Readiness for change in the Norwegian police

The relationships between the Competing Values Framework, Knowledge sharing and Readiness for Change

Ingvild Bjerke Fosse
Change Readiness in the Norwegian Police: The Relationship between Change, Knowledge Sharing and the Competing Values Framework

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Abstract

Author: Ingvild Bjerke Fosse

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Supervisor: Roald Bjørklund, Professor at the Department for Psychology at the University of Oslo

This aim of this study is to investigate the effects of climate types related to the Competing Values Framework and knowledge sharing on employees’ readiness for change in the Norwegian police. A number of previous studies have found relationships between knowledge sharing and readiness for change, however, knowledge sharing is usually measured as a single construct. In this study, knowledge sharing is treated as two structurally separated constructs; between employees on the same unit, internal knowledge sharing, and between units in the same district, external knowledge sharing. The sample consisted of 214 employees from one police district. This thesis presents 22 hypotheses which are investigated with structural equation modeling (SEM). The findings indicate that internal and external knowledge sharing are separate constructs that has different antecedents and effects. Results suggest that the human relations model positively predicts internal knowledge sharing, and that rational goal model positively predicts both readiness for change and external knowledge sharing. Additionally, findings indicate that internal knowledge sharing negatively affects readiness for change, whereas external knowledge sharing positively affects change readiness. To facilitate readiness for change in the Norwegian police, the organization should focus on values related to the rational goal model and knowledge sharing between police units.

Keywords: Readiness for change, Competing Values Framework, organizational climate, internal knowledge sharing, external knowledge sharing, Norwegian police

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Ingvild Bjerke Fosse
KNOWLEDGE SHARING AND CHANGE READINESS

The Norwegian police is going through major organizational change. After receiving massive critique for the handling of the July 22nd terrorist attack (NOU2012:14, 2012), the entire police organization were under investigation. The investigation pointed out several internal aspects of the organization as areas for improvement, such as organizational culture, poor leadership and coordination and cooperation between available resources. Consequently, the reports resulted in the suggestion and implementation of the local police reform (Nærpolitisreformen) which entails major changes to the Norwegian police. The reform aims to prepare the police officers for critical incidents, and to make the police ready to face the challenges of the future. This will be achieved through ensuring both quality of the local police and robust specialized units. The importance of collaboration between units is emphasized as this will ensure quality and competence in the organization as a whole. The lack of cooperation between units was also one of the main points of criticism after July 22nd (Gundhus, 2017; NOU2013:9, 2013; Prop.61LS(2014-2015), 2015).

The overall focus in this study is the relationships between climate types related to the Competing Values Framework, knowledge sharing and readiness for change in the Norwegian police. Previous studies have proven the relationship between successful change and readiness for change (e.g., Rafferty, Jimmieson, & Armenakis, 2013; Vakola, 2014). Additionally, research has shown a clear relationship between knowledge sharing and readiness for change (e.g., Armenakis & Harris, 2002; Rafferty et al., 2013). Climate types have proven to be predictors of the amount of both knowledge sharing and readiness for change (e.g., Hartnell, Ou, & Kinicki, 2011; Patterson et al., 2005). However, the literature is scarce on effects of specific climate types and different types of knowledge sharing.

Research has proven differences in knowledge sharing related to the perception of in- and outgroups and shown a tendency to share more with members of one’s in-groups (Y. Q. Zhu, 2016). The emphasize on cooperation between units highlights the importance of investigating knowledge sharing in the Norwegian police, and what can possibly facilitate different types of knowledge sharing in the police organization.

Based on this, the aim of this study is to investigate how climate types and knowledge sharing affects readiness for change in the Norwegian police. The main purpose of this study is two-part. Firstly, to investigate the full Competing Values Framework in relation to readiness for change. Secondly, to investigate whether the climate types have differing effects on internal and external knowledge sharing, and whether the two types of knowledge sharing differ in their effects on readiness for change. This thesis will first address the concept of readiness for change, followed by climate and the Competing Values Framework. Next, the
concept of knowledge sharing will be addressed. From this follows 22 hypotheses about the
relationships between the constructs. Then the methods used to investigate them are
presented, followed by presentation and discussion of the results. Finally follows
implications, limitations and directions for future research.

**Readiness for Change**

To adapt to the dynamic and constantly changing environment, change is necessary in
any organization, and it is said that successfully implementing change is one of the most
important skills of modern organizations (e.g., Armenakis & Harris, 2002; Burnes, 2004;
Organizational change is complex, and in about 70 percent of change initiatives, the intended
aim is not achieved (Beer & Nohria, 2000; Rafferty et al., 2013). Attempts to understand
change and antecedents for successful change has a long history (George & Jones, 2001).
Already in 1947, the concept of unfreezing the present state was presented as a way of
making individuals ready for an upcoming change, and securing a more successful change
implementation (Lewin, 1947). Lewin’s change theory consisted of three phases; unfreezing,
changing and refreezing.

In today’s literature, there are two main approaches to managing change; planned
change and emergent change. The planned approach is represented by a development of
Lewin’s three-step model. Proponents of the emergent approach argue that change is a result
of accommodations, alterations and adaptations to the external environment, that happens
without a prior intention of organizational change. The planned approach is supported by a
body of literature and methods, however, this is not the case for the emergent approach which
lacks validated measurements (Arnold, Randall, & Patterson, 2010; Burnes, 2004). Hence,
this study will take a planned approach. Drawn on Lewin’s theory, Armenakis and Harris
(2002) have a perception of change as a process implemented over three phases; preparation
or readiness, adoption and institutionalization. This study will take a proactive approach and
focus on the readiness phase in the planned approach.

Researchers argue that employees’ attitudes towards change are a critical antecedent
to successfully implement change. Resistance to change have been presented in literature as a
preeminent cause of unsuccessful change. This is also found in police organizations (Yilmaz,
2013). Oppositely, readiness for change is recognized as a preeminent cause of successful
change (Rafferty et al., 2013), and a large amount of research has tried to identify its
determinants (e.g., Jones, Jimmieson, & Griffiths, 2005; Vakola, 2014; Weiner, 2009).
Readiness for change is a multilevel and multi-faceted construct, meaning that it can be studied at several levels of analysis, and consists of several components. It can be described as a positive and proactive attitude towards a change process (Vakola, 2014; Weiner, 2009). It includes individual factors, such as an employee’s beliefs that change is necessary and that the organization has the ability to successfully make those changes, social factors, because an individual’s readiness may be shaped by the readiness of others, and structural factors, such as the organizational conditions under which change is occurring (Armenakis, Harris, & Mossholder, 1993; Holt, Armenakis, Feild, & Harris, 2007; Holt & Vardaman, 2013). In short, readiness for change refers to an individual’s “beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organization’s capacity to successfully make those changes” (Armenakis et al., 1993, p. 681).

**Creating Readiness for Change**

Many organizations experience problems with implementing change, often because they fail to create sufficient change readiness (e.g., Vakola, 2014; Weiner, 2009). Because of its cognitive nature, the creation of readiness for change must aim at changing the thought and beliefs of the members of the organization (Armenakis et al., 1993). In addition, George and Jones (2001) propose that change is implemented by the individuals, and that even organizational conditions and social structures are carried out by the them. Hence, the efforts made to create readiness should be aimed at affecting the individuals which in turn will affect the organization’s collective readiness for change.

The primary mechanism for creating readiness for change is communication, and the message for change, as the message contains both the nature of the change and shapes the recipients’ reaction to change. To be effective, the message needs to contain five key elements: Discrepancy, appropriateness, efficacy, principal support and personal valence. (Armenakis et al., 1993; Armenakis & Harris, 2002).

Discrepancy refers to the perceived need for change. In the message for change, it communicates the discrepancy between the current and the wanted state in the organization, and clarification and argumentation for the wanted state. It should be consistent with contextual factors, such as economy, competition or changes in governmental regulations. Appropriateness refers to the change recipients’ belief that the change proposed is the appropriate one to make the organization reach the wanted end state. For change to be successful, the change message should convince the recipients of the appropriateness of the implementation. Efficacy refers to the confidence that one has the ability to succeed in any
given task. It is frequently used in literature as an explanation of human behavior (Bandura, 1977, 1993; Pajares, 1996). Change efficacy refers to the perceived ability to change. In the message for change it communicates confidence that the individuals affected by the change, and the organization as a whole, has the ability and holds the needed skills and resources to successfully implement the upcoming change (Tierney & Farmer, 2002). The fourth key element of the change message is principal support. Employees who perceives early and continuous support for change, are more likely to commit to it. Hence, the message for change should communicate the organization’s and the leaders’ support for the change. This element also contributes to the individuals’ sense of efficacy and the organization’s ability to implement the change. The last key element, personal valence, refers to the individual’s evaluation of personal benefits and costs. Employees who perceive that the change has positive outcomes for themselves are more likely to support the change (e.g., Oreg, Vakola, & Armenakis, 2011). Thus, to achieve successful change, the change message should communicate the positive individual outcomes of the change (Armenakis et al., 1993; Armenakis & Harris, 2002; Rafferty et al., 2013). Additionally, there are suggested several methods for how the change message should be delivered. The explicit content of the message is best given through persuasive communication where the message is directly and verbally communicated to the change recipients. The less explicit content, e.g., the change efficacy, is effectively given through involvement and active participation. It is also proven that the message for change should ideally come from several sources, preferably both internal and external (Armenakis et al., 1993; Armenakis & Harris, 2002; Wanberg, Banas, & Murphy, 2000).

In sum, readiness for change is created through active communication given by several sources that gives the change recipients an understanding of why the change is necessary and how it is best implemented, builds their confidence and create trust in the organization’s support and ability to change (Oreg et al., 2011).

Change in Context
Change is always implemented in an existing context and researchers argue that a preeminent cause of unsuccessful change is the failure to include the organizational context in the change process (Emery & Trist, 1965) Hence, it is important to create conditions that conducive to change in order to implement change successfully (Tetenbaum, 1998). Several studies have tried to identify context specific indicators of successful change (e.g., Choi & Ruona, 2011; Jones et al., 2005; Vakola, 2014).
Jones et al. (2005) argue that a work climate characterized by training and development will increase the employees’ confidence and capabilities, thus increasing their change efficacy which in turn will make them more likely to accept change. Vakola (2014) argue that two pre-change conditions affect the individual’s change readiness: trust in management and communication climate. Vakola also argue that a positive pre-change communication climate and the degree to which the change vision align with existing values in the organization increase successful change. Choi and Ruona (2011) propose that change is more successfully implemented in work environments characterized by learning culture. Rafferty et al. (2013) argue that strategic and structural characteristics of the organization are antecedents for successful change. Hannan and Freeman (1984) propose that inability to change stem from characteristics in the organizational culture such as institutionalized routines and practices. Zammuto and O'Connor (1992) argue that organizations with control-oriented values are likely to experience implementation failure, whereas organizations with flexibility-oriented values are likely to achieve the benefits of a change process. Eby, Adams, Russell, and Gaby (2000) argue that employees who reports high levels of flexibility in work place policies and procedures also report higher levels of readiness for change. Thus, there is reason to believe that organizational climate and culture affects the successfulness of a change implementation.

**Climate and Culture**

Organizational climate and culture are central constructs in the organizational literature. Both are alternatives for conceptualizing the way employees perceive their work environment (Schneider, Ehrhart, & Macey, 2013). Making order in the world is a basic human need, and employees form perceptions of organizational culture and climate to achieve order in their work environment (Schneider, 1975). Both constructs have suffered from conflicting definitions and inconsistencies in the operationalization. This has resulted in a lack of well-validated measures of the constructs, despite the high level of interest. The two terms are not easily separated, due to the lack of formalization and the fact that the two are often used interchangeably. Many scientists do now agree that climate is behaviorally oriented, while culture represents the common values and norms held by the employees that guides behavior. Hence, climate can be understood as the manifestation of culture (Kuenzi & Schminke, 2009; Patterson et al., 2005).

This study takes a climate approach to measure conditions in the Norwegian police. According to Moran and Volkwein (1992) organizational climate emerges as a result of
interacting individuals, who share a common abstract frame of reference (i.e. organizational culture), adapting to situational conditions. Thus, culture is an underlying construct that exists in an organization regardless of the degree of reflection on the topic. Climate however, emerges as the culture guides behavior. It is conceivable that the perception of this requires a higher level of reflection on the topic. Employees in the Norwegian police go through at least three years of specific education at the Norwegian Police University College, an institution which is strongly associated with the organization through being one of the police’s special units [særorgan]. Additionally, the police as an organization has a focus on planning and evaluation of work tasks (Hove, 2012). Thus, it is likely that police officers have a high level of reflection around the organization’s culture and how it affects employees’ behavior. It is therefore conceivable that a climate measure is suitable to measure conditions in the Norwegian police.

The climate literature is characterized by the discussion of the distinction between a focused, or facet-specific, and global climate approach. Focused climate center attention to a particular aspect of the organization, such as safety climate (Mansour & Tremblay, 2019) or service climate (Jiang et al., 2016). Global climate has a broader focus, trying to conceptualize employees’ shared perceptions of the organization’s general focus, and the policies, practices and procedures that the organization expects and rewards (Kuenzi, 2008; Kuenzi & Schminke, 2009; Lone et al., 2017; Schneider et al., 2013). A focused climate approach is considered most useful when investigating explicit strategic outcomes related to a specific climate type, and a global climate approach is considered most useful when investigating the total influence of complex social situations on broader organizational outcomes (Carr, Schmidt, Ford, & DeShon, 2003; Kuenzi, 2008; Patterson et al., 2005).

This study applies a global climate approach, using Kuenzi’s (2008) climate instrument based on the competing values framework, CVF (Quinn & Rohrbaugh, 1983), to investigate the hypothesized relationships. Lone et al. (2017) and Koritzinsky (2015’s) used the CVF to measure climate in the Norwegian police, and Lone et al. even found it to predict police investigation performance. The framework will be presented on page 8.

**Police Climate/Culture and Change**

Police culture is said to be a distinct culture (Terpstra & Schaap, 2013). It is by many researchers viewed as an occupational culture which is described as a reduced, selective and task-based culture, meaning that police culture can be understood as shaped by the tasks and demands of police work (e.g., Christensen & Crank, 2001; Lone et al., 2017; Paoline, 2003).
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The culture in the Norwegian police is a preeminent predictor of success in the police work, and some even argue that the culture in the police was a contributing factor in the police’s failure to stop the July 22nd terrorist attack (Glomseth, Gottschalk, & Solli-Sæther, 2007; Gundhus, 2017; Loftus, 2010; Lone et al., 2017).

The Norwegian police is guided by ten fundamental principles that describes characteristics of the organization, the used methods and ethical standards. The principles were presented in 1981 and have since been central features for Norwegian police work. Among other things, the principles state that Norway should have a uniform police, meaning that it should be organized as one organization and not be split in specialized units. The police should be decentralized, integrated in the local community and the police officers should be generalists. Furthermore, the police should be subject to effective control from the public (NOU1981:35, 1981).

The police are under constant observation from the public and the media, and they need to perform in order to hold the publics recognition and confidence in their integrity and ability. To meet the public demands, the police need to develop their methods in line with the development of the society (Luen & Al-Hawamdeh, 2001). The overall crime in Norway is reducing, however it is increasing in complexity. This imposes requirements of development in competence in the organization (NOU2013:9, 2013; Yilmaz, 2013). The society is increasingly fragmented due to for instance migration (SSB, 2019), meaning that the public’s expectations and attitudes to the police is likely to vary across different groups. The Norwegian police is subject to the Ministry of Justice and Public Security (justis- og beredskapsdepartementet), thus political changes might inflict strategical and structural changes in the police, as well as change in focus areas and economy (Politidirektoratet, 2019). Studies have also found that the police force are undergoing a change from a homogenous group; the white, working class male, to a more heterogenous group; including racial minorities, women and employees with longer education (Gundhus, 2017; Hove, 2012; Terpstra & Schaap, 2013). Cases involving the police that receives a lot of attention in the media, especially cases where the police are criticized, (e.g., Fritz Moen (NOU2007:7, 2007) or July 22nd 2011 (NOU2012:14, 2012)) are often a basis for changing the police. Right now, in addition to the constant changing processes, the Norwegian police are going through a more pervasive change: the local police reform, where the main change is the reduced number of police districts from 27 to 12. The aim of the reform is to prepare the police officers for critical incidents, and to make the police ready to face the challenges of the future. The reform emphasizes to ensure quality of the local police and of robust specialized
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units. Another focus area is to increase collaboration between police units (NOU2013:9, 2013). Thus, the Norwegian police are experiencing a great deal of change (Loftus, 2010). Researchers argue that occupational culture is difficult to change, and that police culture in particular is an obstacle in the way of reform (J. Chan, 1996). It is therefore necessary to investigate what can possibly predict successful change in the police.

The Competing Values Framework

The Competing Values framework, CVF, was presented by Quinn and Rohrbaugh in 1983. The CVF was initially presented as a measure of organizational effectiveness, but has later been used as a measure of organizational climate. The intention of the model was to combine all existing approaches to organizational effectiveness into one framework. Quinn and Rohrbaugh used multidimensional scaling to uncover the underlying values of organizational effectiveness, resulting in a spatial model with three super-ordinate continuous value dimensions. The ends of the dimensions represent competing values, and it is said that an organization cannot successfully focus on both ends at the same time. The CVF provides a framework for understanding how different values, and the combination of these, affect the behavior of the people in the organization. The model takes a global climate approach (Kalliath, Bluedorn, & Gillespie, 1999; Kuenzi, 2008; Patterson et al., 2005; Quinn & Rohrbaugh, 1983).

The first dimension, represented by the horizontal axis, concerns the organizational focus, from internal to external focus. This value dimension goes from a person-oriented focus with emphasis on the well-being of the people in the organization on the left, to an organizational focus with emphasis on the development of the organization itself on the right. The continuum concerns how the organization balance the handling of their internal components and external challenges. The second dimension, represented by the vertical axis, concerns the organizational structure, from stability or control toward the bottom, to flexibility and change toward the top. The continuum concerns how the organization balance the demand for change and continuity. Together, these two value dimensions present four different perspectives; Human relations model, internal process model, open systems model and rational goal model. The four quadrants describe different value domains and associated ideologies about how the values can be achieved. They represent underlying values that guide focus and management. The third dimension, represented by a depth axis, represents the organizational focus on the importance of process or the importance of the final outcomes, from ends, near and large, to means, small and farther away. The third dimension is not used
as frequently in literature as the first two, this study will also focus mainly on the dimensions representing organizational focus and structure. The model is presented in figure 1.

The models placed diagonally on each other represent opposites. Human relations model defined by focus on people and flexibility, and rational goal model with focus on organization and control, stand in stark contrast to each other. The same applies to internal process model defined by focus on people and control, and open systems model with focus on organization and flexibility. Quinn and Rohrbaugh (1981, 1983) predict that these opposites will display negative correlations between each other. The parallels in the model represent models that share a common emphasis on one axis, but are separated by a different emphasis on the opposite axis. The set of competing values are frequently recognized in organization literature, and it is well known that an organization has to balance the focus at any given time to meet the current demands. (Kalliath et al., 1999; Kuenzi, 2008; Patterson et al., 2005; Quinn & Rohrbaugh, 1981, 1983).

![Figure 1. The Competing Values Framework. Based on Quinn & Rohrbaugh, 1983](image)

**The Components of the CVF**

**Human relations model (HR).** Human relations model emphasizes internal focus and flexibility. Organizations scoring high on human relations climate tend to value cohesion, morale and trust. The organizational focus lies on the employees’ welfare and motivation, human resource development, working relationships and activities required for the unit to maintain itself. Employee participation, supervisory support, autonomy, integration and communication is seen as important to achieve the organization’s goals. A focus on positive work relationships between employees to increase satisfaction and loyalty, is also central in the model (Kuenzi, 2008; Patterson et al., 2005; Quinn & Rohrbaugh, 1981, 1983).

**Internal process model (IP).** Internal process model emphasizes internal focus and
control. Organizations scoring high on internal process climate tend to value information management, communication, stability, formal rules and procedures. These organizations focus on organizing and structuring, traditions, and aligning internal work. Effects of external uncertainty is minimized (Kuenzi, 2008; Patterson et al., 2005; Quinn & Rohrbaugh, 1981, 1983).

**Open systems model (OS).** Open systems model emphasizes external focus and flexibility. Organizations scoring high on open systems climate tend to value growth, resource acquisition, innovation, creativity and readiness. The organizational focus lies on reflexivity and adapting to externally imposed changes by acquiring resources (Kuenzi, 2008; Patterson et al., 2005; Quinn & Rohrbaugh, 1981, 1983).

**Rational goal model (RG).** Rational goal model emphasizes external focus and control. Organizations scoring high on rational goal climate tend to value planning, productivity, effort, and efficiency. These organizations focus on customer needs, producing outputs and planning for new demands, as well as giving feedback on employees’ performance. (Kuenzi, 2008; Patterson et al., 2005; Quinn & Rohrbaugh, 1983).

**Competing Values**

Despite that the four models represent competing values that cannot be present in an organization at the same time, the framework does not propose that an organization is located exclusively in one quadrant. An effective organization may need to perform well on all sets of the criteria, and all organizations are usually active in each quadrant, but with differing strength. The framework rejects forcing an organization into one quadrant, and argue that the understanding of an organization should be based upon the relative emphasis the employees in the organization give to each of the dimensions in the four quadrants. Every organization can develop a combination of the four quadrants, representing the different values that simultaneously exists in the organization. It is likely that different departments within the same organization value different dimensions, and that organizations will develop and value different dimension over time. The framework does not propose that an organization characterized by one of the quadrants will have high scores on every dimension related to that climate, or that organizations characterized by the same quadrant focus on the same dimensions. The CVF merely seeks to present a topography of organizational climate, and a framework for a cumulative understanding of the climate focus of an organization (Kuenzi, 2008; Patterson et al., 2005; Yu & Wu, 2009).

**An ipsative scale.** The CVF is typically measured with an ipsative scale (e.g.,
Cameron & Quinn, 1999). Ipsative scales use forced-choice questionnaires, meaning that the respondents are forced to assess statements against each other, and choose the one that best applies even if they all do. The overall sum of scores is constrained, and the score on one construct is measured relatively to the scores of the other constructs in the measure. Ipsative data can provide useful descriptive statistics, however, they also provide statistical challenges, as they violate assumptions underlying parametric statistics. It is not possible to perform inferential statistics on ipsative data, hence, it is not possible to draw conclusions about the null hypothesis. Ipsative data also constrain intercorrelations between scales, even if one should exist. Using ipsative measurement thus creates artificial interdependence between the measured constructs. Hence, when measuring the CVF with an ipsative scale, which is typically done, the measurement method creates interdependence between the components and it is likely that competing values are found (H. Baron, 1996; W. Chan, 2003). This study use an normative scale to measure the CVF, as have been done in some previous studies (e.g., Koritzinsky, 2015; Kuenzi, 2008; Patterson et al., 2005). In a normative scale, the respondents are not forced to choose between the constructs, but are allowed to rate all items freely. The overall sum of scores it not constrained, and it is possible to achieve a high score on all measured constructs. Using normative data it is quite possible to meet the assumptions underlying inferential statistics. This measurement method is also likely to provide smaller differences and higher correlations among the constructs in the CVF. Most organizations focus on values related to all four quadrants, and with a normative scale this simultaneous focus might lead to a similar score in several components, thus displaying the components as correlating (H. Baron, 1996; Kuenzi, 2008; Patterson et al., 2005).

Kuenzi (2008) both expected and found high correlations among the components of the framework. This could suggest that the four climate types are not distinct, and that the CVF could be measured as one general global climate measure, using a second-order factor and include all four climate types in the same factor. This was post hoc tested by Kuenzi, however, she did not find evidence for this. Employees experience different emphasis on the underlying value dimensions and the values related to the climate types, and in a higher order factor these might be at odds with each other and cancel each other out. Forcing an organization to have one general climate type would misrepresent both the span of activities in the organization and the experience of the employees (Kuenzi, 2008; Patterson et al., 2005). Hence, even though correlations between the components might turn out to be high, a model with CVF as a second-order factor will not be investigated in this study.
The Use and Advantages of the CVF:
The competing values framework received a lot of interest, and has since it was published had a great impact on, and been frequently used in the organizational climate research. The reasons for this might be the previous lack of a common organizational climate measure, the lack of theory behind existing climate measures, and the lack of agreement among theorists (e.g., Goodman, Zammuto, & Gifford, 2001; Hartnell et al., 2011; Patterson et al., 2005; Quinn & Rohrbaugh, 1981). Through the years, a number of dimensions have been suggested to measure climate. James and Jones (1974) reviewed organizational climate theory and research in 1974. Their article provides a list of suggestions on how to improve the organizational climate research, the main suggestions being: Clearly define organizational climate and determine the conceptual bounds and the variables and dimensions related to the concept. This definition should in turn be used to guide the measurement techniques. The article clearly states the need for a common framework to measure organizational climate. Quinn and Rohrbaugh (1981) later stated the need for a framework with clear definitions, that integrated theoretical perspectives and was amenable for empirical testing.

The content was not new when the framework was presented. The quadrants can be seen as continuations of previous approaches to mapping organizational climate, such as the tayloristic approach, the human relations movement and the rational economic model. It is the presentation with the underlying value dimensions which gives the framework its advantage (Patterson et al., 2005). The CVF provided the organizational climate research with an inclusive framework with advantages over previous measures of organizational climate: It provides consistency in level of analysis, where previous measures shift between levels. The framework offers integration of perspectives and a broad conceptual map of theoretical domains, where previous theoretical perspectives emphasized on different organizational activities. In addition to free the researcher from making a choice of perspective, this also enables comparisons across studies. Where previous research had been characterized by numerous, overlapping and conflicting measurement criteria, the framework provides a set of validated criteria. In addition, the presentation of the value dimensions makes it possible to investigate not only the criteria, but also the relationships between them. The framework also accounts for the dynamic nature of organizations and how organizational focus can differ between units in the organization and over time (Patterson et al., 2005; Quinn & Rohrbaugh, 1981). Additionally, the framework consists of few dimensions, yet it has broad implications and incorporates the essence of several previous existing organizational climate models. It also includes fewer items than other scales, which makes it more
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convenient for practical use (Yu & Wu, 2009). In other words, the framework filled a gap in theory that was much asked for.

**Knowledge Sharing**

Knowledge is used as a resource to create value in terms of results for the organization. It is central to an organization’s performance, and some argue that it is the most important resource of any firm (e.g., Davenport & Prusak, 1998; Grant, 1996; Riege, 2005; Wang & Noe, 2010; Witherspoon, Bergner, Cockrell, & Stone, 2013). To make this resource a competitive advantage, the members need to share their individual knowledge with each other to provide knowledge where it is needed in the organization (Hinds, Patterson, & Pfeffer, 2001; Oliveira, Curado, Maçada, & Nodari, 2015). A central discussion in this research field is the distinction between information and knowledge. Some researchers claim that knowledge is elevated and processed information, and others use the terms interchangeably (Wang & Noe, 2010). Another discussion that has characterized the field is the many names used to describe the transfer of knowledge, such as knowledge/information sharing, knowledge/information transfer or knowledge/information exchange (Wang & Noe, 2010). Even though the different constructs have been used to describe slightly different processes, such as just sharing or sharing and applying, the constructs have no clear definitions and are often used interchangeably. In this study, the term knowledge sharing will be used to describe all processes related to the transfer of knowledge.

Knowledge sharing refers to all activities transferring information from one individual to other parts of the organization, or any process through which actors in an organization exchange, receive or are influenced by the knowledge of other actors (Jackson, Chuang, Harden, & Jiang, 2006; Van Wijk, Jansen, & Lyles, 2008). Knowledge sharing enables individuals to gain more knowledge and link individual knowledge to others’, hence elevating knowledge to the organizational level. It is the essential method for individual employees to contribute to the organization’s knowledge application, innovation and ultimately the competitive advantage. The process depends on the individual’s willingness to share (Rusly, Yih-Tong Sun, & Corner, 2014; Wang & Noe, 2010). To ensure efficient knowledge sharing, the person who shares knowledge should be aware of the recipient’s use and needs for, and current gaps in knowledge (Riege, 2005).

Several researchers have found it suitable to take a climate approach to measure knowledge sharing (e.g., Cabrera & Cabrera, 2005; Kuenzi, 2008; Patterson et al., 2005; Wang & Noe, 2010). For instance, when Patterson et al. (2005) developed their
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Organizational Climate Measure (OCM), they included integration, which refers to the degree of trust and cooperation in the organization, as a climate dimension. This study takes a climate approach to measure knowledge sharing, using scales based on the integration scale from the OCM. These scales have been used to measure knowledge sharing in the Norwegian police several times (Koritzinsky, 2015; Kværne, 2018).

Knowledge Sharing in Norway

In Norway, information has a central role in the work place. Employees have a statutory right to achieve information. Both the Working Environment Act and the Basic Agreement states that the employer is required to inform, discuss and negotiate questions of importance to the employees’ working relationship with the union representative. The purpose of the legislation is to ensure a work environment that provides health and meaningful work, and ensure the employee’s right to codetermination and actual influence. Information is the foundation for the employee’s ability to discuss and negotiate and an essential contributor to predictability (Arbeidsmiljøloven, 2005; Kommunal- ogmoderniseringsdepartementet, 2017). It is likely that the focus on the right to achieve information affects both the prevalence of knowledge sharing in Norwegian workplaces, and the interpretation of the construct.

Creating Knowledge Sharing

The antecedents of knowledge transfer have been frequently studied in the literature, and the results have been categorized: Knowledge characteristics, leadership factors, individual factors, and organizational characteristics (Søndergaard, Kerr, & Clegg, 2007; Van Wijk et al., 2008). This thesis will focus on the organizational characteristics influencing knowledge sharing, and relating them to climate in the Norwegian police.

Several organizational aspects are known to impact knowledge sharing; Numerous researchers have found that a workplace climate that emphasizes trust facilitates knowledge sharing (e.g., Al-Alawi, Al-Marzooqi, & Mohammed, 2007; Wang & Noe, 2010; Witherspoon et al., 2013). Structural face-to-face meetings tend to increase both the amount and the quality of knowledge sharing, as well as a better understanding of the benefits of it (Dyer, Nobeoka, Gulati, Nohria, & Zaheer, 2000). Co-location is also recognized as a factor that increase knowledge sharing (Cabrera & Cabrera, 2005). Co-location also increase the amount of shared experience, which is known to make knowledge sharing more frequent and accurate due to a sense of common conception (Nonaka, 1994). However, co-location can act as a double-edged sword, increasing knowledge sharing between the people who are co-
located and decreasing knowledge sharing between different locations in the organization (Sondergaard et al., 2007). A clear strategic vision also increase knowledge sharing through clear common goals, and the perception of a common agenda. Because sharing involves contribution by the individuals in the organization, organizational conditions that promotes participation also promotes knowledge sharing (Al-Alawi et al., 2007; Rusly et al., 2014; Sondergaard et al., 2007). Reward systems aligned with sharing is also found to increase knowledge sharing in the work place (Al-Alawi et al., 2007). Additionally, Lahneman (2004) argue that to achieve effective knowledge sharing in law enforcements, the focus needs to be on developing a culture that facilitates and rewards knowledge sharing. Findings from Glomseth et al. (2007) supports this view.

According to several researchers, knowledge sharing involves social interaction between two or more individuals (e.g., Bock & Kim, 2002; Nonaka, 1994; Rusly et al., 2014). Thus, in order to achieve effective knowledge sharing, an organization needs to facilitate a positive interplay between individual, interpersonal and organizational elements (Rusly et al., 2014). Several studies have found that climate that facilitate communication, cooperation and innovation increase the amount of knowledge sharing (e.g., Al-Alawi et al., 2007; Wang & Noe, 2010; Witherspoon et al., 2013) Szulanski, Cappetta, and Jensen (2004) argue that trust in the knowledge source affects the quality of knowledge sharing, on one hand increasing receptivity and on the other hand decreasing vigilance. Hence, employees who trust each other are more likely to share knowledge, but are not likely to validate or add to the knowledge transferred. Lin (2007) found that organizational commitment and trust in coworkers are positively related to knowledge sharing. Patnayakuni, Rai, and Seth (2006) found that investing in personal relationships increase cooperative behavior which in turn increase information flow. Ko, Kirsch, and King (2005) argue that source credibility and shared understandings affects knowledge transfer in a positive matter. Hence, there is reason to believe that a work climate that facilitates positive and trusting interpersonal relationships will increase the amount and quality of knowledge sharing.

**External and Internal Knowledge Sharing**

In line with Koritzinsky’s (2015) recommendations, this thesis investigates knowledge sharing on two different levels, internal and external. Internal knowledge sharing refers to the communication between people at the same unit, and external knowledge sharing refers to the communication between units in the same district. The local police reform emphasizes the importance of collaboration between units in the local police and also
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between the local police and specialized units. Hence, it is of importance to investigate whether there is a difference between internal and external knowledge sharing in the Norwegian police and what can possibly facilitate the different types. Y. Q. Zhu (2016) claim that knowledge sharing is generally hindered by boundaries, both functional and divisional, and Wang and Noe (2010) argue that a segmented structure inhibits knowledge sharing, whereas a work environment that encourage interaction facilitate knowledge sharing. Organizational structures that emphasize rank and hierarchy can also hinder knowledge sharing (Wang & Noe, 2010). The Norwegian police have a clear structure, dividing the employees both functionally, divisionally and hierarchically (Gundhus, 2017; Myhrer, 2001; Politiet, 2019). The Norwegian police received massive critique for their handling of the terrorist attack July 22nd 2011. An area that received a lot of criticism was the inability to coordinate and interact across police units. The police displayed significantly better cooperative behavior between members of the same unit compared to members of other units (Gundhus, 2017; NOU2012:14, 2012). Hence, there are reasons to believe that the structure of the Norwegian police creates a difference between internal and external knowledge sharing, and that the two types do not occur to the same degree.

As mentioned, knowledge sharing involves social interaction between two or more individuals, thus, social science and social theories might explain the expected difference between internal and external knowledge sharing. The tendency to share more with members of own group is known as knowledge sharing disparity (Y. Q. Zhu, 2016). This tendency can be explained by the social identity theory and social categorization. Tajfel and Turner (1979) states that the groups people belong to give them a social identity. People tend to divide the world into in-groups and out-groups, and, to increase self-image, to seek favorable aspects of the in-group and negative aspects of the out-group. Intergroup bias refers to the tendency to evaluate both one’s in-group and its members more favorable than out-groups and their members (Hewstone, Rubin, & Willis, 2002; Tajfel, 1974; Y. Q. Zhu, 2016). This might affect knowledge sharing by increasing willingness to share with in-group members, and decreasing willingness to share with out-group members (Y. Q. Zhu, 2016). To gain advantage for own in-groups, people tend to compete with and discriminate against out-group members. As mentioned, knowledge is seen as a competitive advantage, thus the experience of competition with out-groups reduce the chances of successful cooperation between units. Additionally, communication between groups are less accurate in general, due to biased interpretation of members from out-groups (Dovidio & Banfield, 2015). In sum, the tendency to divide people into in- and out-groups, and the structure of the Norwegian police, might
increase the amount of internal and decrease the amount of external knowledge sharing. Additionally, the dividing of people into in- and out-groups may lead to behavior related to the linguistic intergroup bias. This refers to the tendency to generalize socially desirable behavior from a member of one’s in-group to the person’s character, and encode the same behavior from a member of an outgroup as a specific behavioral instance. The same goes for socially undesirable behavior, where this behavior from an in-group member is encoded as a specific behavioral instance and generalized to an out-group member’s character (Maass, Salvi, Arcuri, Semin, & Reis, 1989). Knowledge sharing is a socially desirable behavior, and the linguistic intergroup bias might lead the recipients in this study to perceive and report artificial differences in internal and external knowledge sharing.

Previous studies have found support for the difference between internal and external knowledge sharing, and argue for a larger amount of internal knowledge sharing in the Norwegian police. Koritzinsky (2015) and Kværne (2018) both found internal knowledge sharing to be more frequent than external, and Lømo (2017) found the same tendency within Healthcare Organizations in the South-East Health Region of Norway. This thesis will investigate whether there is a significant difference between internal and external knowledge sharing in the Norwegian police.

**Police Work and Knowledge Sharing**

Knowledge is as mentioned an organization’s competitive advantage, but the Norwegian police is not a competing organization. However, the police are under constant observation from the public, and the public expects high quality from public services. The tasks in the police are many and distinct, such as crime prevention, incident management, investigation and community policing. In order to resolve all these tasks, police officers need to know, among other things, the latest laws, legal and policy practices, the latest information in crime trends and processes related to evidence gathering and police investigations. Decisions often have to be made quickly to ensure effective resolving of incidents. A lot of police work is done as “police work on-site” [Politiarbeid på stedet] with no time for preparation for the exact incident, which forces the police to act on what they already know (Luen & Al-Hawamdeh, 2001; Myhrer, 2018). Additionally, failure in police work can be fatal, leading to unsuccessful crime investigation or in the worst case, innocent people serving time in prison (NOU2007:7, 2007). This will in turn affect the perception of the integrity and the ability of the police. In order to maintain a police force with confidence in the population, the police needs to perform (Myhrer, 2001).
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The officers in the Norwegian police are generalists, meaning that after graduating from The Norwegian Police University College, every police officer is able to perform police work of any kind. This is one of the fundamental principles of the Norwegian police, and the purpose of it is to ensure quality of police work in small police stations all across the country (Hove, 2012; NOU1981:35, 1981; NOU2012:14, 2012). Due to the generalist principle, police tasks being both many and diverse, and that many tasks have to be resolved without preparation, the Norwegian police officers need to be in possession of a great deal of knowledge in order to perform. Research support the view that knowledge and knowledge sharing increase the quality of police work, and some even argue that police work, especially police investigations, are considered knowledge work (e.g., Dean, Fehsing, Glomseth, & Gottschalk, 2008; Gottschalk & Solli-Sæther, 2007; Lone et al., 2017; Luen & Al-Hawamdeh, 2001). Hence, despite not being a competing organization, quality in police work depends on quality in knowledge sharing.

Hypotheses

This study investigates the relationships between the components of the competing values framework and readiness for change in the Norwegian police, and the mediating effect of internal and external knowledge sharing. The CVF is as mentioned an important contribution to the climate research; however, there has been little research using the full framework to make predictions. Several researchers (e.g., Johnsen, 2018; Kværne, 2018) suggest that future research should use the full framework. This study will contribute to the gap in the literature by using the entire framework. It is known that the context under which a change process is implemented is predictive of the outcome of the change (e.g., Jones et al., 2005). Hence, the components of the CVF are used as predictors. Due to the ongoing changes in the Norwegian police, it is necessary to investigate what can possibly predict readiness for change. Hence, readiness for change is used as outcome variable. Police work is considered to be knowledge work, and it is said that successful police work depends on effective knowledge sharing (e.g., Gottschalk & Solli-Sæther, 2007). Hence, knowledge sharing is used as a mediating variable, to investigate both the effects of different climate types on knowledge sharing, and the effect of knowledge sharing on readiness for change. Because of the structure in the Norwegian police, and the local police reform’s emphasis on collaboration between units, it is important to investigate whether structural differences affect different types of knowledge sharing. Hence, internal and external knowledge sharing is treated as different variables in this study.
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The main purpose of this study is two-part. Firstly, to investigate the full CVF framework, as this has been suggested in several previous thesis (e.g., Johnsen, 2018; Kværne, 2018). The argument for this is that it is likely that several climate types exists simultaneously in the police organization, and that the most salient climate type is the one that best answers to the organization’s current demands. Hence, using only parts of the framework, even when including a part that has proven most salient before, might not capture the current climate in the Norwegian police (Koritzinsky, 2015; Kværne, 2018). Secondly, to investigate the differentiation between internal and external knowledge sharing. These are previously proven to be separate constructs, and to affect readiness for change in the Norwegian police (e.g., Koritzinsky, 2015; Kværne, 2018). This study aims to add to the scarce amount of research on effects of the complete CVF and the separation of knowledge sharing into two constructs. Some of the presented hypotheses are theoretically founded, but several of them are logical consequences of the CVF.

The Relationships Between the Components of CVF and Readiness for Change

There has been some research on the effects of the components of the CVF on change readiness, although the amount of research in this specific area is scarce. For instance, Jones et al. (2005) found that employee’s perception of human relations climate positively predicts readiness for change. Patterson et al. (2005) states that the open systems model is characterized by a focus on readiness and an orientation towards change, which is likely to predict readiness for change.

However, the relationship between change readiness and predictors related to climate have been investigated in several studies. For instance, Armenakis et al. (1993) states that communication and the message for change is seen as the primary mechanism to create readiness for change. Eby et al. (2000) found that employees who reports high levels of flexibility in work place policies and procedures also reports higher levels of readiness for change. Zammuto and O’Connor (1992) argue that organizations with control-oriented values are likely to experience change implementation failure, whereas organizations with flexibility-oriented values are likely to experience success in change implementation. Rafferty et al. (2013) argue that structural and strategic characteristics of an organization positively predicts readiness for change. They also put work cultures characterized by future focus and acceptance for adaptability and development forward as an antecedent for change readiness. Hartnell et al. (2011) argue that values related to rational goal climate provides employees with an understanding for customer needs and that those values foster innovation.
Change efficacy is said to be a predictor for readiness for change, and participation and clear communication increase change efficacy. (Armenakis et al., 1993; Tierney & Farmer, 2002). Based on this, four hypotheses are drawn:

HR emphasize internal focus over handling external challenges, which is likely to have a negative effect on readiness for change. The internal focus might also blur the discrepancy part of the message for change, as this is dependent on external contextual factors. Cohesive groups also tend to overemphasize the internal focus and neglect adaption to the environment (Hartnell et al., 2011). All this suggests that HR could negatively affect readiness for change. However, HR is also known to emphasize flexibility, participation and trust which are all known antecedents to readiness for change. The model also emphasizes learning, development and training, which are all known to increase change efficacy which in turn increase readiness for change. Perhaps most importantly, the model has a focus on communication. Communication in itself is a known antecedent to change readiness. The communicated message for change is known as the primary mechanism for creating change readiness (Armenakis & Harris, 2002; Quinn & Rohrbaugh, 1981, 1983). Additionally, Jones et al. (2005) found a positive relationship between HR and readiness for change. Hence:

H1a: There is a direct positive effect of HR on readiness for change.

IP also emphasizes internal focus over handling external challenges. As with HR this might affect discrepancy in the change message. IP also emphasizes control which is seen as an inhibitor of change readiness. The model is also known to emphasize rules and control which in turn are known to have negative effect on readiness for change. Research also shows that inability to change stem from characteristics in the organizational culture such as institutionalized routines and practices, which are both preeminent in the model. It is also likely that the focus on internal procedures might decrease the acceptance for adaptability, which is a recognized antecedent for change readiness. (Armenakis et al., 1993; Armenakis & Harris, 2002; Quinn & Rohrbaugh, 1981, 1983; Zammuto & O'Connor, 1992). Hence:

H1b: There is a direct negative effect of IP on readiness for change.

OS focus on flexibility which is known to positively affect readiness for change (Zammuto & O'Connor, 1992). The model also emphasizes handling external challenges over focus on internal processes. The external focus might also contribute to the understanding of discrepancy in the change message (Armenakis & Harris, 2002). OS emphasizes adapting to externally imposes changes by acquiring resources. This might positively affect readiness for change through the focus on adapting, and also because acquiring the necessary resources increase change efficacy which in turn increase change readiness. The model is also
characterized by a focus on readiness and an orientation towards change (Quinn & Rohrbaugh, 1981, 1983). The degree of successful change increase when the change vision aligns with existing values (Vakola, 2014). When readiness and change itself is valued in the organization, this will likely positively affect readiness for change. Hence:

**H1c:** There is a direct positive effect of OS on readiness for change.

Rational goal model is known to emphasize control, which is known to have negative effect on readiness for change. However, rational goal model is also characterized by external focus (Quinn & Rohrbaugh, 1981, 1983). The external focus might contribute to clarify the discrepancy between the current and the wanted state, which is an essential part of the message for change, since this is dependent on external contextual factors (Armenakis et al., 1993; Armenakis & Harris, 2002). Another salient focus in RG is planning and goal setting, and strategic and structural characteristics are known antecedents to readiness for change (Rafferty et al., 2013). Additionally, the police reform is clearly a planned change, and due to the planning focus, RG is likely to positively affect planned change. The local police reform states the needs for a police force that meets the current and future demands (NOU2013:9, 2013). Hartnell et al. (2011) argue that values related to the rational goal model provide employees with an understanding of customer needs and willingness to meet them. The Norwegian police does not have any customers; however, a fundamental principle for the Norwegian police is to be under effective control from the public. Hence, the police need to respond to public needs, and it is likely that values related to RG will provide understanding also for this. This focus is also likely to increase acceptance for adaptability. Hence:

**H1d:** There is a direct positive effect of RG on readiness for change.

**The Relationships Between the Components of the CVF and Knowledge Sharing**

Since policework is said to be knowledge work, it is of value to know the predictors of knowledge sharing (Dean et al., 2008). As with readiness for change, there has been little research on the effects of the competing values components on knowledge sharing. Additionally, there has been limited research on differencing antecedents for internal and external knowledge sharing. Thus, this study aims to fill a gap in the literature.

However, a lot of research is done on several characteristics of the quadrants in the framework in relation to knowledge sharing. As previously mentioned, a work climate that facilitates trust, participation, personal relationships, communication, cooperation and innovation also facilitates knowledge sharing. A clear strategic vision also positively affects knowledge sharing through the perception of a common agenda to reach a common goal.
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(Rusly et al., 2014; Sondergaard et al., 2007; Wang & Noe, 2010; Witherspoon et al., 2013). Reward systems are also known to increase knowledge sharing (Al-Alawi et al., 2007).

Drawn from this, eight hypotheses are proposed:

Human relations model is characterized by a focus on trust, personal relationships and employee participation. Communication is also an important focus in this model (Quinn & Rohrbaugh, 1981, 1983). These are all seen as antecedents for knowledge sharing. Additionally, Koritzinsky (2015) found that the degree of internal knowledge sharing is related to human relations model, and Johnsen (2018) and Kværne (2018) found that HR is related to internal knowledge sharing in the Norwegian police. Additionally, Patterson et al. (2005) found that integration from the Organizational Climate Measure was a part of the HR quadrant. In this study, the scales for measuring knowledge sharing is based on this integration scale, it is therefore likely that HR is closely related to knowledge sharing. Hence:

H2a: There is a direct positive effect of HR on internal knowledge sharing.

The characteristics of human relations model that is predicted to have a positive effect on knowledge sharing are of personal and social character. Due to the structure of the Norwegian police, it is likely that the personal relationships that facilitates knowledge sharing are stronger within units than between them (Gundhus, 2017; Myhrer, 2001). Additionally, Johnsen (2018) surprisingly did not find any relationship between HR and external knowledge sharing, but Kværne (2018) did find a positive relationship, although the degree of explanation was lower than for internal knowledge sharing. Hence:

H2b: There is a direct positive effect of HR on external knowledge sharing, although the relationship is predicted to be weaker than between HR and internal knowledge sharing.

Internal process model is characterized by a focus on information management and communication, and to emphasize innovation, structuring and aligning internal work (Quinn & Rohrbaugh, 1981, 1983). Information management, innovation and a common agenda are all antecedents of knowledge sharing (Wang & Noe, 2010). Additionally, Johnsen (2018) found that IP is positively related to external knowledge sharing in the Norwegian police, but did surprisingly not find the same relationship between IP and internal knowledge sharing. However, Kværne (2018) did find a positive relationship between IP and both internal and external knowledge sharing. Hence:

H2c: There is a direct positive effect of IP on internal knowledge sharing.

H2d: There is a direct positive effect of IP on external knowledge sharing.

Open systems model is characterized by innovation which is a known antecedent for knowledge sharing. The model focus on adapting by acquiring resources (Quinn &
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Rohrbaugh, 1981, 1983). Knowledge is as mentioned an organization’s most important resource, and knowledge sharing activities is essential to obtain the needed resources (Oliveira et al., 2015; Wang & Noe, 2010). Additionally, Koritzinsky (2015) found that the degree of external knowledge sharing is positively related to open systems model in the Norwegian police. Hence:

\( H_2e: \) There is a direct positive effect of OS on internal knowledge sharing.
\( H_2f: \) There is a direct positive effect of OS on external knowledge sharing.

Rational goal model is characterized by a focus on planning and goal setting. This is likely to contribute to a common conception of a strategic vision which in turn increase knowledge sharing through a perception of a common goal and a common agenda (Quinn & Rohrbaugh, 1981, 1983; Rusly et al., 2014). The model also emphasizes giving feedback on employees’ performance. Reward systems are a type of feedback, and reward systems facilitates knowledge sharing (Al-Alawi et al., 2007). Hence:

\( H_2g: \) There is a direct positive effect of RG on internal knowledge sharing.
\( H_2h: \) There is a direct positive effect of RG on external knowledge sharing.

The Relationships Between Knowledge Sharing and Readiness for Change

As mentioned, known antecedents for readiness for change are a clear message for change, delivered by trustworthy change agents who, through persuasive communication, delivers a believable message of the value and the necessity of the change. Change efficacy is also known to be a positive predictor for change readiness, and change efficacy can be achieved through change communication (Armenakis et al., 1993; Armenakis & Harris, 2002). Rafferty et al. (2013) states that high-quality communication increase readiness for change, whereas the failure to provide sufficient or low-quality information increase the chances of change implementation failure. Additionally, Kværne (2018) found that external knowledge sharing positively predicts readiness for change. Hence:

\( H_3a: \) There is a direct positive effect between internal knowledge sharing and readiness for change.
\( H_3b: \) There is a direct positive effect between external knowledge sharing and readiness for change.

The Relationships Between the Components of the CVF and Readiness for Change Mediated by Knowledge Sharing

The presented discussion argue that HR, OS and RG positively affect readiness for change, whereas IP negatively affects readiness for change. It is also hypothesized that all climate variables positively affect internal and external knowledge sharing, and that internal
and external knowledge sharing positively affect readiness for change. Based on this, it can be argued that the different climate types facilitate change readiness through internal and external knowledge sharing. Hence, the following indirect effects are hypothesized:

**H4a:** There is an indirect positive effect of human relations model on readiness for change through internal knowledge sharing.

**H4b:** There is an indirect positive effect of human relations model on readiness for change through external knowledge sharing.

Even though IP is hypothesized to negatively affect readiness for change, IP’s effect on both internal and external knowledge sharing is hypothesized to be positive, as is knowledge sharing’s effect on readiness for change, hence:

**H4c:** There is an indirect positive effect of internal process model on readiness for change through internal knowledge sharing.

**H4d:** There is an indirect positive effect of internal process model on readiness for change through external knowledge sharing.

**H4e:** There is an indirect positive effect of open systems model on readiness for change through internal knowledge sharing.

**H4f:** There is an indirect positive effect of open systems model on readiness for change through external knowledge sharing.

**H4g:** There is an indirect positive effect of rational goal model on readiness for change through internal knowledge sharing.

**H4h:** There is an indirect positive effect of rational goal model on readiness for change through external knowledge sharing.

In sum, this study investigates 22 hypotheses, these are all displayed in figure 2.

**Figure 2:** Graphical presentation of the hypothesized relationships.

*Note:* Hypothesis H4a-H4h are not presented in the figure. They concern the indirect paths from each climate variable to readiness for change, through internal or external knowledge sharing, all hypothesized to be positive.
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Methods

The Research Project

This project is a part of a longtime collaborative research project between the research department at The Norwegian Police University College and the department of Work and Organizational Psychology at the University of Oslo. The aim of the overall project is to investigate the organizational climate in the Norwegian Police. The current thesis focuses on the relationship between components of the Competing Values Framework; human relations climate, rational goal climate, internal process climate and open systems climate, and internal and external knowledge sharing and readiness for change.

Data Collection

The survey was distributed to one police district. The police inspector in the district distributed an e-mail to all respondents. This contained information about the project, the purpose and benefits of the study, the respondents’ anonymity, voluntarily participation, the storage of the data after the collection, and practical information about how the survey should be completed. All respondents were encouraged to respond. The data was collected from May 2nd to May 16th, 2018, prior to this thesis. The survey was completed on computer.

Sample

The survey was distributed to 1005 respondents, and 216 returned the survey. This gives a response rate of 21.4%. However, the distributed surveys were sent to 62 employees in long term sick leave. There is also reason to believe that other employees were out of the office during the two weeks the data was collected, due to for instance vacation or short-term sick leave. It does not exist any numbers of how many employees who were supposed to return the survey, but the number is clearly below the distributed surveys. Hence, the actual response rate is unclear, but above 21.4%.

Among the respondents, 43.3% were female, 56.7% were male. Age groups ranged from 23 years or younger, to 64 years or older, with the most frequent response 48-51 years, 21.8%, and the least frequent response 23 years or younger, .5%.

The computer survey forced the respondents to complete all the questions in the questionnaire. As a result, there are no missing values in the dataset.

Measures

The survey opens with information regarding the questionnaire and instructions for filling it out. The participants are told that there are no right or wrong answers, and that they are supposed to answer the questions based on their own experiences.

The survey is split in 9 parts which uses several scales to measure the different aspects.
of the climate in the Norwegian police. The current thesis makes use of 3 parts of the survey, and uses 7 scales to answer the research questions: All four components of the Competing Values Framework, (Rational Goal, Internal Process, Human Relations and Open Systems), internal and external knowledge sharing and readiness for change. These have all been used in previously conducted research (Koritzinsky, 2015; Kuenzi, 2008; Patterson et al., 2005; Vakola, 2014) The constructs used, with connected items, are displayed in appendix 1. The survey includes some negatively coded items, these have been reversed before the analysis.

**The Competing Values Framework.** The competing values framework was presented by Quinn and Rohrbaugh (1983) and was originally a measure of organizational effectiveness. Based on this, Kuenzi (2008) developed the measure of global work climate used in this study. The measure has been translated to Norwegian and piloted in the Norwegian police by Koritzinsky (2015), displaying applicability for use in this context.

HR consists of 8 items, the tree other scales of 7 each. The respondents rated all four constructs by a five-point Likert scale ranging from *completely wrong* to *completely right*. Example of items: HR: “In my unit, we employees help each other when needed.” IP: “Established procedures and guidelines generally direct how we solve our work tasks here on the unit.” OS: “We are always ready to take on new challenges here on the unit.” RG: “It is important that we on the unit plan for the future.”

**Knowledge sharing.** The scales for measuring internal and external knowledge sharing are based on the integration scale from the Organizational Climate Measure (Patterson et al., 2005). The measure is piloted in the Norwegian police by Koritzinsky (2015), who suggested two adjustments: One structural adjustment; to measure both internal and external knowledge sharing, and one content adjustment; to expand the concept of integration to include knowledge and competence sharing.

Both the scales for internal and external knowledge sharing consisted of 12 items, and the respondents rated both by a five-point Likert scale ranging from *completely wrong* to *completely right*. Items in the different scales display almost identical wording except from the structural difference, where the respondents rate sharing and cooperation between groups in their unit, internal knowledge sharing, and between units in their police district, external knowledge sharing. Examples of items: Internal: “People are prepared to share information between groups here on the unit.” External: “People are prepared to share information between units here in the district.”

**Readiness for change.** The scale used to measure individual readiness for change was developed by Vakola (2014) and translated to Norwegian and validated by Koritzinsky
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(2015). Vakola came up with a six-item scale. In this study a seven-item scale is used. The seventh item “I am certain that I will be able to adapt quickly to change in my unit” is inspired by Holt et al. (2007) and is added to this study to inspect whether change-efficacy is related to readiness for change. The respondents rated change readiness by a five-point Likert scale ranging from *completely wrong* to *completely right*. Example of item: “When change occur on my unit, I believe I am ready to handle them.”.

Analysis

**Preliminary analysis.** The software program SPSS 25.0 was used to conduct data screening, preliminary and descriptive analysis. Missing data is a problem when conducting a SEM-analysis, however, there were no missing data in the set because the survey used did not allow missing data.

The data was checked for deviation from normality by calculating skewness and kurtosis. The largest skewness value was -1.292, the largest kurtosis value 3.521, and most of the values were in the +/- 1 range. According to Kline (2011), any skewness value >3.0 and kurtosis value >10.0 is unacceptable. Hence, the data does not show problematic deviation from normality. Linearity was investigated by checking the scatter plots between the sum scores on each construct. The results were satisfactory. Collinearity was investigated by calculating explained variance (R²) and variance inflation factor (VIF) between all constructs. None of the R² values were above the recommended threshold of >.90, and VIF were not over the recommended ratio of >10.0 (Kline, 2011).

Because the correlations between the components of the CVF are high, and the two scales measuring knowledge sharing originate from the same measure, paired samples t-tests were conducted to examine whether these constructs were conceptually distinct. The t-test examines the null hypothesis, stating that the mean difference between two sets of observations equals zero (Zimmerman, 1997).

**Structural equation modelling (SEM).** The hypotheses were tested using structural equation modelling, or SEM. SEM is a statistical methodology conducting path analysis with a confirmatory approach. It is said to be a combination of several statistical techniques, running both factor analysis and multiple regression analysis. The hypothesized model is tested simultaneously to investigate all the included variables, their underlying items and the relationships between them (Byrne, 2010). The software AMOS 25 was used to conduct the SEM-analysis, with maximum likelihood estimation and bootstrap to obtain the 95% confidence interval for the indirect effects.
SEM-analysis consists of two parts, evaluation of the measurement model and evaluation of the structural model. The first step is to define the measurement model. This is done by investigating the relationship between latent variables and their corresponding items by conducting a confirmatory factor analysis. The goal of the analysis is to determine whether the suggested model is consistent with the collected data. If the measurement model does not fit the collected data well, steps can be taken to achieve a better model fit. If a good enough fit is attained, the next step is to specify the structural model (Hair, Black, Babin, & Anderson, 2019; Lei & Wu, 2007). The structural model is a combination of the measurement model and a casual model. The primary goal of a SEM-analysis is to find evidence for the hypothesized path model, and by specifying the structural model, the relationship between the latent factors can be determined (McDonald & Ho, 2002).

Two approaches are used to evaluate the model fit; the global approach and the local approach. The global fit gives measures of how well the overall model fits the collected data, the local fit pinpoints where eventual problems in the model might lie. Based on evaluations of both global and local fit, the hypothesized model is either modified, retained or rejected (Thoemmes, Rosseel, & Textor, 2018).

*Goodness-of-fit*. Goodness-of-fit measures are estimates of global fit, and are indices of the discrepancy between the sample covariance matrix and the covariance matrix implied by the proposed model. In other words, how well the proposed model represents the observed data (Lei & Wu, 2007). There are several goodness-of-fit indices. In this study the Chi-square, the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR) are applied, as recommended by Kline (2011) and Lei & Wu (2007).

*Chi-square*, or $\chi^2$, is a common goodness-of-fit measure. $\chi^2$ tests the difference between the population covariances and those predicted by the model. A low chi-square value and a non-significant result indicate good model fit. However, the value of $\chi^2$ is influenced by the sample size and tends to increase with it. With large sample sizes, the chi-square tends to display high values and be significant even though differences exist. Alternatively, the $\chi^2$ can be divided by the degrees of freedom, where a ratio of $<2$ is an indication of acceptable fit. (Kline, 2011; P. Zhu, Bowden, Tucholska, & Marshall, 2011)

*The Comparative Fit Index*, (CFI) measures the relative improvement of fit of the proposed model compared to a baseline model. The values of CFI range from zero to one, and values close to one indicates good fit. Values $>.95$ indicates acceptable fit (Byrne, 2010; Kline, 2011).
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The Root Mean Square Error of Approximation (RMSEA) is a badness-of-fit measure. Values $<.05$ may indicate good fit, and values $>.10$ may indicate a serious problem. It is common to present the upper and lower bound of the 90% confidence interval of the RMSEA. The lower bound should ideally equal zero (Kline, 2011).

The Standardized Root Mean Square Residual (SRMR) measures the mean absolute covariance residual. A measure close to zero indicates good fit, a measure $<.08$ indicates acceptable fit, but the SRMR should be considered alongside the matrix of correlation residuals (Kline, 2011). Note that for all goodness-of-fit measures, the recommended values are rules of thumb, and not absolute rules.

To estimate the model fit, it is essential to investigate not only the global fit indices, but also the local fit indices. The global fit measures indicate problems with the model, the local fit specifies the problems by pin-pointing them. Investigating the standardized covariance residuals, the modification indices and the estimated parameters are local approaches to model fit. The standardized covariance residuals display potential problems with specific indicators by presenting the residuals between the observed and predicted covariances. Residuals with absolute value $>.10$ should be inspected, and absolute values $>.4$ suggests serious problems (Kline, 2011). The modifications indices display the change in model fit if a covariance arrow is added to the model. Finally, the factor loadings in the model should be inspected. Any factor loadings below $.50$ indicates a problem and should be considered removed from the model (Bagozzi & Yi, 1988; Kline, 2011).

Sample size. In general, SEM is a large-sample technique. It is not easy to give a definite answer as to what is a large enough sample size for a SEM-analysis. Several factors, such as model complexity, estimation method and distribution characteristics of the data, affect sample size requirements. A wide range of recommendations have been made to estimate the threshold, and both an absolute threshold and a ratio number has been suggested. The rules that are typically used, and which has some empirical support, is a ratio of 20 cases to the number of model parameters or an absolute number of 200 cases (Kline, 2011). In this study, seven parameters are used, and $N=216$, which means that the sample size meets the recommendations and are sufficient to conduct a SEM-analysis.

Reliability and validity. To achieve internal consistency, all items aiming to measure a construct should share a significant amount of variance. To determine the internal consistency the scales composite reliability (CR) was calculated for each construct. CR represents the ratio of explained variances over total variance. A CR value $>.7$ demonstrates
acceptable reliability. The CR is also an indicator of convergent validity. Additionally, to further determine the convergent validity, the average variance extracted (AVE) was calculated for all constructs. An AVE value > .5 indicates that the items loading on a specific construct hold acceptable variance in common, hence a value above .5 represents acceptable convergent validity. Finally, the correlations between the constructs were inspected to determine the discriminant validity (Hair et al., 2019; Kline, 2011).

**Ethical considerations.** This study followed the Norwegian national ethical standard for research on human beings, and is approved by the Norwegian Center for Research Data. All participants received an e-mail where they were informed about the purpose of the study, management of collected data, that participation in the study was voluntary and that they were free to withdraw from the study at any time. The data was anonymized and stored at a safe database at the Department of Psychology at the University of Oslo in accordance with required safety routines.

**Results**

**Preliminary and Descriptive Analysis**

The means, standard deviations, Cronbach’s alpha and inter-correlations are presented in table 1. Human relations display the highest mean, 3.85, and rational goal the lowest, 3.44. The mean for all constructs is above the midpoint of the five-point scales. The correlations among the constructs are moderate to high, with the constructs in the CVF displaying the highest correlations. Readiness for change display considerably lower correlations than the rest of the constructs. The Cronbach’s alpha is high for all constructs, with external knowledge sharing displaying the highest value, .922, and readiness for change displaying the lowest, .850. The alpha value of both knowledge sharing scales is above .90. Some researchers argue that this is a sign of unnecessary duplication of content in the scales. However, the alpha value is affected by test length and tend to increase with the length of the test. The knowledge sharing scales have the most items of all scales used in this thesis. Additionally, inspection of the values showed that removal of items in these scales would hardly affect the alpha value. Some researchers also argue that an alpha value < .95 is acceptable (Streiner, 2003; Tavakol & Dennick, 2011). Hence, the high alpha values in these two constructs are not seen as problems in this thesis.

Paired samples t-tests were conducted between each pair of the climate variables and between the two knowledge sharing variables. All results support the assumption that the concepts are conceptually distinct. Internal and external knowledge sharing display the
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highest mean difference, M=.376, and internal process model and open systems model display the lowest mean difference, M=-.077. The degrees of freedom are 215 for all pairs, and all differences are statistically significant at p<.05, thus rejecting the null hypothesis.

Table 1
Mean (M), Standard Deviation (SD), Cronbach's Alpha (α) and Zero-Order Correlations for all Constructs

<table>
<thead>
<tr>
<th>Construct</th>
<th>M</th>
<th>SD</th>
<th>α</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Human Relations</td>
<td>3.847</td>
<td>.635</td>
<td>.866</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Internal Process</td>
<td>3.680</td>
<td>.690</td>
<td>.876</td>
<td>.792**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Open Systems</td>
<td>3.757</td>
<td>.639</td>
<td>.883</td>
<td>.716**</td>
<td>.761**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Rational Goal</td>
<td>3.437</td>
<td>.688</td>
<td>.868</td>
<td>.745**</td>
<td>.783**</td>
<td>.785**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Internal Knowledge Sharing</td>
<td>3.703</td>
<td>.657</td>
<td>.912</td>
<td>.716**</td>
<td>.643**</td>
<td>.672**</td>
<td>.653**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. External Knowledge Sharing</td>
<td>3.326</td>
<td>.613</td>
<td>.922</td>
<td>.506**</td>
<td>.486**</td>
<td>.414**</td>
<td>.556**</td>
<td>.638**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7. Readiness for Change</td>
<td>3.776</td>
<td>.587</td>
<td>.850</td>
<td>.265**</td>
<td>.262**</td>
<td>.363**</td>
<td>.404**</td>
<td>.355*</td>
<td>.355**</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. N=216. **Correlation is significant at the 0.01 level (2-tailed).

Structural Equation Modeling

Measurement model. The first confirmatory factor analysis contained all constructs and all items related to their respective constructs. The results are presented as model 1 in table 2, and the model is presented in appendix 2. It did not meet the criteria for good model fit. The Chi-square was significant. This was expected due to the measure’s sensitivity to sample size and number of indicators. The comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMS) were not at an acceptable level of good model fit. AMOS suggested several alterations to receive better fit, these were investigated and the alterations that could be made based on theory were conducted one by one to watch the improvement in the fit measures.

Several items displayed considerably low factor loadings. This were the case for CHA4, KSINT3 and KSEXT3, all displaying factor loadings below .50 (Bagozzi & Yi, 1988). All the items in the change readiness scale asked respondents to rate their own behavior. CHA4 on the other hand, asked respondents to rate own behavior relative to other’s behavior (“I think I am more ready to accept change compared to my colleagues at my unit”). As for the knowledge sharing factors, the problematic items were almost identical in wording (“People are suspicious towards other groups here on the unit”; ”People are suspicious towards other units here in the district.”) The other items in these two factors asked the respondents to rate the amount of cooperation and communication, whereas these ask the respondents to rate their feelings. This might explain the statistical issues with these items, and they were all removed from the model.

Following AMOS’ modification indices, several error terms were allowed to covary.
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However, it was not possible to achieve a good fit even after all alterations suggested by AMOS were conducted. The results are displayed as model 2 in table 2.

Table 2

<table>
<thead>
<tr>
<th>Model</th>
<th>x^2</th>
<th>df</th>
<th>x^2/df</th>
<th>CFI</th>
<th>RMSEA [CI]</th>
<th>SRMR</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3611.306**</td>
<td>1689</td>
<td>2.138</td>
<td>.783</td>
<td>.073 [.069, .076]</td>
<td>.071</td>
<td>All items are included</td>
</tr>
<tr>
<td>2</td>
<td>2743.171**</td>
<td>1510</td>
<td>1.817</td>
<td>.854</td>
<td>.062 [.058, .065]</td>
<td>.062</td>
<td>CHA4, KSINT3, KSEXT3 removed. Error terms allowed to covary: eHR7-eHR8, eIP1-eIP2, eKSINT5-eKSINT8, eKSINT9-eKSINT10, eKSEXT5-eKSEXT8, eKSEXT9-eKSEXT10, eOS1-eOS2 eIP5-eIP7</td>
</tr>
<tr>
<td>3</td>
<td>2070.5**</td>
<td>1199</td>
<td>1.727</td>
<td>.880</td>
<td>.058 [.054, .062]</td>
<td>.058</td>
<td>HR7, HR8, IP5, IP6, IP7, OS7 removed. Error terms allowed to covary: eKSEXT5-eKSEXT8, eKSINT5-eKSINT8, eKSINT9-eKSINT10, eKSEXT9-eKSEXT10.</td>
</tr>
</tbody>
</table>

Note. CI=90% confidence interval, **Chi square significant at the .01 level

When the modified structural model was run, the results displayed several Heywood cases. The model is presented in appendix 3. Heywood cases refers to a SEM solution that produces error variance estimates of less than zero, implying that more than 100 percent of the variance in a construct is explained. This represents a serious problem with the model (Hair et al., 2019). There are several reasons as to why Heywood cases occur. Common explanations are that the theorized model does not fit the data (e.g., displaying multicollinearity between constructs that are not supposed to covary), that the model suffers from empirical underidentification or misspecification or that factor loadings are close to zero or one (Dillon, Kumar, Mulani, & Masters, 1987; Rindskopf, 1984).

According to Rindskopf (1984) one way to treat Heywood cases is to detect problematically high covariance between variables that are not supposed to correlate. A value >.8 might represent a problem. In this sample, the preliminary analysis did not display any
values related to collinearity between the constructs outside of the recommended ratios. Even so, the components of the competing values framework all displayed high covariances with each other, ranging from .84 to .91 which are all above the recommended value. According to Hair et al. (2019) a solution to Heywood cases is to ensure convergent validity between the constructs, involving elimination of problematic items. Hence, an exploratory factor analysis (EFA) was conducted between all pairs of the framework to detect items with cross loadings and other statistical issues. HR7, HR8, IP5, IP6, IP7 and OS7 all displayed statistical issues in the EFA, either loading on a separate factor or on the factor they were tested with. The results are presented in appendix 4.

The items displaying statistical issues were inspected to check whether there were theoretical arguments for eliminating them from the model. HR7 and HR8 display almost identical wording (“Every employee has the opportunity for development here on the unit” | “Every employee has the opportunity for professional development here in the unit”). They also differ conceptually from the other items in the scale, which focuses on relationships between the employees. IP5, IP6 and IP7 all focus on effectiveness (IP7: “We are working to achieve maximum effectiveness here in on the unit”), while the other items in the scale focuses on rules and guidelines. In the items in OS the respondents are asked to rate how flexible and adaptable they are, whereas OS7 asks them to rate the amount of encouragement they are given. The removed items also seem to measure what Quinn and Rohrbaugh (1983) refers to as means, meaning they relate to processes, whereas the rest of the items measure ends, meaning they relate to outcomes. There are therefore reasons to believe that the problematic items measure something conceptually distinct from the rest of the scales. Based on results from the EFA and inspection of the items, all six problematic items were removed from the model. The results are presented as model 3 in table 2. Note that for every model presented in the table, the items removed in the prior models are still removed, even though only the new removals are mentioned in the comments section.

After removing the problematic items, the measurement model was modified according to AMOS’ suggestions. Some error terms were allowed to covary, eKSEXT5 with eKSEXT8, eKSEXT9 with eKSEXT10, eKSINT9 with eKSINT10 and eKSINT5 with eKSINT8. The wording in the two knowledge sharing scales are identical, except for internal focus on the unit in the internal scale, and external focus on the district in the external scale. That is probably the reason why the corresponding error terms in the two scales are suggested to covary. The wording in items 9 and 10 are also almost identical (“There is efficient sharing of information across the groups here on the unit” | “We share a lot of information”
across the groups here on the unit”). Items 5 and 8 are the two reversed items in these scales. Reversed items are known to represent methodological problems and to load on separate factors (Podsakoff, Mackenzie, Lee, Podsakoff, & Zedeck, 2003). Hence, there are reasons to believe that a correlation does exist between the error terms.

The model fit was still not good enough, and the model was again inspected for problems. In the standardized residual covariance, several of the items in the knowledge sharing scales displayed problems with high values. This was the case for KSINT2, KSINT5, KSINT8, and the corresponding items in the external knowledge sharing scale. These items were also part of the modification indices, which also indicates problems. All items displayed relatively low factor loadings, close to .50, with KSINT2 with .63 being the only one with factor loading above .60. Based on these indications, an EFA with the two scales was conducted. The same items displayed cross loadings or loaded on a separate factor. The result is presented in appendix 5. Inspecting the items, the respondents were asked to rate mistrust and conflict, the opposite of the rest of the items in the scales which measures trust and cooperation. Thus indicating that they might measure something conceptually distinct from the other items in the scales. Hence, all the items were removed from the model. The results are presented as model 4 in table 2. It should be noted that the problems with the removed items are identified in this study using EFA. An EFA does not take theory into account, hence, the method is affected solely by the collected data. Other studies using the same scales, but with different data might not find the same items problematic. However, the same items have previously displayed problems in different data (e.g., Johnsen, 2018; Kværne, 2018) indicating an actual problem with the items. Hence, they should be inspected and evaluated before future use.

As mentioned, the wording in the two knowledge sharing scales are almost identical. Therefore, it is likely that the two variables correlate. They also display a relatively high covariance, .71. K. J. Preacher and Hayes (2008) recommend that the disturbance terms associated with possibly related mediators should be allowed to covary. Forcing the covariance between them to zero may cause both statistical and theoretical issues. If correlation exists and the covariance is constrained to zero, the model will be misspecified. The mediators in this study origins from the same integration measure, and it is likely that they do in fact covary due to similar content and wording. Based on this, the disturbance terms associated with internal and external knowledge sharing were allowed to covary. This modification also gave a considerably better model fit.

The model fit attained after the modifications conducted based on the results from the
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EFA was considerably better. The model fit measures do not all achieve the strict recommendation values. However, theoretical models will virtually never fit perfectly with the observed data due to measurement noise and that proposed relationships in general are simplified compared to reality (Hair et al., 2019). Thus, the model fit measures are considered good enough to continue with the analysis. The results are displayed as model 4 in table 2. The measurement model after model modification is displayed in appendix 6.

Structural model. After achieving acceptable measurement model fit, the next step in the SEM-analysis is to specify the structural model. The measurement model and the structural model display the same goodness-of-fit measures, as presented in table 3. Thus, the structural model displays good enough model fit. When running model 4, the structural model did not display any Heywood cases. The complete model with the mentioned model changes are displayed in figure 3.

<p>| Table 3 |
| Structural model, goodness of fit statistics |</p>
<table>
<thead>
<tr>
<th>Model</th>
<th>x²</th>
<th>df</th>
<th>x²/df</th>
<th>CFI</th>
<th>RMSEA [CI]</th>
<th>SRMR</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1554.228**</td>
<td>922</td>
<td>1.686</td>
<td>.903</td>
<td>.056 [.052,.061]</td>
<td>.053</td>
<td>CHA4, HR7,8, IP5,6,7, OS7, KSINT2,3,5,8, KSEXT2,3,5,8 removed.</td>
</tr>
</tbody>
</table>

Note. CI=90% confidence interval, **Chi square significant at the .01 level

Reliability and validity. The composite reliability (CR) displayed satisfactory values for all constructs, with internal knowledge sharing displaying the highest value, (CR=.93) and human relations model displaying the lowest, (CR=.85). The average variance extracted (AVE) displayed acceptable values for all constructs, with IP displaying the highest value (AVE=.64), and HR displaying the lowest, (AVE=.50). Thus, reliability and convergent validity displayed satisfactory values for all constructs.

Even after modifying the model and removing items with cross-loadings, the covariance between the components of the competing values framework still display high values ranging from .62 to .82. This might indicate issues with discriminant validity. However, to maintain content validity in the constructs and to be able to test the entire CVF which as mentioned is one of the main purposes of this study, it is decided to keep the remaining items in the model. Thus, it should be recognized that the discriminant validity is not optimal, and this might be a serious limitation to the study.
Figure 3. Structural model, path diagram

*Note.* Estimation method: Maximum likelihood. Displaying standardized coefficients. Circles represent latent variables, rectangles represent observed. Circles with e** denotes error variance, circles with d* denotes disturbance terms which are not accounted for in the model.

**Direct, Indirect and Total Effects**

A bootstrap was performed to obtain the 95% confidence interval to investigate the significance of the indirect effects. The bootstrap is a non-parametric test that uses repeated sampling from the dataset to estimate properties of the original observation. It does not rely on the assumption of normality. The bootstrap is known to be a fast, accurate, and robust method, and is recommended above other methods, such as the Sobel test, to test for mediation (Bollen & Stine, 1990; Mackinnon, Lockwood, & Williams, 2004; K. J. Preacher & Hayes, 2008).
The direct, indirect and total effects between the variables are presented in Table 4 together with their standard error and the 95% confidence interval for the indirect effects. For the direct effects, several researchers argue that bootstrapping is not more robust with this sample type than testing for the null hypothesis (e.g., Chernick & LaBudde, 2011; Efron & Tibshirani, 1994; Felsenstein, 1985). Hence, bootstrapping will be used only to estimate the significance of the indirect effects.

Table 4:
Estimates of direct, indirect and total effects between the variables

<table>
<thead>
<tr>
<th>Causal variables</th>
<th>Internal knowledge sharing</th>
<th>External knowledge sharing</th>
<th>Readiness for change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>b</td>
</tr>
<tr>
<td><strong>Human relations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>.586**</td>
<td>.165</td>
<td>.608</td>
</tr>
<tr>
<td>Indirect by KSINT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Indirect by KSEXT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>.568**</td>
<td>.165</td>
<td>.608</td>
</tr>
<tr>
<td><strong>Internal process</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>-.109</td>
<td>.134</td>
<td>-.138</td>
</tr>
<tr>
<td>Indirect by KSINT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Indirect by KSEXT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>-.109</td>
<td>.134</td>
<td>-.138</td>
</tr>
<tr>
<td><strong>Open systems</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>.069</td>
<td>.212</td>
<td>.055</td>
</tr>
<tr>
<td>Indirect by KSINT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Indirect by KSEXT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>.069</td>
<td>.212</td>
<td>.055</td>
</tr>
<tr>
<td><strong>Rational goal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>.299</td>
<td>.177</td>
<td>.312</td>
</tr>
<tr>
<td>Indirect by KSINT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Indirect by KSEXT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>.299</td>
<td>.177</td>
<td>.312</td>
</tr>
<tr>
<td><strong>Internal knowledge sharing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>External knowledge sharing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Coefficient significant at 0.05 level, **Coefficient significant at 0.01 level.

Note. 95% CI= confidence intervals for unstandardized coefficients, SE= Standard Error for unstandardized coefficients, displaying unstandardized coefficients: b and standardized coefficients: ß. *Coefficient significant at 0.05 level, **Coefficient significant at 0.01 level.
Several of the hypothesized relationships proved to be significant, and thus supporting the hypotheses. This was the case for the direct effects of HR on internal knowledge sharing (H2a, β=.61), RG on readiness for change (H1d, β=.59), RG on external knowledge sharing (H2h, β=.66), and external knowledge sharing on readiness for change (H3b, β=.37). However, HR displays a significant negative indirect effect on readiness for change through internal knowledge sharing (H4a, β=-.21) and internal knowledge sharing displays a direct negative effect on readiness for change (H3a, β=-.45). This was not expected, and the hypotheses suggesting these variables were positively related, H4a and H3a, were rejected. Even though HR displays an indirect effect on readiness for change through internal knowledge sharing, HR do not display a direct effect on readiness for change. According to R. M. Baron and Kenny (1986), direct effect between the variables are the foundation for establishing a mediation effect. However, even if there is not found a significant direct effect between HR and readiness for change, and thus no foundation for establishing a mediation effect, it is quite possible to find a significant indirect effect between them (K. Preacher & Hayes, 2004). Hence, the indirect effect is kept as a finding. All other hypotheses, both direct and indirect, displays non-significant effects, and are all rejected.

Discussion

The aim of this study was to add to the scarce research on predictive effects of the full CVF and the separation of knowledge sharing into two constructs. This was done by investigating the relationships between the components of the CVF, knowledge sharing and readiness for change. Explicitly, it was investigated how the different climate types affect internal and external knowledge sharing and readiness for change, and whether the climate types could predict change readiness through the different types of knowledge sharing. This was investigated in one district in the Norwegian police. In total, 22 hypotheses were tested with structural equation modelling.

The first set of hypotheses concerned the climate types’ direct effect on readiness for change, where HR, OS and RG were hypothesized to positively affect change readiness, and IP were hypothesized to negatively affect change readiness. Of these four hypotheses, only one is found statistically significant, H1d; rational goal model on readiness for change. The three other hypothesized relationships do not yield any findings, and are thus rejected.

The second set of hypotheses concerned the climate types’ direct effect on internal and external knowledge sharing, where all climate types were hypothesized to positively affect both internal and external knowledge sharing. The analysis yield mixed results. Only
HR and RG indicate any effect, H2a; HR on internal knowledge sharing, and H2h; RG on external. Surprisingly, none of the other hypothesized relationships yield any findings and are thus rejected. Perhaps most surprisingly, HR climate do not predict external knowledge sharing, proving the importance of the structural adjustment to the knowledge sharing scale suggested by Koritzinsky (2015).

The third set of hypotheses predicted a positive effect of internal and external knowledge sharing on readiness for change. As predicted, external knowledge sharing displays a positive effect, H3b. Surprisingly and not according to previous research, internal knowledge sharing shows a negative effect on change readiness, H3a, proving again the importance of the separation of the constructs. Additionally, the results display a significant higher mean among internal compared to external knowledge sharing.

The final set of hypotheses predicted positive indirect effects of the climate types on readiness for change through internal or external knowledge sharing. Of these eight hypotheses only one shows any effect, H4a; HR on readiness for change through internal knowledge sharing. However, contrary to what was expected, the relationship is negative. None of the other hypothesized relationships yield any effects and are thus rejected.

Taken together, the results are mixed. HR shows an effect only on internal knowledge sharing and on readiness for change through internal knowledge sharing. RG shows a positive effect on both readiness for change and on external knowledge sharing. External knowledge sharing positively affects readiness for change as expected, however, internal knowledge sharing negatively affects readiness for change. IP and OS do not predict knowledge sharing or change readiness in this thesis. In conclusion, this study shows some predicted and some surprising findings, which yields both theoretical and practical implications.

Implications

**Theoretical implications.** In total, this study contributes to psychology research by providing knowledge about what can predict knowledge sharing and change readiness in organizations. It follows the recommendations from several studies (e.g., Johnsen, 2018; Kværne, 2018) about including the entire CVF to capture the climate in the Norwegian police. Thus, contributing to a better understanding of the impacts of all the components in the framework. It also contributes to a better understanding of the structural distinction between internal and external knowledge sharing. Using SEM-analysis, this study has documented how complex relationships between components in the working life are. The climate types are interacting and affecting different types of knowledge sharing. The different
types of knowledge sharing have opposite effects on readiness for change. Hence, all constructs used in this thesis and the relationships between them are complex and interpretation of results should be done with that in mind.

**Knowledge sharing.** Information has a central role in Norwegian workplaces, as previously stated. In this study both types of knowledge sharing display relatively high prevalence, above the midpoint of the scales. Information given by employers are supposed to give employees a basis for decision making and enable them to take an informed part in discussions and codetermination (Arbeidmiljøloven, 2005). This is likely to contribute to the appropriateness part of the change message, as information gives the employees a basis for evaluating the appropriateness themselves. It is also likely that it will increase understanding of the change process, which in turn will increase both readiness and willingness to participate in it (Armenakis et al., 1993). There is reason to believe that the legislated right to receive knowledge in general increase knowledge sharing in the Norwegian police. Comparisons of prevalence of knowledge sharing between workplaces in and outside of Norway should be done with consideration. It is arguable that the right to receive information increase expectations of the frequency of knowledge sharing. Hence, it is likely that the same actual prevalence in a Norwegian workplace will be reported as lower than the same actual prevalence in a workplace outside of Norway.

This study emphasizes the structural change in the knowledge sharing scales suggested by Koritzinsky (2015), both in regards to antecedents and effects of the two constructs. The analysis supported the view that they are separate constructs. The correlation between them is quite high, .638, which might indicate that they are not separate measures. However, the t-test between them was significant at a p<0.001 level and displayed a t-value of 10.210 which, with df=215, both indicate that they are in fact separate constructs. It is also shown that the respondents perceive more internal (M=3.70) than external knowledge sharing (M=3.33). In other words, employees in the Norwegian police tend to share and cooperate more with people in their own unit compared to people from other units in the district.

The difference in prevalence can be explained by several things: First, people’s tendency to divide people into in- and outgroups, and share more with people belonging to their in-group, might contribute to the explanation. Employees in one’s own unit is likely to be seen as people belonging to one’s ingroup, and people in other units as belonging to out-groups. Hence, knowledge sharing disparity (Y. Q. Zhu, 2016) might explain parts of the difference. Additionally, the linguistic intergroup bias (Maass et al., 1989) might have led respondents to encode the same type of behavior from people belonging to in- and out-groups.
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differently. This will in turn lead respondents to report more in-group sharing and less out-group sharing than the true amount, thus creating artificial differences between the two types of knowledge sharing. Second, co-location increases knowledge sharing both through structural face-to-face meetings and through a likely better understanding of other employees’ need for knowledge. Additionally, co-location is known to increase knowledge sharing between those who are co-located, and decrease between those who are not (Sondergaard et al., 2007). Hence, people who are co-located and working at the same unit, are likely to share more with each other than with people working at other units. Co-location might also increase internal knowledge sharing through an easier communication based on common conception due to shared experience (Nonaka, 1994; Rusly et al., 2014). Wathne (2012) states that the established culture differs between units and districts. Employees in different work places might thus not share common underlying assumptions. This might contribute to differing conceptions on what is important to know, how employees communicate and a lack of understanding of other units’ need for knowledge. Third, knowledge is seen as competitive advantage (Wang & Noe, 2010), and the tendency to compete with outgroups (Y. Q. Zhu, 2016) might lead employees to intentionally hold back information from other units in order to shed positive light on their ingroup. Finally, positive interpersonal relationships and trust increase knowledge sharing (Rusly et al., 2014). It is likely that people working close together have closer personal relationships with each other than with people working other places.

The findings also indicate that HR positively affects internal but has no effect on external knowledge sharing. Oppositely, RG positively affects external but has no effect on internal knowledge sharing. One of the underlying value dimensions in the CVF is internal vs external focus, where HR is characterized by internal and RG is characterized by external focus. Hence, the different effect on the two knowledge sharing constructs are explained by the value dimension related to the climate variables. Additionally, HR is characterized by trust, working relationships and loyalty, which are all antecedents of knowledge sharing. It is likely that the personal relationships which positively affects internal knowledge sharing, are more prevalent among employees located in the same work space. Thus explaining why the model does not predict external knowledge sharing.

The opposite effect the two knowledge sharing constructs have on readiness for change also have several explanations. It is known that the message for change and high-quality information positively affects change readiness, (e.g., Armenakis et al., 1993; Armenakis & Harris, 2002; Rafferty et al., 2013) thus explaining the positive effect of
external knowledge sharing. Trust in knowledge source affects the quality of knowledge sharing by increasing receptivity and decreasing vigilance, meaning that people who trust each other share knowledge, but do not validate or add to it (Szulanski et al., 2004). As mentioned, it is likely that personal relationships that facilitates trust are more present among employees located in the same work place. Hence, people who are co-located are more likely to accept the knowledge that exists in the work place without searching for additional or contradicting information. Information is the foundation for making decisions, and uncritically acceptance of existing information as true might lead to a biased basis and a reduced number of alternative choices. Accordingly, sharing knowledge solely within the unit is likely to lead to fewer action alternatives, in addition to a tendency to choose whatever action that has been used before. Thus, reducing willingness to change existing methods.

Groupthink is defined as “a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members’ striving for unanimity override their motivation to realistically appraise alternative courses of action” (Janis, 1991, p. 237). It is a result of overconfidence in the group, tunnel vision and conformity pressure. Groupthink leads people to seek agreement above evaluating risks and benefits of different alternatives. Symptoms of groupthink are over-estimation of the groups power, closed-mindedness, pressure towards uniformity and stereotyping of out-group members (Arnold et al., 2010). Groupthink contributes to the explanation of the negative effect of internal knowledge sharing on readiness for change. Hartnell et al. (2011) argue that highly cohesive groups often fail to challenge traditional perspectives and to identify and institute alternatives. Cohesive groups might also overemphasize their focus on internal integration and neglect adaption to external environment (Denison & Mishra, 1995). Hence, high prevalence of internal knowledge sharing might lead to a collective belief that the groups existing methods are superior to other methods. This is likely to decrease readiness for change as new methods will not be presented, or if so, will be seen as inferior to existing methods.

An internal focus with high prevalence of internal knowledge sharing might also blur the discrepancy part of the message for change. In turn, this will make it harder for employees to understand the necessity of the change, thus reducing willingness to and readiness for change. The personal valence part of the message for change is also likely to be affected by high prevalence of internal knowledge sharing. Change might be interpreted as a threat to the existing cohesive group. The apparent chance of reduced cohesiveness might be perceived as a huge personal cost, thus reducing change readiness.

This study reveals a higher prevalence of internal compared to external knowledge
sharing. Seen in connection with the ongoing changes in the Norwegian police, this is clearly not optimal. Even though high prevalence of internal knowledge sharing might lead to successful police work in one unit, the negative effect it displays on readiness for change might lead to dissatisfaction in the change process and failure in change implementation.

It should be noted that several items were removed from the two knowledge sharing scales prior to the analysis, hence the findings related to the constructs should be interpreted with caution. In total, eight items were removed from the scales. Four of the removed items were negatively worded. It is not possible to assume from this study whether the reverse-coded items display these loadings due to methodological problems with reversed items, or if the content in the items actually represent a separate factor. Future studies should investigate whether the same results will be reproduced with all items included.

**Competing Values Framework.** This study contributes to a better understanding of the CVF and the predictive outcomes of the different climate types. Quinn and Rohrbaugh (1981, 1983) argued that the quadrants placed diagonally on each other in the framework would display negative correlations. The argumentation for this is the focus on what is argued to be competing values. In this study all the components display high intercorrelations between each other. This indicates that the values are not competing, but that they coexist and work together, and that they are more complimentary than contradictory (Hartnell et al., 2011). It was expected higher intercorrelations between the components than in previous studies, due to the use of normative measurement. However, they were even higher than expected. As previously mentioned, ipsative data tend to create artificial interdependence between the measured variables (H. Baron, 1996). Using normative measurement, this study finds intercorrelations above competing values. Hence, it is possible that it is the measurement method that has previously created competing values. In addition to the risk of creating artificial interdependence between the constructs, ipsative measurement might misrepresent the organizational climate. Most organizations display values in all quadrants at the same time. Thus, forcing respondents to choose between them might misrepresent the actual existing climate (Kuenzi, 2008; Patterson et al., 2005). However, as this study shows, the CVF is usable as a climate measure even when one does not presuppose competing values.

As previously mentioned, high correlations among the climate types might be an indicator of the existence of a general global climate that could be measured with a second-order variable with the climate types. However, this study found differing effects from two of the climate types on all endogenous variables. Using a second-order variable merges the
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effects of the variables into one measure, thus undermining the findings related to HR and RG. Accordingly, it is not meaningful to use a second-order variable in this study.

The findings in this study indicate that RG positively affects readiness for change, whereas HR negatively affects readiness for change through internal knowledge sharing. The findings also indicate that employees in the Norwegian police experience highest prevalence of values related to HR (M=3.86), and lowest prevalence of RG (M=3.48). Seen in connection with their effects on readiness for change and the ongoing change in the police, this is not optimal. Since the two models represent contrasts in the CVF, it is not possible to assume from this study which of the two underlying value dimensions that has the most impact on change readiness. However, previous research relates flexibility to change readiness (e.g., Zammuto & O'Connor, 1992). Since HR is characterized by flexibility and RG by control, which is not in line with this argument, it is reasonable to believe that it is the external/internal focus that creates the different effect on change readiness provided by the two models. Future research should further investigate the relationship between internal/external focus and readiness and between stability/flexibility and readiness for change.

Possible explanations for the positive effect of RG on readiness for change are that the external focus of RG is likely to contribute to the discrepancy part of the change message, making employees aware of the distance between the current and the wanted state. The police have to answer to public demands to keep their integrity. This is similar to competing organization’s adapting to changing environments to stay competitive. Thus, the values in RG related to understanding of customer needs, which in turn is related to change readiness, apply to the police. In turn, both awareness and understanding increase willingness to change to meet the current and future demands the public have to the Norwegian police (Hartnell et al., 2011). The external focus is also likely to increase acceptance for adaptability. Additionally, the local police reform is clearly a planned change, and it is likely that the models focus on planning is positively affecting readiness for change in this context.

The possible explanations of the negative indirect effect of HR on change readiness are closely related to the processes creating a positive effect of HR on internal knowledge sharing and a negative effect of internal knowledge sharing on change. It is not found a direct effect between the two constructs, meaning that it is HR’s affect on internal knowledge sharing that has the negative effect on readiness for change.

Both HR and RG affect knowledge sharing and change readiness, however, IP and OS do not display any effects on the endogenous variables. The components of the CVF
displayed high covariances between each other. A problem with this multicollinearity in a SEM-analysis is that it increases the risk for type II errors. Type II errors occurs when it is concluded that there is no relationship between variables when a relationship truly exists. Multicollinearity increases the risk for making this type of error because when two variables highly correlate, the unique contribution of each variable is close to zero. Thus, when the model controls for the common contribution of two similar variables, one of them will display non-significant regression weights or regression weights close to zero (Grewal, Cote, & Baumgartner, 2004). Both IP and OS are placed between HR and RG in the framework meaning that they both share focus on an underlying value dimension with both HR and RG. All covariances between the related constructs are above .80. It is therefore likely that when the model controls for the contribution from HR and RG, the unique contributions from IP and OS are non-significant or close to zero. Hence, it is possible that it exists relationships between IP and OS and the endogenous variables, even though they were not detected in this study. Previous research has found relationships between for instance IP and both knowledge sharing and readiness for change (Johnsen, 2018; Kværne, 2018). Thus it is likely that type II errors has occurred in this study. It follows from this argumentation, that even though including the entire CVF might better capture the current climate in an organization, the possible risk of making a type II error is a clear argument for choosing only parts of the framework in future research. Optionally, the whole framework can be included if the is taken steps to account for the risk of making type II errors.

As with the findings related to the two knowledge sharing scales, findings in this study related to the CVF should be interpreted with caution. Prior to the analysis, items were removed from HR, IP and OS. In total, six items were removed. Again, as with knowledge sharing, future research should investigate whether the same results can be reproduced with all items included.

**Readiness for change.** This study also contributes to the understanding of what can possibly predict readiness for change. The findings partly support theory by displaying a positive relationship between change readiness and external knowledge sharing. However, the negative relationship with internal knowledge sharing is surprising, and should be further inspected. The findings are also in line with the theory stating that readiness for change can be predicted by the context under which change is implemented by displaying relationships between climate types and readiness for change.

As with the findings from the other scales used in this study, an item was removed from the readiness scale. Again, the findings should be interpreted with caution and research
should investigate whether the same findings can be replicated with all items included.

**Practical implications.** This study supports the assumption that the used constructs are applicable in the Norwegian police and that it is possible to discover relationships between them. It has a clear practical implication: To increase readiness for change in the Norwegian police, managers should focus on values related to the rational goal model. In practice, this means that a change process should be properly planned out prior to the change and that the plans should be communicated to the employees. This will likely provide them with an understanding of the discrepancy of the current and wanted state, in addition to a perception of clear goals and a common agenda. Prior to and during a change process the organization should have an external focus and make the discrepancy of the present and wanted state obvious to all employees. The publics’ expectations should also be made clear to all employees. Additionally, employees should be given feedback on their performance in the change process.

A focus on the values in the rational goal model will not only increase change readiness, but also facilitate external knowledge sharing, which in turn increases change readiness. This means that, to increase change readiness, managers should facilitate knowledge sharing between units in the districts by building relationships and clarifying other unit’s need for knowledge. Steps can also be taken to reduce the perception of in- and outgroups by focusing on one police organization as opposed to different units. In addition, managers should implement reward systems that compensate employees for engaging in knowledge sharing activities across units.

As mentioned, the findings indicate that internal knowledge sharing inhibits readiness for change. Accordingly, to increase change readiness an organization should avoid focus on internal knowledge sharing. However, several studies have found that successful police investigations are dependent on the extent of knowledge sharing (e.g., Gottschalk & Solli-Sæther, 2007; Lone et al., 2017; Luen & Al-Hawamdeh, 2001). In addition, knowledge sharing is related to a number of other positive outcomes, such as making use of the information that exists in the organization, innovation and positive work relationships (e.g., Oliveira et al., 2015; Wang & Noe, 2010) Consequently, to totally avoid focus on internal knowledge sharing might serve as a threat to the quality of police work. Future studies should further investigate the distinction between the two constructs and establish the effects a focus solely on external knowledge sharing has on police work.
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Limitations

This study has several limitations that needs to be acknowledged.

**Cross-sectional study.** This study was cross-sectional, meaning that all measurements were made simultaneously. This type of study can be used to determine prevalence of constructs and associations between them. The most important limitation with this type of study is that one cannot differentiate between cause and effect from simple associations (Mann, 2003). This thesis finds associations between HR, RG, internal and external knowledge sharing and readiness for change. However, the study does not account for confounding variables, and only theorize the causal relationships. Further research is necessary to establish causal relationships.

**Self-report study.** This study uses a self-report questionnaire to measure all variables. This might represent a limitation because self-reports tend to be a source of common method variance (CMV). CMV refers to variances in the measured constructs that is attributed to the measurement method rather than actual variance in the constructs.

*Social desirability* refers to the tendency individuals have to present themselves in a favorable light. It stems from the human need for social approval, and the belief that this can be achieved through socially desirable behavior. This might lead to biases in the results because respondents answer according to what they believe to be the socially desired answer, rather than their actual behavior (Podsakoff et al., 2003). This bias is partially accounted for in the knowledge sharing and the CVF scales, as they ask for the behavioral intentions of the organization, rather than individual behavior. However, due to social identity theories and the tendency to divide people into in- and outgroups, it is possible that social desirability might still occur to present the respondent’s in-group in a socially desirable light (Tajfel & Turner, 1979). Hence, social desirability might still be a limitation in these scales.

*Acquiescence*, or yea-saying, refers to the tendency of individuals to agree to a presented statement regardless of the content. Statements with similarly wording, even if they are not conceptually related, are especially disposed to acquiescence (Podsakoff et al., 2003). The questionnaire used in this study presents a number of similarly worded statements. The preliminary analysis revealed that all constructs display means above the mid-point of the scales. Seen in connection, it is possible that acquiescence might have affected the results.

*Reverse coded items* are often used by researchers to counteract the respondents’ response patterns and yea-saying. However, respondents often fail to recognize the reversed coding, and they sometimes produce artificial response factors consisting solely of reverse coded items (Podsakoff et al., 2003). Both knowledge sharing scales included reverse coded
items. These were all removed during the analysis, indicating that reversed coding was in fact a source of CMV in these scales.

**The length of the questionnaire.** Researchers suggest that the length of questionnaires affects response quality, because fatigue and boredom increase with the time spent on answering. This might make respondents less willing to invest the needed time to give quality answers. Hence, questions presented late in a long survey might be at risk of producing lower quality data (Galesic & Bosnjak, 2009). The used survey consisted of 146 items, which is clearly a long survey. Survey length is also likely to affect response rate, as completed questionnaires decrease with survey length (Galesic & Bosnjak, 2009). This might be part of the explanation as to why the response rate in this study is around 22 percent.

**Competing Values Framework.** The CVF was initially developed to measure organizational effectiveness in competing organizations (Quinn & Rohrbaugh, 1981, 1983). The police is not a competing organization, thus this can raise questions about the framework’s suitability for measuring climate in the Norwegian police. However, to maintain confidence and integrity, the police have to answer to changes in the crime scene and the public’s changing expectations. This response to external forces is similar to competing organizations’ accommodations to stay competitive. Additionally, several studies have successfully used the framework to measure climate in the Norwegian police (e.g., Koritzinsky, 2015; Lone et al., 2017). Even so, the measures validity in this should be investigated in future research. Another limitation related to the CVF is the high covariances among the climate types, which, as mentioned, increases the risk of type II errors. In this study that explicitly means that relationships between IP and OS and the endogenous variables might exist even though they were not detected. Future research should address this problem. Additionally, the use of a normative scale makes comparisons with previous studies using ipsative measurement difficult.

**Knowledge sharing.** Witherspoon et al. (2013) argue that research on knowledge sharing might suffer from what they refer to as cooperation bias. That is, employees who voluntarily respond to research questionnaires are generally cooperative and more willing to share knowledge than the people who do not respond. Additionally, the two knowledge sharing scales display almost identical wording, which, as mentioned, makes them especially disposed to acquiescence. Hence, the reported amount of knowledge sharing might be higher than the actual amount, and the reported difference between the two constructs might be lower than the actual difference.

**Readiness for change.** In this study, a seventh item is added to the scale measuring
readiness for change to check whether change-efficacy is related to the construct. It was not detected any problems with the item in this study, and it is kept in the analysis. However, future research should further investigate whether this item contributes to the measure and whether it should be kept in the scale. Boredom and response fatigue are also most likely to affect the readiness for change scale, as this is presented last in the survey.

**Generalization.** This study is based on data collected from one out of twelve police districts. Additionally, the response rate was quite low, just above 21.4%. Due to cooperation bias (Witherspoon et al., 2013), the employees who respond might share common characteristics that are not representable for the whole organization. Thus, raising questions about the generalizability to the entire Norwegian police.

**Future research**

Several recommendations for future research can be based on both the limitations and the findings in this study. Some have already been addressed, such as: a: testing the validity of the items removed from the model using EFA, b: establishing the separate effects of internal and external knowledge sharing on police work, c: further investigate which of the underlying value dimensions in the CVF that has the most impact on change readiness, d: use the full CVF whilst accounting for making type II errors, and e: test the validity of the newly added item in the readiness for change scale.

Furthermore, future research should investigate causal relationships between the variables by conducting longitudinal studies. Additionally, observational studies could be made to reduce the biases raising from self-report measures. However, this type of study requires considerable resources, which will usually limit the amount of collected data.

The findings in this study indicate that HR is related to internal knowledge sharing, and that RG is related to external knowledge sharing. In regard to the scarce research on the distinction of the two knowledge sharing constructs, future research should further investigate these relationships and establish which values in the two models that antecede the different types of knowledge sharing.

In this study it was not found any evidence of competing values, likely because of the use of normative measurement. Future research should use both ipsative and normative methods on a common sample, and compare the results to see whether the measurement methods provide similar or conflicting results.

The Norwegian police is as mentioned guided by ten fundamental principles, among other things; police officers should be generalists, the police should be uniform, decentralized
and integrated in the local community. The local police reform emphasizes the importance of robust specialized units. This can be contradictory to the fundamental principles. According to Vakola (2014), change is most likely to succeed when change objectives align with existing values in the organization. This has also been found in police organizations (Yılmaz, 2013). Hence, future research should investigate whether employees perceive that the local police reform aligns with existing values in the police organization.

**Conclusion**

The Norwegian police is under great pressure to change to answer to the public demands and to implement the local police reform. To provide knowledge on what could possibly facilitate readiness for change in the Norwegian police, this study investigated the predictive ability of climate types and knowledge sharing.

This study answers to the call of testing the entire CVF, which has been suggested several times (e.g., Johnsen, 2018; Kvaerne, 2018). However, the displayed multicollinearity between the climate types might have led to misrepresentation of the predictive ability of IP and OS. This study also contributes to literature by emphasizing the difference between internal and external knowledge sharing, which has previously been given little attention in research.

Successful policework is dependent on the quality of knowledge sharing in the police, and the local police reform stress the importance of knowledge sharing across structural boundaries in the organization. The results in this study emphasize the importance of the separation of knowledge sharing into two constructs, as they have both different antecedents and effects on change readiness. Explicitly, this study indicates that HR positively affects internal knowledge sharing whereas RG positively affects external. RG also positively affects readiness for change. Furthermore, internal knowledge sharing negatively predicts readiness for change, thus making the indirect effect of HR on change readiness negative. External knowledge sharing positively predicts readiness for change. Thus, to increase readiness for change in the Norwegian police, the organization should focus on values related to RG as this both increase change readiness directly, and has a positive effect on external knowledge sharing which in turn will further increase readiness for change.

Hopefully, this thesis will inspire further investigation of the discovered relationships. Future research will benefit from investigating effects of the full CVF whilst accounting for type II errors, and further inspection of the separation of knowledge sharing into two constructs.
References


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## Appendix 1: Measures in Norwegian

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item name</th>
<th>Item statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human relations model</td>
<td>HR1</td>
<td>Vi utvikler støttende, positive arbeidsforhold her på enheten</td>
</tr>
<tr>
<td></td>
<td>HR2</td>
<td>Arbeidsmiljøet er sånn at vi på enheten kommer godt overens med hverandre</td>
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<tr>
<td></td>
<td>HR3</td>
<td>Vi har lite konflikt mellom oss på enheten</td>
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<tr>
<td></td>
<td>HR4</td>
<td>Vi er forpliktet til hverandre her på enheten</td>
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<tr>
<td></td>
<td>HR5</td>
<td>Det er høy moral blant ansatte på enheten</td>
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<tr>
<td></td>
<td>HR6</td>
<td>På min enhet hjelper vi ansatte hverandre når det trengs</td>
</tr>
<tr>
<td></td>
<td>HR7</td>
<td>Hver ansatt har muligheter for utvikling her på enheten</td>
</tr>
<tr>
<td></td>
<td>HR8</td>
<td>Hver ansatt har muligheter for faglig utvikling her på enheten</td>
</tr>
<tr>
<td>Internal Process model</td>
<td>IP1</td>
<td>Regler og retningslinjer er tydelig kommunisert til oss her på enheten</td>
</tr>
<tr>
<td></td>
<td>IP2</td>
<td>Etablerete prosedyrer og retningslinjer styrer generelt hvordan vi løser våre arbeidsoppgaver her på enheten</td>
</tr>
<tr>
<td></td>
<td>IP3</td>
<td>Vi på enheten blir oppfordret til å følge vår stillingsinstruks/stillingsbeskrivelse</td>
</tr>
<tr>
<td></td>
<td>IP4</td>
<td>Vi på enheten passer på at arbeidsoppgaver er organisert og forutsigbare</td>
</tr>
<tr>
<td></td>
<td>IP5</td>
<td>Vi er kjent for å gjøre jobben vår effektivt her på enheten</td>
</tr>
<tr>
<td></td>
<td>IP6</td>
<td>Vi utfører arbeid som alltid er av høy standard her på enheten</td>
</tr>
<tr>
<td></td>
<td>IP7</td>
<td>Vi jobber for å oppnå maks effektivitet her på enheten</td>
</tr>
<tr>
<td>Construct</td>
<td>Item name</td>
<td>Item statement</td>
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<td>-----------------------------------</td>
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<td>---------------------------------------------------------</td>
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<tr>
<td>Open Systems model (OS)</td>
<td>OS1</td>
<td>På denne enheten er vi i stand til å tilpasse oss nye krav når de oppstår</td>
</tr>
<tr>
<td></td>
<td>OS2</td>
<td>Vi er fleksible nok til å ta på oss nye oppgaver etter hvert som de oppstår her på enheten</td>
</tr>
<tr>
<td></td>
<td>OS3</td>
<td>Endring blir godt tatt imot på denne enheten</td>
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<tr>
<td></td>
<td>OS4</td>
<td>Vi er i stand til å gjøre endringer på driftsrutiner som kreves her på enheten</td>
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<tr>
<td></td>
<td>OS5</td>
<td>Vi er alltid klare for å ta tak i nye utfordringer her på enheten</td>
</tr>
<tr>
<td></td>
<td>OS6</td>
<td>På min enhet er vi opptatt av å holde oss oppdatert med utviklingen i samfunnet</td>
</tr>
<tr>
<td></td>
<td>OS7</td>
<td>Vi blir oppmuntret til å finne nye løsninger på problemer her på enheten</td>
</tr>
<tr>
<td>Rational Goal model (RG)</td>
<td>RG1</td>
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<td>Vi blir belønnet for å nå mål her på enheten</td>
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<td>Vi her på enheten leter etter nye måter å gjøre ting på</td>
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APPENDIX 2: Measurement model before modification
APPENDIX 3: Structural model with Heywood cases
### APPENDIX 4: EFA between the components of the CVF

**Exploratory factor analysis between the components of the CVF: Pattern matrix.**

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**Note:** Extraction method: Maximum Likelihood, Rotation method: Promax with Kaiser Normalization.
**APPENDIX 5: EFA between the knowledge sharing scales**

*Exploratory factor analysis between internal and external knowledge sharing*

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*Note: Extraction method: Maximum Likelihood, Rotation method: Promax with Kaiser Normalization*
APPENDIX 6: Measurement model after model modification