærmeste leder deg med å utvikle dine ferdigheter? - Her ber vi deg svare på spørsmål om forholdet mellom deg selv og din leder.	.83
Oppmuntrer din nærmeste leder deg til å delta i viktige avgjørelser? - Her ber vi deg svare på spørsmål om forholdet mellom deg selv og din leder.	.82
Behandler din nærmeste leder de ansatte rettferdig og upartisk? - Her ber vi deg svare på spørsmål om forholdet mellom deg selv og din leder.	.82
Fordeler din nærmeste leder arbeidsoppgaver rettferdig og upartisk? - Her ber vi deg svare på spørsmål om forholdet mellom deg selv og din leder.	.80

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Innovation climate

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.87
Bartlett's Test of Sphericity	Approx. Chi-Square	4579.03
	df	15
	Sig.	.000

Component Matrix[a]

	Component 1
Det er enkelt å få hjelp til å utvikle nye ideer	.85
Denne arbeidsenheten reagerer raskt når endringer må gjøres	.81
Ledelsen her fanger raskt opp behovet for å gjøre ting annerledes	.80
Arbeidsenheten er veldig fleksibel – den kan raskt endre prosedyrer i tråd med nye utfordringer og løser problemer etter hvert som de oppstår	.79
Nye ideer blir godt mottatt her	.78
De som jobber i denne arbeidsenheten, er alltid på utkikk etter nye måter å se problemene på - I hvilken grad er du enig i følgende påstander om klimaet i arbeidsenheten?	.76

Extraction Method: Principal Component Analysis.
a 1 component extracted.

Creativity (idea generation)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.71
Bartlett's Test of Sphericity	Approx. Chi-Square	1860.229
	df	3
	Sig.	.000

Component Matrix[a]

	Component 1
Leter etter nye måter å utføre arbeidet på - Hvor ofte gjør du dette?	.90
Tenker ut ideer for forbedringer på arbeidsplassen - Hvor ofte gjør du dette?	.87
Finner på originale løsninger på problem - Hvor ofte gjør du dette?	.83

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Creativity (Support for idea development)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.74
Bartlett's Test of Sphericity	Approx. Chi-Square	2613.535
	df	3
	Sig.	.000

Component Matrix[a]

	Component 1
Hjelper til med å skape annerkjennelse for nye ideer - Hvor ofte gjør du dette?	.92
Er med og samler støtte for nye ideer - Hvor ofte gjør du dette?	.90
Hjelper til med å få nøkkelpersoner til å verdsette nye ideer - Hvor ofte gjør du dette?	.89

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Idea implementation

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.74
Bartlett's Test of Sphericity	Approx. Chi-Square	2468.77
	df	3
	Sig.	.000

Component Matrix[a]

	Component 1
Bidrar til systematisk innføring av nye ideer i arbeidsmiljøet - Hvor ofte gjør du dette?	.91
Er med på å omgjøre nye ideer til nyttige løsninger - Hvor ofte gjør du dette?	.90
Er med på å vurdere nytteverdien av nye ideer - Hvor ofte gjør du dette?	.89

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Appendix 3: Questionnaire Questions and Translations

Questionnaire

Norwegian (original)	English
Work engagement	
Jeg er entusiastisk når det gjelder jobben min - Trivsel og arbeidsglede	I am enthusiastic about my job - Well-being and job satisfaction
Jeg får mye energi på jobben - Trivsel og arbeidsglede	I get a lot of energy at work - Well-being and job satisfaction
Jeg er oppslukt av arbeidet mitt - Trivsel og arbeidsglede	I am engrossed in my work - Well-being and job satisfaction
Age	
Hva er din alder?	What age are you?
Gender	
Er du mann eller kvinne?	Are you a male or female?
Autonomy (Working Methods)	
Kan du påvirke beslutninger som er viktige for ditt arbeid? - Hva og hvor mye kan du selv bestemme i arbeidet ditt?	Can you influence decisions that are important to your work? - What and how much can you decide yourself in your work?
Kan du påvirke avgjørelser om hvilke personer du skal samarbeide med? - Hva og hvor mye kan du selv bestemme i arbeidet ditt?	Can you influence decisions about which people to work with? - What and how much can you decide yourself in your work?
Kan du påvirke mengden av arbeid som blir tildelt deg? - Hva og hvor mye kan du	Can you influence the amount of work assigned to you? - What and how much can you decide yourself in your work?

selv bestemme i arbeidet ditt?	
Hvis det finnes flere forskjellige måter å utføre arbeidet ditt på, kan du selv velge hvilken framgangsmåte du skal bruke? - Hva og hvor mye kan du selv bestemme i arbeidet ditt?	If there are several different ways to carry out your work, can you choose which method to use? - What and how much can you decide yourself in your work?
Social support	
Om du trenger det, kan du få støtte og hjelp i ditt arbeid fra din nærmeste leder? - Hvordan fungerer samarbeid i ditt team?	If you need it, can you get support and help in your work from your immediate manager? - How does collaboration work in your team?
Om du trenger det, er din nærmeste leder villig til å lytte til deg når du har problemer i arbeidet? - Hvordan fungerer samarbeid i ditt team?	If you need it, is your immediate manager willing to listen to you when you have problems at work? - How does collaboration work in your team?
Blir dine arbeidsresultater verdsatt av din nærmeste leder? - Hvordan fungerer samarbeid i ditt team?	Are your work results appreciated by your immediate manager? - How does collaboration work in your team?
Om du trenger det, er dine arbeidskolleger villige til å lytte til deg når du har problemer i arbeidet? - Hvordan fungerer samarbeid i ditt team?	If you need it, are your work colleagues willing to listen to you when you have problems at work? - How does collaboration work in your team?
Blir dine arbeidsresultater verdsatt av dine arbeidskolleger? - Hvordan fungerer samarbeid i ditt team?	Are your work results appreciated by your work colleagues? - How does collaboration work in your team?

Om du trenger det, kan du få støtte og hjelp i ditt arbeid fra dine arbeidskolleger? - Hvordan fungerer samarbeid i ditt team?	If you need it, can you get support and help in your work from your work colleagues? - How does collaboration work in your team?
Home office	
Har koronarestriksjonene for din del ført til at du jobber hjemmefra?	Has the Covid-19 restrictions resulted you in working from home?
Supportive leadership	
Oppmuntrer din nærmeste leder deg til å si fra når du har en annen mening? - Her ber vi deg svare på spørsmål om forholdet mellom deg selv og din leder.	Does your immediate supervisor encourage you to speak up when you have a different opinion? - Here we ask you to answer questions about the relationship between yourself and your manager.
Hjelper din nærmeste leder deg med å utvikle dine ferdigheter? - Her ber vi deg svare på spørsmål om forholdet mellom deg selv og din leder.	Does your immediate manager help you develop your skills? - Here we ask you to answer questions about the relationship between yourself and your manager.
Oppmuntrer din nærmeste leder deg til å delta i viktige avgjørelser? - Her ber vi deg svare på spørsmål om forholdet mellom deg selv og din leder.	Does your immediate manager encourage you to participate in important decisions? - Here we ask you to answer questions about the relationship between yourself and your manager.
Behandler din nærmeste leder de ansatte rettferdig og upartisk? - Her ber vi deg svare på spørsmål om forholdet mellom deg selv og din leder.	Does your immediate manager treat the employees fairly and impartially? - Here we ask you to answer questions about the relationship between yourself and your manager.

Fordeler din nærmeste leder arbeidsoppgaver rettferdig og upartisk? - Her ber vi deg svare på spørsmål om forholdet mellom deg selv og din leder.	Does your immediate manager allocate work tasks fairly and impartially? - Here we ask you to answer questions about the relationship between yourself and your manager.
Idea generation	
Leter etter nye måter å utføre arbeidet på - Hvor ofte gjør du dette?	Looking for new ways of doing work - How often do you do this?
Tenker ut ideer for forbedringer på arbeidsplassen - Hvor ofte gjør du dette?	Brainstorming ideas for improvements in the workplace - How often do you do this?
Finner på originale løsninger på problem - Hvor ofte gjør du dette?	Finds original solutions to problems - How often do you do this?
Support for idea development	
Hjelper til med å skape annerkjennelse for nye ideer - Hvor ofte gjør du dette?	Helps create recognition for new ideas - How often do you do this?
Er med og samler støtte for nye ideer - Hvor ofte gjør du dette?	Joins and gathers support for new ideas - How often do you do this?
Hjelper til med å få nøkkelpersoner til å verdsette nye ideer - Hvor ofte gjør du dette?	Helps get key people to appreciate new ideas - How often do you do this?
Idea implementation	
Bidrar til systematisk innføring av nye ideer i arbeidsmiljøet - Hvor ofte gjør du dette?	Contributes to the systematic introduction of new ideas into the working environment - How often do you do this?

Er med på å omgjøre nye ideer til nyttige løsninger - Hvor ofte gjør du dette?	Helps turn new ideas into useful solutions - How often do you do this?
Er med på å vurdere nytteverdien av nye ideer - Hvor ofte gjør du dette?	Participates in assessing the utility value of new ideas - How often do you do this?
Innovation climate	
Det er enkelt å få hjelp til å utvikle nye ideer	It is easy to get help in developing new ideas
Denne arbeidsenheten reagerer raskt når endringer må gjøres	This work unit reacts quickly when changes need to be made
Ledelsen her fanger raskt opp behovet for å gjøre ting annerledes	The management here quickly grasps the need to do things differently
Arbeidsenheten er veldig fleksibel – den kan raskt endre prosedyrer i tråd med nye utfordringer og løser problemer etter hvert som de oppstår	The work unit is very flexible – it can quickly change procedures in line with new challenges and solve problems as they arise
Nye ideer blir godt mottatt her	New ideas are well received here
De som jobber i denne arbeidsenheten, er alltid på utkikk etter nye måter å se problemene på - I hvilken grad er du enig i følgende påstander om klimaet i arbeidsenheten?	Those who work in this work unit are always on the lookout for new ways of looking at problems - To what extent do you agree with the following statements about the climate in the work unit?