Change Readiness in the Norwegian Police

The Relationship between Change, Communication and Competing Values Topics

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Abstract

Organizational change has been a topic for debate in the Norwegian police organization recent years. The following thesis investigated potential facilitators of change readiness in the Norwegian police. Specifically, whether internal and external communication and two climate types of the Competing Values Framework (internal process and human relations), predicted change readiness. The study is a part of a long-term collaborative project between the University of Oslo and the Norwegian Police University College. The data was collected prior to this thesis. The study was cross-sectional, collected through self-report surveys, targeting a variation of employees in three different districts in the Norwegian police and yielded a total response rate of 58.21 % (N=1007). After removal of blanks and missing values, the final sample size was 848 which represents the basis of this analysis. The hypotheses were investigated with structural equation modeling, demonstrating varying results. Internal and external communication facilitated both climate types, but human relations climate did not demonstrate a significant relationship to change readiness. Moreover, the indirect effect through human relations climate was non-significant, suggesting that communication through this climate type did not facilitate change readiness. Interestingly, internal and external communication proved to facilitate change readiness through internal process climate, which is contradictory to previous studies of salient climate types identified in the police organization. The overall findings suggest that internal process climate is the prominent climate type in the police organization, when a change context is introduced. The implications to be made is that the police suggestively are a result of several sub-climates, facilitated by the demands and needs of the organization in a specific context. Thus, proposing that a more tailored approach to change is advantageous to improve readiness.

Keywords: Change readiness, communication, climate, police organization

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Introduction

The Norwegian police is under a significant pressure towards organizational change. Fundamental developmental issues in the society challenge the Norwegian police-model and presents new demands to what good police-service involves (NOU 2013:09, 2013). After being massively critiqued for the handling of the 22th of July 2011 terror attacks, a thorough investigation of the whole police organization was conducted, including everything from work routines to organizational structure (NOU 2012:14, 2012). Questions about police efficiency and structure was central in the public debate, specifically pointing towards problems attributed to internal factors, such as insufficient exploitation of available communication technology, poor leadership, organizational culture, and coordination and cooperation (DIFI, 2013; NOU 2012:14, 2012; NOU 2013:09, 2013). Consequently, these enquires resulted in the suggestion of a reform, concerning massive structural changes of the entire organization (NOU 2013:09, 2013).

The Norwegian police is facing overturning organizational change in the new police reform ("Nærpolitireformen") (Prop. 61 LS (2014-2015), 2015). In short, the implementation of the reform has resulted in a gradual reduction of the police districts from 27 to 12 regional districts, as well as an increase of capacity and competence by putting a stronger emphasis towards "core values". This makes questions about change readiness highly relevant.

The overall focus of this study is on communication and organizational climate related to change readiness in the context of the police organization. Previous studies have showed a strong link between communication and change readiness (e.g., Armenakis, Harris, & Mossholder, 1993; Miller, Johnson, & Grau, 1994; Vakola, 2014), where the reception of adequate information is identified as a crucial predictor. Also, specific climate types have been associated with communicative elements playing a key role in the creation of readiness (Bartels, Pryun, De Jong, & Joustra, 2007; Patterson et al., 2005), as well as facilitating readiness directly (Hartnell, Ou, & Kinicki, 2011; Jones, Jimmieson, & Griffiths, 2005).

However, the literature is lacking knowledge about the specific influence of each climate type, and whether this could be decisive in specific settings such as a change situation. As Yilmaz (2013) recommend, there is a need for a tailored approach to change, that would be beneficial to identify the facilitators of change readiness specifically in the Norwegian police organization.

Given this context, this study aims to investigate communication and types of organizational climate as potential facilitators on change readiness in the Norwegian police

organization. Specifically, in what degree internal and external communication predict change readiness in the police, and the potential mediating role of human relations climate and internal process climate. An important question is whether the salience of the different climate types is differing, and how this might be related to the facilitation of change readiness in a police setting. Before testing the hypotheses, relevant theoretical and empirical background will be accounted for. First, the concept of change readiness will be addressed, followed by communication and the competing values framework, specifically focusing on human relations and internal process climate. Furthermore, there will be a presentation and discussion of the results, followed by theoretical and practical implications, limitations and proposed future research.

Change Readiness

Some employees welcome organizational change, whereas others are bothered by it, seeing it as an obstruction of previous ways and continues to work the way they have always done (Vakola, 2014). Organizational change is a key construct in organizational development and a growing body of literature emphasize the importance of creating change readiness to successfully implement organizational change (Armenakis et al., 1993; Vakola, 2014; Weiner, 2009).

Change readiness is similar to Lewins' (1947) concept of unfreezing, representing a positive movement towards the implementation of organizational change, shaped by the collective beliefs and competence to implement the change (Armenakis et al., 1993; Rusly, Sun, & Corner, 2014; Weiner, 2009). It is a multi-faceted construct, consisting of four components: 1) the employees' confidence in the change agents' expertise to manage change, 2) the belief in the necessity of the change, 3) a shared perception of urgency and 4) the extent to which employees feel they are capable of turning the company around (Armenakis & Fredenberger, 1997; Weiner, 2009). In short, change readiness is commonly described as the "…willingness to support the change and confidence in succeeding in change" (Vakola, 2014, p. 196), and is a cognitive precursor to the behaviors of either resistance to or supporting change efforts (Armenakis et al., 1993; Weiner, 2009).

Creating Readiness

A key objective of organizational change literature is the identification of facilitating factors (Armenakis et al., 1993; Rusly et al., 2014; Vakola, 2014; Weiner, 2009). For instance, Rusly et al. (2014) stated that the enhancement of change readiness is a result of understanding the need for new knowledge and change benefits, realization of the collective

commitment, greater expertise, appropriate use of communication context and an available learning context. Also, Weiner (2009) and Armenakis et al. (1993) supported this by implicating that perceived collectivity (i.e., the notion of others perception of the change) is one of the core values of creating readiness and implement organizational change.

Furthermore, a lot of the change literature recognize that communicative elements is one of the primary mechanisms when creating change (Armenakis et al., 1993; Rusly et al., 2014; Vakola, 2014). For instance, Armenakis et al. (1993) pointed out change message content and message delivery as primary mechanisms for creating change. They suggested two issues change messages should incorporate, namely the discrepancy aspects between the desired end state (i.e., the need for change, consistent with relevant contextual factors) and the individual and collective efficacy (i.e., the perceived abilities of capability to implement change). Additionally, there are several options of how the message proposedly should be delivered. For instance, persuasive communication is the primary source of explicit information regarding the discrepancy and efficacy of the change message, where live in-person communication is to prefer (Armenakis et al., 1993). The creation of readiness involves proactive attempts to influence beliefs, attitudes and intentions, which hopefully will influence the behavior of a change target (Armenakis et al., 1993; Rusly et al., 2014; Weiner, 2009). One also separates between internal and external change agents. Internal change agents (e.g., managers, leaders etc.) influence the employees' change efforts from within the organization, whereas external change agents (e.g., external consultants) provide internal change agents with information about the change from outside of the organization (Armenakis et al., 1993).

Overall, change readiness is facilitated by certain aspects of communication. Specifically, knowledge sharing and cooperative behavior (e.g., message delivery, perception of information quality) are crucial determinants to create readiness and successfully implement change (Armenakis et al., 1993; Miller et al., 1994; Rusly et al., 2014; Vakola, 2014).

Approaching Change

Historically, the change readiness literature has demonstrated several ways to approach organizational change in order to create readiness and thus, prevent change resistance (Armenakis & Fredenberger, 1997; Armenakis et al., 1993; Burnes, 2004, 2009; Lewin, 1947; Vakola, 2014). Some of the most prominent, and agreed-on approaches from bringing about organizational change are the planned and emergent approach (Burnes, 2004,

2009; Van der Voet, Groeneveld, & Kuipers, 2013). The planned approach emphasizes organizations as stable entities, recognizing that old behavior needs to be discarded before new behaviors can be adopted (Bamford & Forrester, 2003; By, 2005). Furthermore, the planned approach emphasizes the importance of understanding the stages in which organizations must go through to be moved from the unsatisfactory current state to the identified desired state (By, 2005; Van der Voet et al., 2013). The central thought is that organizations needs to evolve through a set of stages to reach the desired future stage, which also implicates that the change objectives in planned change is defined in advance (Van der Voet et al., 2013). Nevertheless, the approach has been proved useful but has been commonly criticized for the lack of inclusion of the turbulent surroundings and elements of the external environment influencing the organization (Bamford & Forrester, 2003).

In contrast, the emergent change approach views organizations as entities continuously adapting to their ever-changing environment (Van der Voet et al., 2013). In the 1980s, researchers became more aware of, and interested in the uncertainty of the organizational environment, emphasizing the importance of acknowledging the unforeseen, external events influencing the organization success or failure (Bamford & Forrester, 2003; Burnes, 2009). An organization is not unaffected by its surroundings, and the emergent change approach takes these aspects into account. One key element is the emphasis on “bottom-up” action rather than “top-down” control in implementing organizational change (Bamford & Forrester, 2003). The emergent approach states that once change occurs, pace is often too rapid and complex to identify, plan and implement every required action which makes the planned approach come to short (Bamford & Forrester, 2003).

Several researchers have proposed plans and models with these approaches in mind. For instance, the pioneering researcher of the mechanisms behind planned change, Kurt Lewin, proposed one of the earliest theories about organizational change: The force field model (Lewin, 1947). He introduces change as a result of the dynamics between divergent forces, where the change action itself would be one out of two options; either reinforcing the power towards the change, or weaken the resisting ones (Lewin, 1947). Thus, referring to three steps: Unfreezing, moving, and (re)freezing. The unfreezing step is the preparation of those involved in the change. Second, the moving-stage, represent the change implementation and the third, and final stage includes refreezing and stabilizing the situation after change implementation has occurred. He stated that there is of great importance to move through all

steps in the right order to prevent change resistance amongst the involved parties (Lewin, 1947).

Further, more contemporary models of organizational change have been introduced. For instance, Burnes' (2009) framework for organizational change aims to be a guide through various approaches of change implementation, based on the nature of the change and the context the change occurs in. That is, representing four quadrants created by two crossing axes moving from slow change (i.e., change on individual and group level) to slow transformation (i.e., change on organizational level) and from smaller changes in stable environments to larger transformations in turbulent environments (Burnes, 2009). Each quadrant represents suggested ways to approach a certain change situation depending on organizational context. In addition, Burnes (2009) also incorporates both the planned and emergent change approaches in his model; guiding the approach towards change implementation based on the organizational context and change characteristics.

Organization and context specificity.

The general issue with change approach models is the failure to include the specific aspects characterizing a particular organization. For instance, the planned approach is based on the assumption that organizations operate under constant conditions, and move in a planned manner from one stable state to another (Bamford & Forrester, 2003; By, 2005). However, several authors question these assumptions, arguing that the fast-changing environment in general weakens this theory because it does not take elements of the surrounding environment into account (Bamford & Forrester, 2003; Burnes, 2004, 2009; By, 2005). Also, the planned approach ignores situations where directive approaches are required, such as situations of crisis (Burnes, 2004; By, 2005).

Furthermore, the emergent change is argued to account for some of the flaws of the planned approach by focusing on the uncertainty of external and internal environment, which in turn makes it more pertinent (By, 2005). Despite the more extensive and in-depth understanding of organizational factors, the emergent approach has been argued to lack coherence and diversity of techniques (Bamford & Forrester, 2003). Burnes (2009) take these shortcomings into account by including both emergent and planned change approaches, pointing towards the combination of internal factors and external environment of the organization as key when successfully implementing change. However, the model fails to consider that several ways to approach change can be present in an organization

simultaneously. Also, it does not take the specific factors represented in more unique organizational structures, such as the Norwegian Police, into account.

According to Yilmaz (2013), the police reform is in need of a new approach to organizational change, where environmental conditions surrounding the organization as well as the internal factors are considered. By (2005) argue that the planned and emergent approaches should not be viewed as the whole range of change events. Meaning, that the best way to approach change is the approach of contingency to change, supporting a "one best way for each" organization, opposed to a "one best way for all" approach. The proposition is that when the approach is customized to the organization, change implementation will in a larger degree be successful. That is, the approach to change might not be as straight forward, and an important and necessary qualification is therefore that each change initiative is tailored to the specific organization in question (Yilmaz, 2013).

In sum, there is a variety of approaches to change, and one crucial element in the achievement of successful change is to choose the most appropriate one for the undertaken change-type and the circumstance in which it is being implemented in (Burnes, 2004). However, the models or frameworks presented are recommended as guidelines rather than solutions, but make useful tools when discussing the implementation of future changes in, for example, the Norwegian police organization (Weiner, 2009).

Communication Climate

According to Vakola (2014), communication climate "…represent the extent to which employees believe that they receive all the necessary information regarding issues, such as an organizations vision, strategy, policies, plans, procedures etc." (p. 199). The communication climate includes only communicative elements of a work environment, such as judgments on the receptivity of management to employee communication or the trustworthiness of information being disseminated in the organization (Smidts, Pruyn, &Van Riel, 2001). Bartels et al. (2007) posits that an ideal communication climate consists of eight dimensions: Supportiveness, openness and candour, participative decision making, trust, confidence and credibility, high performance goals, information adequacy, semantic information difference and communication satisfaction (Bartels et al., 2007; Dennis, 1974; Smidts et al., 2001). Communication climate has also been associated with organizational climate (Dillard, Wigand, & Boster, 1986), organizational commitment (Smidts et al., 2001), organizational identification and prestige (Bartels et al., 2007), change readiness (Vakola, 2014; Weiner, 2009) and cooperative behaviors and knowledge sharing (Ali, Pascoe, & Warne, 2002).

Communication Climate and Knowledge Sharing

Communication climate includes communicative elements ranging from the reception of knowledge to the facilitation of the action of knowledge sharing (Ali et al., 2002; Bartels et al., 2007; Smidts et al., 2001). Knowledge sharing is viewed as a form of communication, and several studies have linked sharing and cooperation behavior with communication (Van den Hoof & De Ridder, 2004; Zarraga & García-Falcón, 2003). Van den Hoof and De Ridder (2004) found communication climate to be crucial to explain the behavior of knowledge sharing, by positively influence the knowledge collection, knowledge donating and the affective commitment to the organization. Also, Ali et al. (2002) posit that organizational knowledge distributed across functional groups and the generation and continual existence of it, is dependent of the overall communication climate, implicating that knowledge sharing works like a means to achieve satisfactory communicational climate in the organization.

Knowledge sharing is viewed as a cooperative behavior, which includes two or more parties pursuing a common goal or interest mutually beneficial for all parties involved (Dovidio & Banfield, 2015; Sveiby & Simons, 2002). Knowledge sharing is defined as the provision of task information and "*know-how"* [1]to help and collaborate with others to develop new ideas, solve problems or implement procedures or policies (Wang & Noe, 2010). Interestingly, the definitions of communication climate and knowledge sharing display similar wording and content, pointing out that information management (i.e., provision of task information and employees precepted provision of necessary information) is key determinants for both constructs, as well as the implementations of procedures and policies (Vakola, 2014; Wang & Noe, 2010).

Ingroup versus Outgroup

This thesis is focusing on communication on two different structural levels within the Norwegian police: 1) between groups within the same work-unit (i.e., internal) and 2) between the different work-units (i.e., external). Thus, raising central questions like whether internal and external communication occur at the same degree. For instance, during the 22th of July terror attacks in 2011, the Norwegian police was massively criticized for poor cooperative behavior and communication with external units during the attack (NOU 2012:14, 2012). That is, the police units showed a better unity with their own membership group than

[1] «*Know-how*» resembles the term competency, which is the knowledge, skills and abilities that enable people to successfully perform a task (Wang & Noe, 2010, p.117).

the external units involved (Balliet, Wu, & De Dreu, 2014). This tendency is commonly referred to as knowledge-sharing disparity.

Knowledge-sharing disparity is the tendency people have to share far more with members of their work group than with other groups in the organization (Zhu, 2016). This bias is often explained by *social categorization*, encompassing the recognition of ones' membership in some groups (ingroups) but not others (outgroups), which in turn evoke several fundamental psychological biases and misinterpretations (Balliet et al., 2014; Dovidio & Banfield, 2015). Another bias explained by social categorization is the *ingroup bias.* Ingroup bias predicts that people have a systematic tendency to evaluate ones' ingroup more favorably than non-membership groups, resulting in an ingroup favoritism and outgroup negativity and further intensifying knowledge sharing disparity (Zhu, 2016). Furthermore, people tend to amplify the outgroup difference and perceive the members of the ingroup as more similar (Dovidio & Banfield, 2015). This *outgroup homogeneity effect* has also been found to enhance the negative perceptions of the outgroups (Gaertner & Dovidio, 2000). In sum, knowledge sharing disparity, ingroup bias and outgroup homogeneity effect are examples of biases anchored in social categorization, and might serve as potential barriers to the communication climate.

To enable communication behaviors and decrease the intergroup biases, researchers has proposed changing the way people conceive of group memberships. Specifically, changing the impact of social categorization by emphasizing the process of recategorization where "…members of different groups are induced to conceive themselves as a single, more inclusive, superordinate group rather than two completely separate groups" (Dovidio & Banfield, 2015, p. 567). This approach, known as the *common ingroup identity model*, stress the importance of creating and extending common identity (i.e., the process that produce cognitive, evaluative and affective benefits for ingroup members) to those who previously represented members of the outgroup (Gaertner & Dovidio, 2000; Dovidio & Banfield, 2015). Hence, the model exploits the ingroup bias to enhance communication and cooperation, proposing that higher degrees of identification with the superordinate group, such as the organization, will consequently increase the level of communicative behavior among the ingroups included in that superordinate category, such as departments and units.

Taken together, previous studies have supported the larger degrees of engagement in communicative behavior within their membership-group, compared to between groups. For instance, Koritzinsky (2015) found intergroup knowledge sharing to be more frequent

internally compared to externally in a police setting. Similar results were obtained by Lømo (2017), investigating intergroup sharing and cooperation in the Norwegian South-East Health region. One suggestion might be that internal and external communication depends on differing facilitators, proposing that variations in the organization and external impact influence the internal versus external communicative behavior (Bartels et al., 2007; Lømo, 2017). However, considering that people are more inclined to engage in communicative activities such as sharing within police units rather than between units, it is of interest to investigate whether there is a significant difference between communication within the unit (internally) and communication between units (externally).

Measuring Communication Climate

As for the level of analysis, communication climate may reside on both the individual and the group level, compared to for example organizational climate and psychological climate (Smidts et al., 2001). Therefore, making it possible to measure communication climate both internally (i.e., within a work unit) and externally (i.e., between the different work units). Several studies have demonstrated the use of these structural adjustments for both sharing and cooperation scales and communication climate scales (Bartels et al., 2007; Koritzinsky, 2015; Lømo, 2017). For instance, Bartels et al. (2007) investigated the impact of communication climates on perceived external prestige in the Dutch police using a communication scale developed by Dennis (1974). The climate scale was sub-divided into two; 1) climate at unit level and 2) climate at department level. Further, Koritzinsky (2015) measured sharing and cooperation by using an extension of Patterson et al.s' (2005) Organizational Climate Measure (OCM). The OCM primarily measures integration, which is the "extent of interdepartmental trust and cooperation" within an organization (Patterson et al., 2005, p. 386). Koritzinsky (2015) proposed an extension of the measure, adding dimensions reflecting information- and competence sharing to the integration construct, and sub-dividing the scale to measure the construct internally and externally. The scale has also been used by Lømo (2017).

Measures of both sharing and cooperation and communication climate have with success measured the constructs internally and externally (Bartels et al., 2007; Koritzinsky, 2015). Further, the scales aiming to measure communication climate is based on the eight dimensions suggested by Bartels et al. (2007) and Dennis (1974), which is also demonstrating some of the core values included in sharing and cooperation behaviors. Values like support (Cabrera, Collins, & Salgado, 2006), trust (Cabrera & Cabrera, 2005; Wang & Noe, 2010),

confidence (Cabrera & Cabrera, 2005) openness (Cabrera & Cabrera.2005) and participative decision making (Van den Hoof & De Ridder, 2004) has also been found to facilitate knowledge sharing, as well as being key elements in communication climate.

In summary, there is reason to believe that sharing and cooperation capture some of the same dimensions as communication climate (Van den Hoof & De Ridder, 2004), and one can argue that sharing and cooperation might represent the behavioral representation of communication. That is, sharing and cooperation could be viewed as a manifestation of communication climate (Van den Hoof & De Ridder, 2004). Therefore, this thesis will use the scale primarily measuring sharing and cooperation, as a measure of communication climate (The scale will be presented in the methods section of the thesis).

Organizational Climate

This study applies a climate approach when investigating the hypotheses of this thesis. The climate literature is characterized by controversies regarding the theoretical conceptualization and operationalization, and generally what the phenomenon encompasses (Denison, 1996; Kirsh, 2000; Kuenzi & Schminke, 2009; Schneider, Brief, & Guzzo, 1996). For instance, Verbeke, Volgering, and Hessels (1998) identified 32 different definitions of work climate. Further complicated by different ways to conceptualize climate at different levels, such as psychological climate and organizational climate, and different types of climate; global climate and facet-specific climate (Denison, 1996; Kuenzi, 2008; Kuenzi & Schminke, 2009). In addition, the term has often been used interchangeably with organizational culture, obscuring the distinction between them (Johnson & McIntyre, 1998; Kirsh, 2000). Some of these issues will now be addressed, focusing on organizational climate. Psychological climate will not be assessed in this thesis.

Organizational climate is described as the shared perceptions of and the meaning attached to the policies, practices, and procedures employees experience and the behaviors that the organization rewards, supports and expects (Glick, 1985; Schneider et al., 2013; Kuenzi & Schminke, 2009). Organizational climate represents a framework for understanding social context of organizations (i.e., collective perception, behavior and the deprival of meaning from the organization) (Schneider, 1975; James & Jones, 1974). That is, organizational climate is a collective phenomenon, where individuals in an organization experience shared psychological perceptions of meaning (James et al., 2008; Koritzinsky, 2015; Kuenzi & Schminke, 2009).

One central discussion in climate literature is the distinction between global climate and facet-specific climate approaches. Global climate draws on the same principles as

organizational climate, representing the set of summary, or global, perceptions held by employees about their organizational environment (James & Jones, 1974; Lone et al., 2017; Schneider, Ehrhart, & Macey, 2013). In other words, it represents a broader assessment of the organizational climate and can be evaluated across different organizations and cultures (Koritzinsky, 2015). Facet-specific climate, on the other hand, differ from global climate by focusing on a particular aspect of the organizational context (Kuenzi & Schminke, 2009), for instance, climates for safety (e.g., Zohar, 2000), justice (e.g., Naumann & Bennett, 2000) and diversity (e.g., McKay, Avery, & Morris, 2008).

Culture versus Climate

A second discussion prominent in climate literature, is the degree of distinctiveness between climate and culture (Denison, 1996; Kuenzi & Schminke, 2009). Several authors use the terms interchangeably (e.g., Kirsh, 2000) and some argue for a clear distinction (e.g., Glisson & James, 2002). For the sake of this thesis, the terms will be viewed as distinct but overlapping constructs.

Some argue that the distinction is related to the level of abstraction. Climate is the shared individual perception of the work environment, described in terms of the perception of organizational events, practices, policies and procedures (Kuenzi & Schminke, 2009; Patterson et al., 2005). Organizational culture, in comparison, is defined as "…sets of shared norms, values and beliefs that develop in an organization as the members interact with each other and their environment, and that they are manifested through the members' behavior and attitudes at work*"* (Bang, 2013 p. 326). Climate could be viewed as a property of the individual and culture as a property of the organization (Glisson & James, 2002; Verbeke et al., 1998). Thus, culture exists at a higher level of abstraction than climate, which represent a more surface-level manifestation of culture (Koritzinsky, 2015; Kuenzi & Schminke, 2009; Schneider et al., 2013).

The organizational climate could be a result of a "cultural approach", proposing that climate arises from the intersubjectivity that members have as they interact within a context established by the culture (Moran & Volkwein, 1992). In other words, organizational climate could be a manifestation of organizational culture, whereas climate is more behaviorally oriented and related to 'the way we do things around here', and culture is the basic assumptions, values and beliefs underlying this behavior (Glisson & James, 2002; Schneider et al., 2013; Verbeke et al., 1998).

Taken together, climate is to a greater extent observable through behavior, policies, procedures etc., compared to culture, which makes it easier to measure (Koritzinsky, 2015). The use of a climate approach to survey measurement is widely recommended and supported (Koritzinsky, 2015; Ostroff & Schulte, 2014; Patterson et al., 2005).

Measuring Police Climate

Several authors have applied or argued for the usefulness of the climate approach in studies related to the police organization (e.g., Bartels et al., 2007; Bø, 2014; Koritzinsky, 2015; Lone et al., 2017). A theoretical framework, encompassing both global and facet-specific climate, that is widely recommended is the *Competing Values Framework* (CVF). Studies of recent origins argue that the CVF has shown itself useful to measure climate (e.g., Koritzinsky, 2015; Patterson et al., 2005), in addition to be recognized as a diagnostic tool (Quinn & McGrath, 1982). For example, Ostroff and Schulte (2014) stated that the CVF is one of the most used typologies in survey based approaches to climate and culture, and therefore well-established in research. Given the multiple conceptualizations of climate and problems related to what dimensions to include, the CVF is appropriate to use to investigate climate (Koritzinsky, 2015).

Further, the framework also offers a way to identify the police climate (i.e., policies, procedures and strategies) (Koritzinsky, 2015; Lone et al., 2017). For instance, Lone et al. (2017) identified climate-types related to investigation effectiveness in the Norwegian police by using the CVF. Also, Koritzinsky (2015) found the framework to be a useful tool to investigate police climate, because it incorporates a multiple-level of analysis approach by measuring both facet-specific climate and global climate. A multidimensional approach can also highlight the subcultures and identify the effects of these dimensions on outcome measures, such as organizational effectiveness and innovation (Patterson et al., 2005). Therefore, the CVF is viewed as a suitable theoretical basis for measuring climate in the police, and will be used in this study. The Competing Values Framework will now be presented.

The Competing Values Framework

The Competing Values Framework (CVF) was developed by Quinn and Rohrbaugh (1981,1983) as a mean to explain different dilemmas and indicators of effectiveness in an organization. They suggested that organizational effectiveness criteria can best be understood through four opposing perspectives organized along two fundamental value dimensions – focus (i.e., internal versus external organizational orientation) and structure (i.e., flexibility

versus control) (Hartnell et al., 2011; Quinn & Rohrbaugh, 1981, 1983). Altogether, these value dimensions reflect four perspectives describing four different domains of valued outcomes (i.e., ends) and how these outcomes may be achieved through associated managerial ideologies (i.e., means): Namely, *Human relations, internal process, rational goal* and *open system* (Patterson et al., 2005; Quinn & Rohrbaugh, 1981, 1983). The complete CVF model is illustrated in Figure 1.

The human relations model is internally oriented and emphasize flexibility. The well-being, development and growth of the individuals in the organization are considered important, and means to achieve these values are focusing on morale and cohesion (Quinn & Rohrbaugh, 1983). The internal process model places emphasis on control and has an internal focus. Important values like the role of information management and communication are considered as means to achieve control and stability, providing employees with the sense of continuity and security (Quinn & Rohrbaugh, 1983). The rational goal model emphasizes control and has an external focus, where productivity and efficiency are achieved by planning and goal setting. Last, the open system model is externally oriented and emphasize flexibility, where flexibility and readiness to change are viewed as important to attain external support, resource acquisition and growth (Patterson et al., 2005; Quinn & Rohrbaugh, 1983).

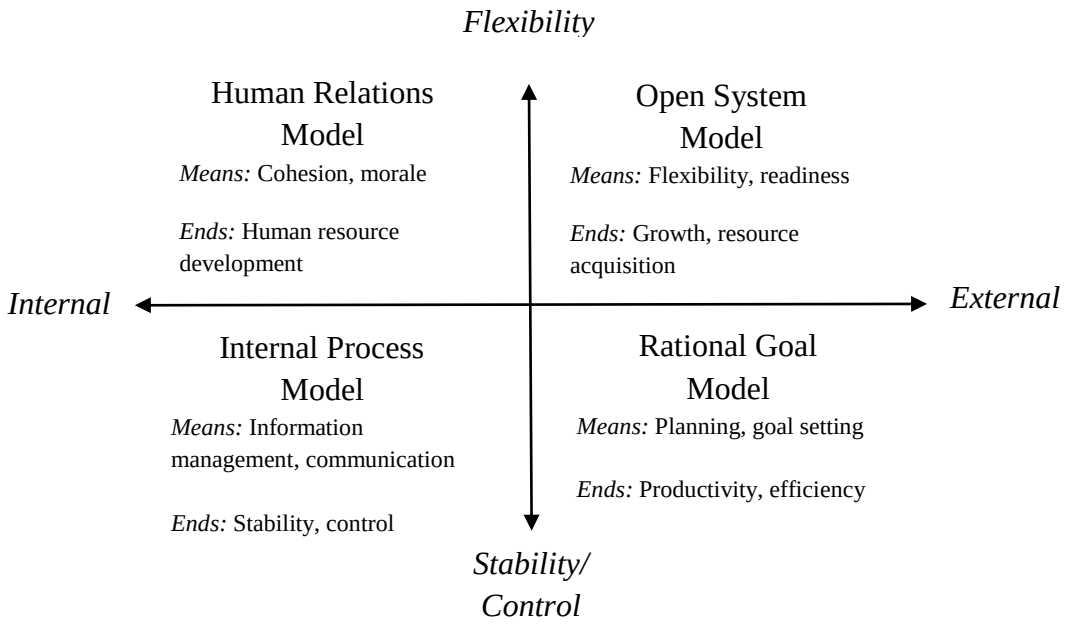


Figure 1. The Competing Values Framework based on Quinn and Rohrbaugh (1981, 1983).

Competing versus Corresponding Values

A fundamental assumption in the original framework is that the values of the quadrants are paradoxical and competing, suggesting that one or more values are more dominant than the others (Quinn & Rohrbaugh, 1981, 1983). However, there is some controversy in the literature regarding the relationship between the constructs, namely whether the quadrants of the framework possess independent competing values or are co-existing of each other (Hartnell et al., 2011; Kalliath, Bluedorn, & Gillespie, 1999; Koritzinsky, 2015; Lamond, 2003). Findings provide varying support for the CVFs' nomological validity and fails to substantiate aspects of the proposed internal structure of the framework (Hartnell et al., 2011). For instance, a meta-analysis found a positive correlation between the quadrants, suggesting that the climate types may not possess mutually independent competing values (Hartnell et al., 2011). In other words, indicating that the values might be complementary rather than contradictory, in contrary to the original CVF theory (Hartnell et al., 2011). Similar results were obtained by Koritzinsky (2015), which rejects CVFs' initial assumption of "dominant" climate types in an organization.

However, there are some mixed findings. Some cultural and climate studies have found moderate to strong intercorrelations between the four climate types (e.g., Lamond, 2003; Kalliath et al., 1999). Specifically, safety climate studies have found mixed support regarding CVFs' competing values (Dietz, Pugh, & Wiley, 2004). Interestingly, according to Koritzinsky (2015), the conflicting climates may indicate the existence of sub-climates in the police, or that the police climate is categorized by conflicting demands. Moreover, these assumptions might suggest that different climate types manifests in varying degrees, dependent on what demands existing in the organization at a particular time or in a particular situation.

These mixed results yield interesting thoughts related to police climate in a change-situation. First, in this particular organizational change setting, is there any climate types more prominent than others? And second, the majority of studies using the CVF has focused on the entire framework, rather than investigating some of the climate types independently (e.g., Denison & Spreitzer, 1991; Lone et al., 2017; Koritzinsky, 2015; Patterson et al., 2005). Therefore, this thesis will investigate the relation between communication (i.e., internal and external) and change readiness, through two climate types in the CVF demonstrating different aspects of the police climate: Human relations climate (HR) and internal process climate (IP).

A Two-Climate Focus

The human relations climate has already been investigated in police settings. For example, Lone et al. (2017) examined investigation effectiveness in the Norwegian police, and found human relations climate and rational goal climate to predict effective investigation.

On the contrary, the internal process climate is not that prominent. To the authors knowledge, the internal process quadrant has not been investigated without including the entire framework. Several studies have demonstrated the use of the whole CVF without focusing specifically on internal process climate (Lone et al., 2017; Hartnell et al., 2011; Patterson et al., 2005). Moreover, the meta-analysis provided by Hartnell et al. (2011) failed to offer hypotheses related to internal process climate because only insufficient data were available to examine their meta-analytic effects. Thus, supporting the need for further investigation. However, the climate type represents some interesting qualities associated with a police climate. For instance, the internal process climate has been recognized to represent "the classic bureaucracy" (Patterson et al., 2005), whereas the police have been accused to be of bureaucratic nature (Yilmaz, 2013).

Taken together, both climate types yield interesting implications of the association with the other variables of interest, namely change readiness and internal and external communication. The basis of the hypotheses is presented below.

Hypotheses

The Relationship between Communication and Change Readiness

Prior research has shown that change recipients who receive adequate and satisfactory information, are more willing to accept the ongoing change (Armenakis et al., 1993; Miller et al., 1994; Vakola, 2014). For example, Miller et al. (1994) hypothesized that those who perceived the information about the impending change as high-quality, reported higher levels of change readiness. That is, the emphasis on a so-called "information environment" predicted change readiness (Armenakis et al., 1993; Miller et al., 1994). Also, honest, effective and direct communication about the change has demonstrated a reduction of the resistance to change (i.e., negative attitude toward change) (Oreg, 2006; Vakola, 2014).

This tendency might also apply when structural dimensions are included (i.e., internal and external communication). As a multi-level construct, readiness can be present at individual, group, unit, department or organizational level (Weiner, 2009). Some studies stress the important difference between the communicative behaviors between ingroups (i.e., within the same work unit) and outgroups (i.e., between different work units), where the

ingroup tends to demonstrate higher levels of communication than with the outgroups (Balliet et al., 2014; Bartels et al., 2007; Zhu, 2016). However, the change readiness literature does not focus on this difference, but pin point that the energy, inspiration, and support necessary to create readiness must come from within the organization itself (Armenakis et al., 1993). Further, it is also argued that the way the message is communicated is of importance, where live in-person communication is viewed as more beneficial to communicate change information (i.e., oral persuasive communication) (Armenakis et al., 1993). This might implicate that the emphasis not necessarily lies on whether communication is categorized as external or internal, rather that the shared beliefs in their collective capabilities to organize and execute the courses of action involved in the change implementation is facilitated by high quality communication in all organizational levels (Weiner, 2009). This is further suggesting that as long as the information about the impending change is satisfactory, change readiness can be predicted (Jones et al., 2005; Miller et al., 1994). Therefore, the following hypotheses are proposed:

H1a: There is a positive direct effect between internal communication and change readiness.

H1b: There is a positive direct effect between external communication and change readiness.

The Relationship between Human Relations Climate and Change Readiness

Findings suggests that employees are more likely to have higher levels of change readiness when they perceive their work environment to be dominant in characteristics associated with human relations climate (Jones et al., 2005; Koritzinsky, 2015). For instance, Jones et al. (2005) found that employees who rated their division as having flexible policies and procedures, were more likely to evaluate their organization and co-workers as being more responsive to a change situation. This is supported by the fact that human relations climate places a great deal of emphasis on flexibility, which is identified as a crucial factor when it comes to employees' perception of the impending change (Hartnell et al., 2011; Koritzinsky, 2015; Patterson et al., 2005; Quinn & Rohrbaugh, 1983). Furthermore, human relations climate captures some aspects of communication, one of the key determinants of change readiness (Armenakis et al., 1993; Bartels et al., 2007; Patterson et al., 2005). Communicative elements like information sharing and cooperation is important qualities linked to both human relations climate and change readiness. Thus, suggesting following hypothesis:

H2: Human relations positively predict change readiness.

The Relationship between Human Relations Climate and Communication

One could argue for a clear parallel between the characteristics representing human relations climate and the dimensions of an ideal communication climate, whereas trust, cooperation and support operates as central qualities in both constructs (Bartels et al., 2007: Patterson et al., 2005). Also, Patterson et al. (2005) states that communicative and cooperative behavior, such as the free sharing of information and extent of interdepartmental trust and cooperation, were included as factors representing the human relations climate.

Other studies showed that when communication is seen in relation with climate and without the structural basics of internal versus external, it is primarily associated with the human relations climate (Koritzinsky, 2015). However, Koritzinsky (2015) states that when the variables are operationalized as internal and external, human relations is primarily associated with internal communication, and open system climate is associated with external communication. This could be a result of the human relations climate demonstrating higher levels of internal organizational focus, compared to open system climate which has an external organizational focus (Patterson et al., 2005; Quinn & Rohrbaugh, 1983).

With the identified link between the overall communication, combined with the arguments related to the inclusion of the sub-dimensions of internal and external, one can argue that human relations climate could be predicted by communication (Koritzinsky, 2015). Allegedly, there is reason to believe that the degree of internal communication and external communication will vary. That is, human relations climates are expected to have a stronger relationship with internal communication compared to external communication. Based on this, the prediction is as follows:

> **H3:** A positive direct effect between both internal and external communication and human relations is expected, but the relationship between internal communication and human relations is predicted to be stronger.

Based on the hypothesized positive direct relationships between both internal and external communication and human relations climate, as well as between human relations climate and change readiness, there is reason to believe in the existence of an indirect effect as well (Bartels et al., 2007; Hartnell et al., 2011; Jones et al., 2005; Patterson et al., 2005). Thus, suggesting:

> **H4a:** There is a positive indirect effect between internal communication and change readiness through human relations climate.

H4b: There is a positive indirect effect between external communication and change readiness through human relations climate.

The Relationship between Internal Process Climate and Change Readiness

As mentioned, the internal process quadrant has not been frequently investigated in the literature, and the climate type is in need of further investigation (Koritzinsky, 2015; Patterson et al., 2005). However, there are some interesting implications to be made.

In general, there is reason to believe that internal process climate might be salient in the police organization. For instance, internal process has been argued to be conceptually similar to rational goal climate. While the internal process model is internally oriented and rational goal is externally oriented, they are argued to be conceptually close to each other (Quinn & Rohrbaugh, 1983). Lone et al. (2017) found that rational goal was linked to investigation performance in the Norwegian police, which further implicates that internal process might demonstrate similar results.

As when it comes to organizational change, previous studies yield some mixed implications. With human relations climate, flexibility is a strong feature in creating readiness, which would indicate that the stability-dimension represented in internal process is not as salient in change readiness situations (Patterson et al., 2005; Quinn & Rohrbaugh, 1983). Moreover, Yilmaz (2013) argued that organizational climates of bureaucratic nature do indeed predict less openness to change compared to climates characterized by higher levels of flexibility.

However, Burnes (2009) suggested a model of organizational change, presenting different approaches to change situations, depending on the nature of the organization. Specifically, he recommended the *"tayloristic"* approach of planned change if the organization was of bureaucratic nature. That is, focusing on stability, tasks and procedures, the core characteristics of internal process, when implementing rapid and small-changes (Burnes, 2009). Thus, indicating that a certain kind of change situation in a certain organizational context, such as the police organization, could be facilitated by an internal process climate (Burnes, 2009).

Parallels can be drawn between this approach and the link between internal process and change readiness. The police climate has been accused of being of bureaucratic nature (Yilmaz, 2013), and internal process climate is described as both tayloristic and as representing "the classic bureaucracy" (Patterson et al., 2005). Taken together with Burnes' (2009) model, there is reason to believe that change readiness could be predicted by an

internal process climate and its "tayloristic" approach, because the police organization displays similar characteristics. Therefore, there is hypothesized that:

H5: There is a positive direct effect between internal process and change readiness.

The Relationship between Communication and Internal Process Climate

Internal process climate emphasizes some characteristics of communicative nature, to provide continuity and safety for the employees. Specifically, sufficient coordination and distribution of information management, and having clear procedures and guidelines for reporting, approval and precise communication (Jones et al., 2005; Kuenzi, 2008; Tong & Arvey, 2015; Quinn & Rohrbaugh, 1983). The emphasis lies on the shared perception of these elements, and thus indicate that internal process might produce a certain communicative climate.

Further, according to Quinn and Rohrbaugh (1981, 1983), internal process has an internal organizational focus, as does human relations climate. As mentioned, previous studies have found that when the structural adjustment to communication was added, the human relations climate was related to internal communication and open system was prominent for external communication (Koritzinsky, 2015). Open system has an external focus, differing from both internal process and human relations, and thus suggesting that the organizational focus could be a contributing factor. Taken together, since both internal process and human relations share the internal organizational focus, and human relations was strongly linked to internal communication there is reason to believe that internal process might demonstrate similar results (Koritzinsky, 2015; Quinn & Rohrbaugh, 1983).

In sum, the combination of an emphasis on specific aspects of communication, and similarities with the human relations climate, there is reason to believe that communication climate, both internally and externally might facilitate internal process climate. Additionally, the lack of studies on this climate type does implicate that this needs further investigation. Therefore, the hypotheses are:

H6a: There is a positive direct effect between internal communication and internal process climate.

H6b: There is a positive direct effect between external communication and internal process climate.

The previous discussion emphasize that internal process might be facilitated by certain aspects of communication, as well as being a facilitator for change readiness itself. In addition, it could be suggested that a specific communication climate found in the police

organization might be facilitating change readiness through the internal process climate. Based on the previous arguments, the following indirect effects are hypothesized:

H7a: There is a positive indirect effect between internal communication and change readiness through internal process climate.

H7b: There is a positive indirect effect between external communication and change readiness through internal process climate.

Taken together, the eleven hypotheses proposed in this thesis are displayed in Figure 2.

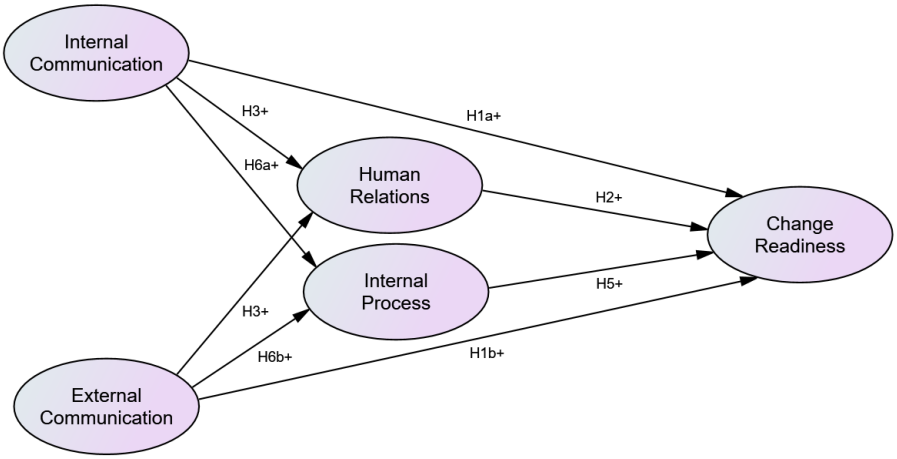


Figure 2. Hypothesized relations between variables

Note. None of the hypotheses related to the indirect effects are displayed but concerns the paths from Internal communication→Human relations→Change readiness (H4a), External communication→Human relations→Change readiness (H4b), Internal communication→Internal process→Change readiness (H7a) and External communication→Internal process→Change readiness (H7b).

Methods

The Research Project

This study is a part of a collaborative research project between the Department of Psychology at the University of Oslo and the Norwegian Police University College. The aim of the overall project is to investigate organizational climate factors related to organizational change. The current thesis focuses on whether communication climate and human relations and internal process climate potentially facilitates readiness to organizational change.

Data Collection

The data was collected in a two months period, from December 2015 to January 2016, prior to this thesis. The survey was distributed in three different police districts (i.e., Romerike, Follo and Østfold), which today represent the district "*Øst".* All respondents received an e-mail from the police inspector in their district, containing information about the project (e.g., purpose of the study, voluntary participation, the theoretical benefits related to

their contribution, the use of the data after analysis etc.). The police inspector encouraged the operational leaders of each district to make sure of the internal distribution and the return of the responses to the responsible contact person. The respondents were aware of the coming change (i.e., the police reform) but it was not implemented at the time of data collection. The survey was completed by pen and paper.

Sample

The survey was distributed to 1730 respondents from three different police districts, namely Follo, Romerike and Østfold (i.e., district "Øst"), differing in sex, age, area of expertise, workplace and time worked in the organization. 1007 surveys were returned, yielding a response rate of 58.21 %. After removal of blanks, the response rate was 54.34 % (*N*=940). The district of Follo demonstrated the largest response rate (55.83 %), followed by Romerike (55.43 %) and Østfold (52.17 %).

Age groups ranges from *23 years or younger* to *64 years or older*, where the most frequent age group ranged from 24-27 years (16 %). 451 women and 481 men completed the survey, where job tenure of 1-5 years was most frequent (28.4 %). Of the respondents, the most frequent areas of expertise were "civilian" employees (e.g., administration) (27.8 %), criminal investigators (25.3 %), operational personnel (20.4 %), other work tasks (8.1 %), criminal prosecution (5.4 %) and crime prevention workers (2.8 %). The remaining respondents answered that their employment involved a combination of the areas of expertise mentioned above.

As one can expect with pen-and-paper questionnaires, there were some missing values in the dataset. According to Kline (2011), a few missing values, namely less than 5 %, may be of little concern if the dataset is large. As a result, the selection of methods to deal with these missing observations is basically arbitrary (Kline, 2011). The measures used in this thesis demonstrated a large sample size, and the missing values were decided to be removed accordingly. Hence, the final sample size was 848.

Measures

This study applies five different scales aimed to measure the constructs of interest, respectively internal communication, external communication, human relation climate, internal process climate and change readiness. All scales have been piloted in earlier studies (Koritzinsky, 2015; Lømo, 2017; Vakola, 2014), and demonstrates high internal consistency with values over the suggested cutoff of α=.70 (Hair, Black, Babin, & Anderson, 2014). All

items demonstrating negative wording has been reversed before analysis. The five measures with corresponding items is presented in Norwegian in Appendix 1.

Communication.

To measure internal and external communication, scales primarily aimed to assess internal and external sharing and cooperation was used. The scales are based on an extension of Patterson et al.s' (2005) integration scale, the Organizational Climate Measure (OCM). Koritzinsky (2015) proposed two adjustments to the OCM: to include items concerning knowledge sharing in addition to the existing ones concerning cooperation and trust, and redefine the construct of integration to include two sub-dimensions (internal and external).

Both scales contain 12 items each, rated on a 5-point Likert scale ranging from *definitely false* (1) to *definitely true* (5). The items demonstrate some overlapping content, except for the structural adjustment made to reference either sharing and cooperation between work groups within a police unit (internal) or between units within the police district (external). Example items for each scale: "The cooperation between groups in this unit is very efficient" (internal) and "The information sharing across the units in the district is very efficient" (external).

Human relations and internal process.

The measure used to investigate human relations (HR) and internal process (IP) climate originated from a theoretically driven measure of work climate drawing on the Competing Values Framework (Quinn & Rohrbaugh, 1981, 1983), developed by Kuenzi (2008). The measure was piloted by Koritzinsky (2015), targeting the organizational climate in the Norwegian police and thus implicates suitability for measurement in this context.

The scales differ in number of items, whereas internal process consists of 7, and human relations consists of 8 corresponding items. Both scales are rated by a 5-point Likert scale ranged from *definitely false* (1) to *definitely true* (5). Item examples: "There is a high sense of moral among the employees in this unit" (HR) and "The members of this unit make sure that work tasks are organized and predictable" (IP).

Change readiness.

The 6-item scale used to measure change readiness was originally developed by Vakola (2014), and refined and translated to Norwegian by Koritzinsky (2015). The change readiness scale applies a 5-point Likert scale response format, ranging from *definitely false* (1) to *definitely true* (5). Item example: "When changes occur in my unit, I have always the intention to support it".

Analysis

Preliminary analysis.

Data screening and preliminary analysis were conducted with the software SPSS 25.0. As mentioned, missing values were removed prior to analysis. None of the items in the dataset showed any deviation from normality, displaying skewness and kurtosis values below guiding values of unacceptable skewness (>3.0) and problematic kurtosis (>10.0) (Kline, 2011). The majority of the items was within the +/- 1 range, and the largest skewness value was 1.27 and 2.27 for kurtosis. Linearity was investigated by checking the scatter plots between the sum scores of each construct. Collinearity was investigated by calculating the explained variance (R^2) and the variance inflation factor (VIF) between all variables. R^2 was found to be within the recommended threshold of <.90, and VIF within the recommended ratio of <10.0 (Kline, 2011). Thus, both linearity and collinearity was found satisfactory.

Due to the possible source of error related to punching-inconsistencies when transmitting responses of paper-based surveys into datafiles, there was conducted an interrater reliability test. Three raters were to recode 100 schemes combined, whereas every scheme was recoded by two different raters. The extent of agreement between the raters was high on all constructs, and there were purposeful to continue the investigation of the data: Competing Values Framework (Krippendorfs α=.99), communication (Krippendorfs α=.99) and change readiness (Krippendorfs α=.98). The overall percentage of agreement was 99.38 % (Krippendorfs α=.99), demonstrating high interrater reliability (Hayes & Krippendorf, 2007). Based on the overall screening results, the conclusion was that the data was suitable for further analysis.

Because the analysis methods used in this study is somewhat new, it was decided to conduct a preliminary exploratory factor analysis (EFA), before testing the hypotheses through SEM-analysis. An EFA is a useful tool to get an initial picture of the dataset, including the dimensionality of the measures and discriminant and convergent validity. Specifically, the EFA was conducted to investigate the strength of factor loadings on each factor, find clusters of variables and to identify items for removal in subsequent model refinements (Koritzinsky, 2015; Lømo, 2017).

Based on some theoretical assumptions underlying these constructs (e.g., shared variance due to originating from the same measure), it was examined whether HR and IP, and internal and external communication were conceptually distinct, as well as whether there was

a meaningful difference. This was investigated by conducting a paired-samples t-test, to test the null hypothesis stating that the mean difference between mean scores equals zero.

Structural equation modeling.

The hypotheses in this thesis were investigated using structural equation modeling (SEM). SEM-analysis, also known as path analysis with latent variables, has been described as a combination of different statistical techniques, such as factor analysis and multiple regression analysis (Schreiber, Nora, Stage, Barlow, & King, 2006). SEM is useful because it permits that several variables and their interrelationship can be measured simultaneously, where the goal is to determine whether a hypothesized theoretical model is consistent with observed data collected to reflect this theory (Hoe, 2008; Lei & Wu, 2007). The AMOS 24.0 software was used to conduct the SEM-analysis, with maximum likelihood estimation and bootstrap to obtain the 95 % confidence internals for the indirect effects.

SEM-analysis involves the evaluation of two models, a measurement model and a structural model, specified in a step-by-step manor to make up the theorized model one intent to investigate (Lei & Wu, 2007). The first step is to define the measurement model, which is when the relationship between the latent factors and their corresponding indicators are explicitly specified (Kline, 2011). In other words, which of the indicators loading on which latent factors. This is known as a confirmatory factor analysis (CFA). If the measurement model fits the observed data well, the next step is to specify the structural model. This is to determine the relations of dependency between the latent factors to test ones' hypotheses (McDonald & Ho, 2002).

To evaluate whether the hypothesized theoretical model (i.e., measurement and structural model) is consistent with the observed data, different estimates are assessed (Lei & Wu, 2007). Specifically, one takes a global approach to model fit evaluation (i.e., global fit) and a local approach to model fit evaluation (i.e., local fit). The global fit comprises a single index computed to quantify the fit of the entire SEM to the observed data, and the local fit help pinpoint where the potential problems in the model might lie (Thoemmes, Rosseel, & Textor, 2018). Based on an overall assessment of global and local fit, one chooses to either retain, modify or reject the model.

Goodness-of-fit

Goodness-of-fit (GOF) indices are estimates of global fit, and reflects the degree of discrepancy between the covariance matrix implied by the specified model and the sample covariance matrix (Lei & Wu, 2007). In other words, how well the specified model is able to

reproduce the observed covariance matrix. As recommended by Kline (2011) and McDonald and Ho (2002)**,** this study will apply the following goodness-of-fit-indices: Chi-square, The Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR).

Chi-Square (χ^2) is the most common GOF-index, and assess if the specified model is consistent with the observed covariance matrix (Kline, 2011). A low χ^2 value, indicating a non-significant result (p<.05), point to good fit. A limitation with χ^2 is that it tends to increase along with the sample size, making it sensitive to large sample sizes. In other words, this makes attaining a good model fit more difficult. An alternate method is to examine the ratio of χ^2 to the degrees of freedom (χ^2 / df), and a ratio of 3 or less is suggested to be a reasonable good indicator of model fit (Hoe, 2008).

The Comparative Fit Index (CFI) measures the relative improvement in the fit of the researchers specified model over that of a null model where all indicators are assumed to be uncorrelated (Kline, 2011). The CFI has a range of possible values between 0-1, where values closer to one imply better fit. To indicate good fit, the CFI should demonstrate values above .95 (Brown, 2015; Kline, 2011; Schreiber et al., 2006).

Unlike CFI, both the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR) are fit indexes scaled as badness-of-fit statistics, where values closer to zero indicates better fit. The RMSEA should be below .06 (Brown, 2015; Schreiber et al., 2006). The 90 % confidence interval of RMSEA is often reported together with the fit-statistic, where an upper limit exceeding .10 is an indication of poor model fit, and values below .05 on the lower bounds represent a good model fit (Hair et al., 2014). The SRMR is based on the residuals (i.e., the differences between the observed and predicted covariances), transforming both the sample covariance matrix and the predicted covariance matrix into correlations. Thus, SRMR is a measure of the average standardized correlation residual, using the overall difference between the observed and predicted correlations to measure how well the overall model fit the data (Kline, 2011). SRMR should be below .08 to indicate a good model fit (Brown, 2015; Kline, 2011; Schreiber et al., 2006).

As mentioned, it is important to note that to determine the overall fit of the model, one should investigate the global fit indices in combination with the local fit indices. That is, to investigate the standardized covariance residuals, the modification indices and the estimated parameters. Global fit does not reveal whether some part of the model or which part of the model that has poor fit. By inspecting the standardized covariance residual matrix, one could

detect if specific indicators are problematic. All residuals with an absolute value above 4 raises concern (Hair et al., 2014). The modification indices, or expected parameter change values, demonstrate what happens when an additional arrow is added to the model. Together with the residuals, the modification indices can pinpoint in which a potential misspecification of a model is because of a missing arrow (e.g., between latent variables, error terms or items). Finally, the estimated parameters should be inspected (i.e., the factor loadings). All factor loadings in the model should be statistically significant, and demonstrate values above .50 (Hair et al., 2014; Thoemmes et al., 2018).

Sample size.

Several recommendations are presented regarding sufficient sample sizes in EFA, and different ratios and thresholds has been suggested (Hair et al., 2014). Some recommend that the sample size should have a ratio of 5, 10 or 20 times as many observations as variables, and others suggests absolute thresholds of exact sample sizes (Hair et al., 2014; Jackson, 2003; Kline, 2011). A 5:1 ratio is recommended as a minimum for sample size in EFA but a larger ratio is preferable, which is the case in this study.

SEM is a large sample technique and, as for EFA, the recommended sample size to conduct a SEM-analysis is debated. The most common suggestion is that a sample size of $N>200$ is sufficient for conducting a SEM-analysis (Kline, 2011). However, several factors affect sample size requirements, such as model complexity (i.e., number of indicators, factors and parameters estimated), estimation method used and distributional characteristics of observed variables (Kline, 2011; Lei & Wu, 2007). A suggested rule of thumb concerning the relationship between sample size and model complexity, is an ideal sample size-to-parameter ratio of 20:1 (Jackson, 2003; Kline, 2011). The data screening showed no indication of non-normality, and the missing values has been removed. Together with sufficient to large number of indicators per latent variable, an $N>200$ and a sample ratio over 20:1, a $N=848$ is a highly sufficient sample size to conduct SEM-analysis.

Reliability and validity.

To determine the construct reliability in SEM-analysis, all the items aiming to measure a specific construct should share a considerable amount of variance, and be statistical significant (i.e., convergent validity). Also, the measurement model should be free from redundant items and the constructs should not be highly correlated (e.g., >.85) (i.e., discriminant validity) (Ahmad, Zulkurnain & Khairushalimi, 2016; Kline, 2011). To determine internal consistency, the scales composite reliability (CR) is calculated. The ratio of

CR should be greater than .70 to demonstrate accepted validity (Hair et al., 2014). The composite reliability is also a measure of the scales convergent validity. The discriminant validity was investigated by using the Fornell-Larker criterion. Discriminant validity is established if a latent variable account for more variance in its' associated indicator variables than it shares with the other constructs of the same model (Fornell & Larker, 1981; Henseler, Ringle, & Sarstedt, 2015). In order to satisfy this criterion, each of the constructs square rooted average variance extracted (AVE) needs to be higher than the correlation between the respective constructs. The criterion is recommended to use in SEM-analysis (Henseler et al., 2015).

Ethical considerations.

This study followed the Norwegian national ethical standard for research on human beings. The participants were informed in an invitation e-mail about the purpose of the study, the management of the collected data, and that participation was voluntary. No personal information was collected, and the anonymity of the participants was ensured. All data was stored at a safe database in accordance with established safety routines for sensitive data at the Department of Psychology at the University of Oslo.

Results

Preliminary and Descriptive Analysis

The means, standard deviations, Cronbach's alpha and inter-correlations between the mean scores of every construct was calculated and are presented below in Table 1. The results displayed moderate to large correlations among the constructs, except for change readiness, which display considerable lower correlations than the other constructs. Human relations have the highest mean, while external communication displayed the lowest. All constructs demonstrated a larger mean than the midpoint of the five-point scale.

Table 1

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

Construct	*M*	*SD*	α	1.	2.	3.	4.	5.
1. Human Relations	4.04	.62	.88	-				
2. Internal Process	3.90	.56	.82	.64**	-			
3. Internal Communication	3.91	.63	.92	.64**	.48**	-		
4. External Communication	3.43	.60	.91	.47**	.51**	.51**	-	
5. Change Readiness	3.79	.52	.73	.20**	.24**	.18**	.22**	-

Note. N=848

**Correlation is significant at the 0.01 level (2-tailed).

Exploratory Factor Analysis

Before performing the factor analysis, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (KMO =.94) and the Bartlett's Test of Sphericity (significant at $p<.01$ level) was calculated to ensure suitability to conduct a factor analysis on the dataset. The data was also checked for singularity, and all the correlations between constructs was significantly below .90 (Table 1). Thus, all the criteria were met and there was adequate to proceed with the analysis.

The exploratory factor analysis (EFA) was conducted with maximum likelihood as extraction method and promax as rotation method. There are different criteria to assess the number of underlying factors. A parallel analysis is widely recommended (Hayton, Allen & Scarpello, 2004; Horn, 1965; Patil, Singh, Mishra, & Donovan, 2008; Ulleberg & Nordvik, 2001). A web-based parallel-analysis engine that calculates eigenvalues from randomly generated correlation matrices using parameters provided by the researcher was used (https://analytics.gonzaga.edu/parallelengine/) (Patil et al., 2008). By comparing the true eigenvalues of the dataset with randomly generated ones, one ensures that the eigenvalues are not a result of sample error (Ulleberg & Nordvik, 2001). The analysis revealed eight underlying factors, which is 3 more than expected. All recommended factors with corresponding factor loadings are presented in Table 2.

Two items expected to load on the latent variable representing human relations climate, particularly HR_7 (i.e., "*Every employee has the opportunity to develop on this unit*") and HR_8 (i.e*., "every employee has the opportunity to develop professionally on this unit"*), loaded on a separate factor. Both items displayed almost identical wording and had the same thematic content, differing from the other items in the scale, which suggests that they measure another latent variable than human relations climate. Additionally, IP_5, IP_6 and IP_7, displayed the same conceptual issues as the problematic items in the HR-construct, demonstrating high factor loadings on a separate factor. As for the items attempting to measure internal and external communication, the same tendency as in both HR and IP is displayed. Several of the items in internal and external communication (i.e., IntC_3_R, IntC_5_R, IntC_8_R, ExtC_2, ExtC_3_R, ExtC_5_R and ExtC_8_R) loaded on a separate factor (displayed as factor 6 in Table 2). The content of these items concerned mistrust and conflict, opposites of trust and cooperation. Item IntC_2, demonstrated factor loadings with two different factors suggesting both conceptual as well as statistical issues.

Table 2
Exploratory Factor Analysis: Pattern Matrix

Items	Factors								Items	Factors							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
HR_1			.59						IntC_1	.61							
HR_2			.97						IntC_2	.32		.48					
HR_3			.91						IntC_3_R			.44					
HR_4			.57						IntC_4	.70							
HR_5			.61						IntC_5_R	.31		.44			.33		
HR_6			.62						IntC_6	.71							
HR_7								.93	IntC_7	.63							
HR_8								.79	IntC_8_R	.39					.32		
IP_1				.66					IntC_9	.89							
IP_2				.73					IntC_10	.96							
IP_3				.61					IntC_11	.84							
IP_4				.57					IntC_12	.74							
IP_5							.79		ExtC_1		.67						
IP_6							.75		ExtC_2						48		
IP_7							.45		ExtC_3_R						.72		
CR_1					.68				ExtC_4		.63						
CR_2					.61				ExtC_5_R						.74		
CR_3_R					.40				ExtC_6		.66						
CR_4					.36				ExtC_7		.60						
CR_5					.73				ExtC_8_R						.66		
CR_6					.72				ExtC_9		.86						
									ExtC_10		.88						
									ExtC_11		.80						
									ExtC_12		.69						

Note. Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization. Factor loadings below .30 are not displayed.

On average, participants reported higher levels of internal communication (M=3.91, SE=0.02), compared to external communication (M=3.43, SE=0.02). A two-tailed t-test was conducted to investigate this mean difference (M=0.48, 95 % CI [0.44, 0.52]). The difference was found significant ($t(847)=22.99$), $p<.01$), supporting the assumption that the two constructs represent two distinct latent variables and that, on average, there is a higher degree of internal communication compared to external communication

The same was done for HR and IP. On average, the participants reported higher levels of HR climate (M=4.04, SE=0.02) compared to IP climate (M=3.90, SE=0.02), demonstrating a mean difference of 0.14 (95 % CI [0.11, 0.17]). The results of the t-test was statistically significant (t(847)= 37.70, p<.01), supporting the mean difference and thus rejecting the null hypothesis.

Hypothesis Testing – Structural Equation Model

Measurement Model

Confirmatory factor analysis.

The first confirmatory factor analysis (CFA) contained all items specified to their respective construct (model 1), but did not meet the criteria for good model fit as displayed in Table 3. The Chi-square was significant, as expected, due to the large sample size and the number of indicators. Neither the CFI, RMSEA nor the SRMR was at an acceptable level of fit. To attain a good model fit, several alterations were made to the measurement model. These were done step by step, to watch the improvement of the Chi-square. Measurement model 1 is displayed in Appendix 2.

As described in the EFA, HR_7 and HR_8 demonstrated some conceptual problems. A possible explanation is that the contents of these items corresponds to what Quinn and Rohrbaugh (1983) identifies as the dimension of "ends" (i.e., emphasis on important outcomes), while the remaining items' content corresponds to the important processes of "means" (i.e., emphasis on important processes). These problems were also apparent in both considerably large modification indices and standardized covariance residuals with absolute values above 3. The same issues applied for IP_5, IP_6 and IP_7, with which the problematic items concerned the "ends" dimension. Furthermore, it is possible that the IP-items also represent dimensions expressing the concept of efficiency, which is identified as "ends" in another climate-quadrant of the CVF, namely rational goal. As a result, all these items were excluded from the model.

Most of the reversed items in both internal and external communication (except for IntC_8_R) displayed problematic residuals. Together with the results from the EFA, where these six factors loaded on a separate factor, there was reason to believe that these items measured a separate construct and were decided to be removed. The exception was IntC_8_R. There is a similarity in content between IntC_8_R and ExtC_8_R, but IntC_8_R did not demonstrate any statistical issues in the CFA, and were decided to be retained. Additionally, CR_4 displayed a considerably low factor loading (below .30). All the items in the change readiness measure asked respondents to evaluate own behavior, except for CR_4 which asked

participants to evaluate own behavior relative to the behavior of others (i.e., "*I think I am more ready to accept change compared to my colleagues at my unit")*. This might explain the statistical issues identified in this item. Therefore, the item was removed from the analysis. Factor loadings below .50 also applied to IntC_2 and IntC_3_R, in addition to high levels of the modification indices and factor loadings on two separate factors. As a result, both items were removed from the model.

Based on the modification indices, some error terms of items were allowed to covary. The items had similarities in phrasing and/ or were in consecutive order, but it was plausible that they shared some unique variance due to minor conceptual differences. For instance, adding something more to the question or differing in whether it is a perception of a behavior or perception of the intention to pursue an action. For example, ExtC_11 and ExtC_12 demonstrated the same type of wording but differed in rating the perception of the actual behavior (*"The degree of cooperation is large between units in this district")* or the perception of the intention to proceed that behavior (*"People are prepared to cooperate across units in this district"*) The same applies for IntC_11 and IntC_12. For all covaried error terms, see measurement model 2 in Appendix 3.

The standardized covariance residuals associated with the mediators also demonstrated problematically high values. Preacher and Hayes (2008) recommended that these residuals should be allowed to covary. They emphasize that if a correlation exists and the residuals are not covarying, the measurement model will be misspecified and affect normal-theory-tests of specific total or indirect effects. In this case, it would also be theoretically problematic not to correlate the residuals because they origin from the same climate measure. Therefore, based on the theoretical assumptions and statistical indications, the disturbance terms of HR and IP was decided to covary.

Table 3
Measurement Model: Goodness of Fit Statistics

Model	χ^2	df	χ^2/df	CFI	RMSEA [CI]	SRMR	Comments
1	4826.19**	935	5.16	.812	.070 [.071, .075]	.064	*All items are included*
2	1126.14**	448	2.51	.954	.042 [.039, .045]	.041	*Items: HR_7, HR_8, IP_5, IP_6, IP_7, CR_4, IntC_2, IntC_3_R, IntC_5_R, ExtC_2, ExtC_3_R, ExtC_5_R, ExtC_8_R are excluded*

Note. CI= 90 % confidence interval of the RMSEA
** Chi-square significant at the 0.01 level.

A path diagram of the improved measurement model (model 2) is displayed in Appendix 3, as well as its corresponding communalities in Appendix 4. Table 3 represents the goodness-of-fit indices for model 2, where the CFI, RMSEA and SRMR indicate a good model fit. There was a possibility to continue the modification of the measurement model to improve overall fit even further. However, this would be more likely to represent a statistical point of view rather than representing the underlying theoretical assumption (MacCallum, Roznowski & Necowitz, 1992).

Reliability and validity.

The composite reliability for all constructs were satisfactory, demonstrating CR above .70 as recommended (Hair et al., 2014): Internal communication CR=.89, external communication CR=.89, human relations CR=.83, internal processes CR=.69 and change readiness CR=.76. Thus, reliability and convergent validity were satisfactory for all scales. Each constructs' average variance extracted (AVE) was calculated to investigate discriminant validity. The square rooted AVE demonstrated higher values than the construct correlations from CFA model, thus supporting discriminant validity among all constructs (Table 4).

Table 4
Construct Correlation Matrix with Corresponding AVE Coefficients

	1	2	3	4	5
1. Human relations	**.67**				
2. Internal process	.54	**.60**			
3. Int. Communication	.57	.40	**.68**		
4. Ext. Communication	.39	.44	.50	**.71**	
5. Change readiness	.24	.26	.24	.25	**.63**

Note. Coefficient displayed in bold represent the AVE

Structural model.

After demonstrating acceptable fit for the measurement model, the next step in SEM-analysis is to specify the structural model. That is, to present the paths between the latent variables, as specified in the hypotheses. Because the measurement model and the structural model demonstrate the same number of paths between the constructs, they produced the same goodness-of-fit indices (Table 5). This means that the model fit the data well. The complete theorized model, with its' fit-indexes and structural elements, is displayed as Figure 3.

Table 5

Structural Model Goodness of Fit Statistics

χ^2	df	χ^2/df	CFI	RMSEA [CI[1]]	SRMR	Comments
1126.14**	448	2.51	.954	.042 [.039, .045]	.041	*Items: HR_7, HR_8, IP_5, IP_6, IP_7, CR_4, IntC_2, IntC_3_R, IntC_5_R, ExtC_2, ExtC_3_R, ExtC_5_R, ExtC_8_R are excluded*

**Chi-square $p<.01$

[1]90 % confidence interval of the RMSEA

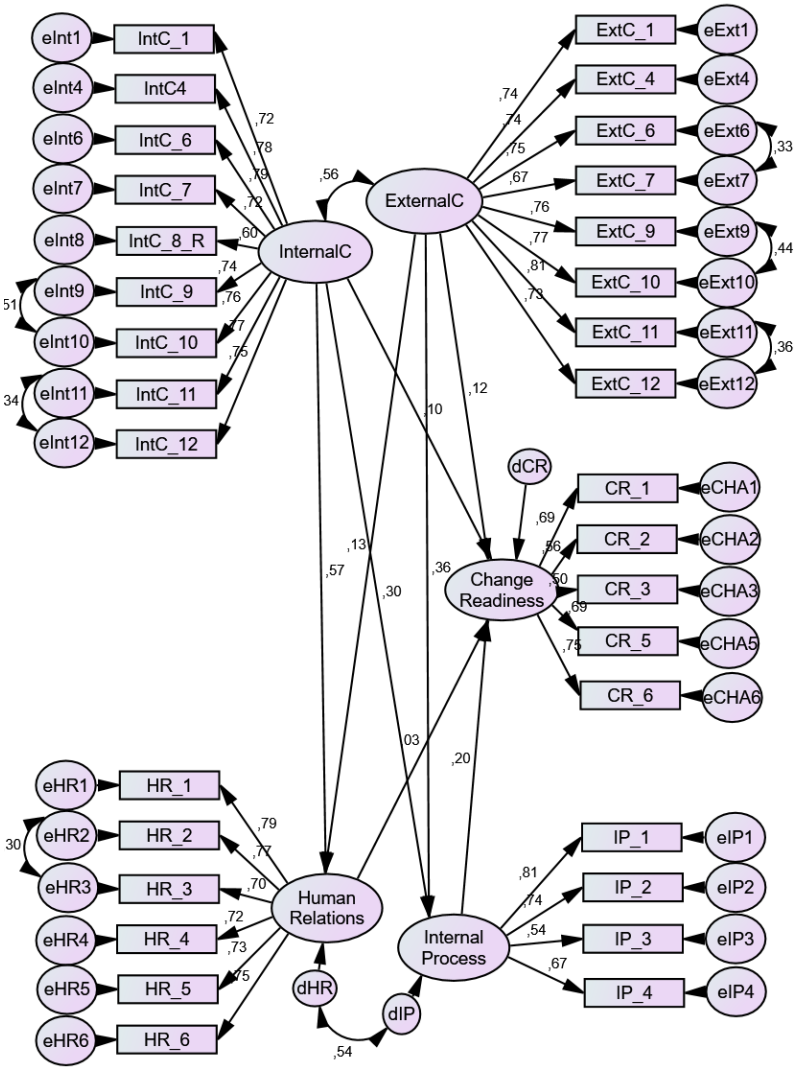


Figure 3. *Structural Model Path Diagram*

Note. Displaying standardized coefficients.

Circles represents latent variables and rectangles represents observed variables (indicators). The circles displaying e** denotes error variance in each observed variable, while circles displaying d* denotes disturbance terms (other variables affecting the latent variable, that are not accounted for in the model).

Direct, indirect and total effects.

To obtain the 95 % confidence interval for and to test the significance of the indirect effects of the model, there was necessary to perform a bootstrap. Bootstrap is a non-parametric resampling procedure advocated to test mediation, and do not impose the assumption of normality of the sampling distribution (Preacher & Hayes, 2008; Bollen & Stine, 1992). That is, when estimating indirect effects, the assumption of normality is assumed to be broken and the bootstrap takes this into account (Preacher & Hayes, 2008). This method was preferred and recommended over a Sobels' test, because of the higher demonstrated power while maintaining a reasonable control over the Type 1 error rates (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; MacKinnon, Lockwood &, Williams, 2004; Preacher & Hayes, 2008).

Table 6 displays the direct, indirect and total effect between the latent variables. The suggested significant direct effect between internal communication and change readiness proved itself to be non-significant (H1a: b=.07), and thus rejecting the hypothesis. Furthermore, some effects were found significant ($p<.05$). External communication and change readiness displayed a significant effect, as expected (H1b: b=.09). Both Internal (b=.60*)*, and external (b=.14*)* communication did positively predict human relations climate (HR), whereas internal communication displayed a stronger relationship compared to external communication, therefore supporting the hypothesis (H3).

Moreover, the direct effect between HR and change readiness was not significant (H2: b=.02), nor was the indirect effect between internal communication and change readiness through HR (H4a: b=.01, CI [-.06, .09]) or between external communication and change readiness through HR (H4b: b=.00, CI [-.01, .02]). Thus, making all three hypotheses rejected, suggesting that human relations climate is not as prominent in the police organization when attempting to predict change readiness. Internal and external communication explained 43 % of the variation in HR.

Table 6
Estimates of Direct, Indirect and Total Effects between Latent Variables

	Endogenous variables									
	Human relations			Internal process			Change readiness			
Causal variables	b	SE	β	B	SE	β	b	SE	95 % CI	β
Int. Communication										
Direct	.60**	.06	.57	.35**	.06	.30	.07	.05	[-.03, .18]	.10
Indirect (by HR)	-	-	-	-	-	-	.01	.04	[-.06, .09]	.02
Indirect (by IP)	-	-	-	-	-	-	.05**	.02	[.01, .09]	.06
Total	.60**	.06	.57	.35**	.06	.30	.13**	.05	[.05, .23]	.17
Ext. Communication										
Direct	.14**	.05	.13	.41**	.06	.36	.09*	.04	[.01, .17]	.12
Indirect (by HR)	-	-	-	-	-	-	.00	.01	[-.01, .02]	.00
Indirect (by IP)	-	-	-	-	-	-	.05**	.02	[.02, .10]	.07
Total	.14**	.05	.13	.41**	.06	.36	.15**	.04	[.07, .22]	.19
Human relations										
Direct	-	-	-	-	-	-	.02	.06	[-.09, .14]	.03
Internal process										
Direct	-	-	-	-	-	-	.13**	.05	[.03, .23]	.20

Note. 95 % CI= confidence intervals for unstandardized coefficients, SE=Standard error for unstandardized coefficients, displaying unstandardized coefficients: b and standardized coefficients: β
**Coefficient significant at 0.05 level*
*** Coefficient significant at 0.01 level*

All effects related to the internal process climate (IP) variable was found significant (p<.01), and therefore, all hypotheses related to this climate type was retained. Both internal communication (H6a: b=.35) and external communication (H6b: b=.41) displayed a positive direct effect with IP. This was also the case between IP and change readiness (H5: b=.13). Additionally, there was a positive indirect effect of both internal (H7a: b=.05, CI [.01, .09]) and external communication (H7b: b=.05, CI [.02, .10]) on change readiness, through IP. Thus, indicating that communication both internally and externally predicts change readiness through internal process climate. Internal and external communication explained 34 % of the variation in IP.

Discussion

The aim of this study was to explore the relationship between communication, two climate types and change readiness. Specifically, the thesis investigated whether communication (i.e., internal and external) could predict change readiness through two different climate types of the Competing Values Framework (CVF); Human relations climate and internal process climate. This was investigated in a police setting. Eleven hypotheses were acquired and presented in a structural equation model.

The first hypotheses concerned the relationship between internal and external communication and change readiness. Hypothesis 1a suggested that internal communication would positively predict change readiness, which hypothesis 1b also suggested for external communication. The analysis produced varying results. Internal communication did not significantly predict change readiness, suggesting that change readiness is not facilitated by the degree of internal communication in the organization. However, external communication yielded significant results and positively predicted change readiness. The findings are partly in accordance with change literature, where the combination of both internal change agents (i.e., communicative elements within the organization) and external change agents (i.e., communicative elements located outside of the organization) are found to be important to facilitate change readiness in an organization (Armenakis et al., 1993).

The second, third and fourth hypotheses, focusing on the relationship between communication, human relations and change readiness, yielded some mixed results. Hypothesis 2 proposed that human relations climate positively predicted change readiness, but produced non-significant results and thus, rejecting the hypothesis. The low effect size between the constructs suggests that change readiness is not facilitated by a human relations climate, yielding contradictory results compared to other studies (e.g., Bartels et al., 2007; Hartnell et al., 2011; Jones et al., 2005). However, it is important to note that this specific relationship has not been investigated in police settings before, and therefore raising questions about generalizability of these previous findings.

The third hypothesis suggested that both internal and external communication would positively predict human relations climate, but internal communication and human relations climate is expected to have a stronger relationship compared to external communication. Both constructs displayed significant coefficients in the predicted direction. Further, internal communication and human relations climate demonstrated a larger effect size than external communication did. In earlier studies, human relations climate has demonstrated a differing

relationship between internal and external communication, similar to these results (e.g., Koritzinsky, 2015). In addition, communication in general explained 43 % of the variance in human relations climate. Consequently, the hypothesis was retained, implicating that high levels of internal communication facilitates a human relation climate in the police in a larger degree than external communication.

The fourth hypotheses proposed that internal communication (H4a) and external communication (H4b) would positively predict change readiness through human relations climate. Surprisingly, results on both hypotheses were found not significant, as well as demonstrating values close to and of zero. The confidence intervals of the indirect effects also displayed a very small variation in the estimation produced by the bootstrap, both tending towards values of zero in the lower bounds. Taken together, the low, non-significant coefficients and the confidence intervals implicated that neither internal nor external communication predict change readiness through human relations climate. In other words, human relations climate does not play a central role in the relationship between communication and change readiness in a police organization context. As a result, the hypotheses were rejected.

Finally, the last five hypotheses focused on the relationship between communication, internal process and change readiness. The fifth hypothesis suggested that internal process climate would positively predict change readiness, which was found significant. Internal process climate has been argued to facilitate change readiness in particular organizational contexts, specifically resembling police settings (Burnes, 2009). Thus, indicating that high levels of internal process climates leads to high levels of change readiness in the police. The hypothesis was retained.

Further, the sixth hypotheses predicted a direct effect between internal (H6a) and external (H6b) communication and internal process climate, in a positive direction. The regression coefficients were significant for both internal and external communication on internal process climate. Also, communication in general did explain 34 % of the variation in this climate type. The results suggest that both sub-divisions of communication predict internal process, implicating that communication is of importance to promote an internal process climate in the organization.

The seventh and last hypotheses represents the indirect effects demonstrated by internal process climate, and displayed a positive indirect effect between internal communication (H7a) and external communication (H7b) on change readiness through

internal process climate. The confidence intervals showed a relatively small variation and with values tending to zero in the lower bounds. However, the regression coefficients were significant in the right direction and the confidence interval did not include zero, so the hypotheses were decided to be retained. The indication of these results is that change readiness is facilitated by internal and external communication when the internal process climate is prominent in the police organization. Namely, proposing that internal process climate may function as a potential mediator in the relationship between internal and external communication and change readiness.

Taken together, the results presented some mixed findings. The communication variables seemed to be strongly connected to human relations climate, and thus suggesting that communication might facilitate human relations climate. The same indication has also been made in previous studies (Bartels et al., 2007; Patterson et al., 2005). Surprisingly, human relations climate did not demonstrate a significant association to any variable except for the communication variables. Internal process climate, on the other hand, demonstrated significant results with all the other variables, implicating that a stronger predicative ability is presents between communication and change readiness through internal process climate compared to human relations climate. In conclusion, there was a considerable and surprising variation in the findings, especially between the two climate types, yielding some interesting theoretical and practical implications.

Implications

Theoretical implications.

This study contributes to psychological research by enhancing the knowledge of potential facilitators of organizational readiness to change, and how this affects the approach towards change in a police setting. Previous research has identified human relations climate as salient in the general police climate, compared to internal process climate (Koritzinsky, 2015; Lone et al., 2017). Thus, these findings indicated that human relations will predict change readiness, as well as demonstrating an indirect effect between communication and change readiness. The findings in this study, however, provide conflicting evidence with these assumptions: Internal process climate was found to be the predictor of change readiness, and displayed an indirect effect between communication and change readiness. The internal process climate is not well established in previous research, but display tendencies to be salient in the police organization when facilitated by communication and introduced in a change-context. Furthermore, the findings contribute to the broadening of the theoretical,

conceptual and operational understanding and practical implications of communication, human relations and internal process climate and change readiness. All variables will now be further addressed.

Change readiness.

The findings related to the facilitators of change readiness was mixed. Unexpectedly, neither internal communication nor human relations climate did directly or indirectly predict readiness. Internal communication did only predict change readiness through internal process climate. Furthermore, internal process climate significantly predicted change both directly and indirectly. One explanation for this could be that the specificity of the police organization is identified in a higher degree with an internal process climate than with a human relations climate, thus resulting in facilitation of change readiness through this climate type. Previous research does, however, implicate somewhat the opposite, displaying higher degrees of human relations climate in the context of change (Hartnell et al., 2011; Jones et al., 2005; Patterson et al., 2005), as well as in other police settings (e.g., Lone et al., 2017; Koritzinsky, 2015). That is, the approach to change could depend on contextual and organization-specific factors.

The analysis showed good reliability. Nevertheless, the removal of one item could be of significance for the results. As previously argued, item CR_4 demonstrated some problems related to articulation of the content, which in turn could explain the obtained statistical issues in the CFA. Unlike the remaining items, CR_4 asked participants to evaluate their own behavior relative to the behavior of others. That is, the other items measured the implicit behavior of the individual, where CR_4, in addition, asked for an evaluation of the perceived behavior of others. The impact of this removal is yet to be investigated, possibly by reproducing the factor solution were a rephrased version of the item is included.

Communication.

Results support the use of the structural adjustments in this construct (i.e., measuring communication internally and externally) by demonstrating that there is a difference in the perception of internal and external communication. The t-test indicated that employees report significantly higher degrees of internal communication compared to external communication. Dovidio and Banfield (2015) stated that communication across group lines are generally viewed as less effective than within groups, because they are less accurate in perceiving emotional expressions displayed by outgroup compared to ingroup, as well as being biased in their misperceptions. Furthermore, similar results were obtained by Balliet et al. (2014) and

Koritzinsky (2015), emphasizing the ingroup-outgroup difference in the police organization, and thus supporting the obtained findings.

The analysis also discovered some item-related problems in both scales, which is important for the interpretation of the findings. The items in question was mostly reversed and negatively-worded, concerning contents related to conflict, mistrust and animosity, which consequently led to exclusion of all problematic items. An important question is whether the issues arise due to items representing a separate construct or how they are articulated. One explanation could be related to the analysis itself, due to the tendency the EFA have to "single out" reversed items as a separate factor, yielding so-called separate-wording factors (Brown, 2015; Schriesheim & Eisenbach, 1995). In this case, the reversed items in both internal and external communication scales (i.e., IntC_5_R, IntC_8_R, ExtC_3_R, ExtC_5_R and ExtC_8_R) loaded on a sixth factor, thus suggesting that item articulation and scoring directionality might have caused the items to load on a separate factor (Schriesheim & Eisenbach, 1995). Additionally, two other items cross-loaded on the third factor (i.e., IntC_2 and IntC_3_R), one of the articulated negatively/ reversed and one not. Both concerned conflict and were also excluded from the SEM-analysis.

Nevertheless, one cannot make conclusion on whether the problems arise as a result of the method or representing constructs reflecting conflict, mistrust and animosity. Negatively worded items are primarily used to avoid biases such as automatic processing and pattern-responses in self-report surveys but can in turn become a potential source of method bias. Thus, some authors advice against the use of negative wording (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The findings imply that there is need for further research to fully address these issues, and a potential first step is to reproduce the same factor solution after rewriting the items into positive wording.

Human relations and internal process climate.

The results of this study contribute to and challenge some of the earlier findings. In previous studies, human relations climate has been found to be a salient climate type in police organization research (e.g., Koritzinsky, 2015; Lone et al., 2017). Surprisingly, this study contributed to the contrary. The findings show that, combined with internal and external communication, internal process climate fosters change readiness in the police organization in a larger degree than human relations climate, implying the opposite of previous findings.

Taken together with the fact that human relations climate has demonstrated itself to be salient in other contexts in the police (e.g., investigation efficiency (Lone et al., 2017)), these

findings might support the rejection of the proposed "dominant" climate type (Hartnell et al., 2011; Koritzinsky, 2015). Rather than having only one dominating climate type in the organization, the implication points to a police climate assembled by a combination of sub-climates where specific climate types becomes more salient within a specific organizational context (Burnes, 2009). That is, several climate types exist in the organization simultaneously but how salient they are depend on the organizations immediate needs and the climate types suitability to the given context. Furthermore, it could be explained as a result of a "competing demand" factor, demonstrating different results due to competing demands in the two climate types; for instance, effectiveness criteria might be more human relations oriented, and organizational change climate might be more internal process related. Therefore, the ones matching the organizations current demand, are demonstrated as most salient. From a practical standpoint, the findings suggest that the police organization should attend to the whole and complexity of the police organizational climate, as opposed to focus on only one factor or dimension of climate (Koritzinsky, 2015). In this case, including the whole Competing Values Framework.

It is important to note that these assumptions must be interpreted with caution. When conducting the analysis, some problematic items were discovered in both scales which resulted in removal (i.e., HR_7, HR_8, IP_5, IP_6 and IP_7). Particularly, the items seemed to measure separate constructs, demonstrating factor loadings on separate factors. In addition to almost identical wording, the HR_7 and HR_8 seemed to be conceptually targeting what Quinn and Rohrbaugh (1981, 1983) refers to as "means" (i.e., emphasis on important processes), compared to the included items which represents "ends" (i.e., emphasis on important outcomes) (See Figure 1). This was also the case for the IP-items, with the removed items primarily representing "ends". However, contemporary versions of the framework do not include the means-ends dimensions (Cameron & Quinn, 2011; Koritzinsky, 2015), and thus questioning the utility of including them in the scales. Nevertheless, the exclusion of these items has implications of how one should interpret the results, suggesting an investigation of the same factor solution when all items are included, in addition to all the quadrants of the CVF.

Practical implications.

Based on the findings in this study, there are some practical implications to be made. The main implication in this study is that the focus should be on the identification of the right approach to facilitate change readiness in the Norwegian police. Previous studies have

proposed both communication and human relations climate types as facilitators for change readiness (e.g., Armenakis et al., 1993; Jones et al., 2005; Koritzinsky, 2015), which was just partially supported by the findings in this study. The human relations climate, encompassing a flexible approach to climate, did not demonstrate any significant relation to change. The suggestions to be made is related to the potential uniqueness and governmental nature characterizing the Norwegian police organization, proposing that a human relations climate approach is not appropriate in this context, nor fitting the demands represented in the Norwegian police in this particular situation (i.e., change situation). In other words, successful facilitation of change readiness does not necessarily rely on constant constructs, but varies in accordance with the nature of the organization that change is presented in (Burnes, 2004, 2009). Therefore, an important initial step is to analyze the organization, in order to understand structural as well as environmental factors present, and in turn affecting policing strategies and practices (Yilmaz, 2013). There is a need to identify the specific needs and demands of the police organization. In other words, a "tailored" approach to change readiness can be a crucial factor to successfully implement organizational change.

Limitations

The study has some limitations that needs to be acknowledged.

Cross-sectional study. This study was cross-sectional, measuring prevalence and associations between all variables at the same time. Consequently, one cannot differentiate the cause and effect from a simple association (Mann, 2003). That is, it is not possible to draw causal interferences between the variables. The findings prove positive associations between communication, internal process and human relations climate, and change readiness. However, it does not account for other confounding variables that might influence these associations, and thus, whether the effects in this study might be different than what is hypothesized. There is no post-hoc remedy for this limitation, so further research is needed to establish causality.

Self-report study. The use of self-report surveys may be the source of some limitations, namely increasing the risk of the potential existence of common method variance. Common method variance (CMV) represents the "…variance that is attributable to the measurement method rather than to the constructs the measures represents" (Podsakoff et al., 2003, p. 879), and is a potential problem in behavioral research. A common source of CMV is social desirability, referring to the individual need for social approval and the belief that it can be achieved through culturally acceptable and appropriate behaviors (Podsakoff et al., 2003;

Spector, 2006). In other words, answering the questionnaire to present themselves in a favorable light regardless of their true feelings about the subject, and thus alter the genuine effect between the variables (Podsakoff et al., 2003). However, this bias could be viewed as partly accounted for in the communications and climate measures, because the scales are articulated as referent shift (i.e., asking about behavior or intentions of the organization instead of individual behavior or intentions). A second source of CMV which could be of concern, are negatively worded items in the scales. The negatively worded, or reverse-coded, items are used to counteract the potential response-pattern biases. However, reverse-coded items could possibly produce artifactual response factors exclusively captured by negatively worded items, which might disappear after rewriting them (Podsakoff et al., 2003). Furthermore, the respondents' establishment of response-patterns could, in turn, make them fail to recognize the reverse coded items, and thus making this a possible source of method bias.

Communication climate scale. Since the communication climate measure origins from a scale primarily used to measure knowledge sharing and behaviors related to cooperation, possible questions about construct validity arise. Knowledge sharing is, arguably, the behavioral manifestation of communication climate, and several studies refers to clear findings and implications regarding the large degree of shared dimensions between the two constructs (e.g., Ali et al., 2002; Bartels et al., 2007; Smidts et al., 2001; Van den Hoof & De Ridder, 2004). However, further investigation is needed to determine in what degree knowledge sharing reflect communication, and to specify whether the scale reflects the construct meant to be measured, namely ensure construct validity.

Competing Values Framework. The inclusion of only two of the quadrants rather than the whole Competing Values Framework (CVF) could be considered as a limitation. In particular, Hartnell et al. (2011) states that the positive interrelationship among CVFs' four quadrants suggest that the identification of "dominant" climate types may be of limited utility because they do not fully account for organizational climate range (Denison & Spreitzer, 1991). The tendency to describe organizational climate according to their predominant climate type ignore the interaction among the values that define organizational climate. This implicates that there is reason to believe that one will not capture the whole picture of the police organization by using just a few, compared to all four quadrants of the framework. Taken together with the results of this study, there is of importance to include the whole CVF when investigating climate-impact on change readiness. As mentioned, this study implicated

that internal process climate is the most salient climate type in the police, when in a change-context, and thus supporting the assumption that the police organization consists of several sub-climates. In other words, evoking a specific climate type of the CVF to be more salient when a specific context is presented. To fully address this assumption, it will be advantageous to replicate this study, using the whole framework rather than just two of the quadrants.

Another issue related to the CVF, is its suitability to measure climate in a knowledge-based institution such as the police organization. The Competing Values Framework was originally developed to investigate efficiency in organizations focusing primarily on production (Quinn & McGrath, 1982; Quinn & Rohrbaugh, 1981,1983). Thus, raising questions about the validity of the framework when measuring a private knowledge-intensive organization such as the Norwegian police. The framework has been investigated in police settings before (e.g., Koritzinsky, 2015; Lone et al., 2017), but its full usefulness should be subject to further investigation.

Generalization. Finally, the generalizability of the findings is an issue that needs to be addressed. Because the data only consists of employees working in three districts (now merged to one, district "*Øst*") out of twenty-seven (now merged to twelve) (NOU 2013:09, 2013), a natural question is whether the sample is representative for the whole organization. Also, there is a possibility that the respondents share some characteristics, compared to those who did not respond. For instance, those who agree to participate might be better communicators and more cooperative in general than those who did not participate, which might influence their response to the questionnaire. This is referred to as cooperation bias (Witherspoon, Bergner, Cockrell, & Stone, 2013). However, several characteristics of the sample do indicate representativeness. The inclusion of a large range of demographic variables may contribute to counteract threats to representativeness. Six areas of expertise were included, together with seven possible combination of these, a broad range of age-categories (12) and an even distribution of men and women (481 men and 451 women). Also, the large sample size and high response rate (58 %) suggests that one could expect a higher variability in personal characteristics among participants.

Further Research

The results of this study provide opportunities for future research, both based on the findings and limitations. Some of these have already been proposed, such as the inclusion of the whole CVF instead of just two climate types. This study did only investigate the impact of human relations and internal process climate, displaying findings supporting the assumption

of co-existing rather than competing climate types in the police organization. Furthermore, this implicated that the police climate may be a result of the combination of sub-climates, where the specific climate type becomes more prominent when a specific organizational context is induced, such as organizational change (Burnes, 2009). To obtain a deeper understanding of this sub-climate combination, the police organization should attend to the entire and the complexity of the police organizational climate, rather than emphasizing only one dimension or factor of climate. Thus, substantiating the need to include the two remaining climate types of the CVF in further investigation.

Second, future studies should investigate these variables longitudinally, to assess for potential causality. The cross-sectional design used in this study only account for the association between the variables, and cannot infer causal relationships. In addition, a broadening of the sample by including all the districts in the Norwegian police will be beneficial to incorporate in further studies. This study did only account for three out of twenty-seven (now merged to twelve) districts. The inclusion of all districts will therefore contribute to the increase of generalizability of the findings.

Finally, an interesting angle would be to investigate these variables with data collected after the implementation of the police reform to compare with the results of this study. Knowledge about the individual experience with change, and opinions on how employees are prepared for future structural changes, such as the police reform, may be of value on their actual reaction to the impending change. Furthermore, it will work as a heads up for managers on what to be expected and how to ensure efficient and sustainable change in the police organization.

Conclusion

After the terror attacks 22th of July 2011, several evaluation reports hit the police hard, critiquing the basic functioning of the organization. As a result, the Norwegian police has been subject for an overturning organizational change, facing the new police reform, and raising highly relevant questions related to successful facilitation and implementation of change initiatives. This study contributed to shed some light on these issues, by investigating the facilitating ability of internal and external communication and two organizational climate types (i.e., human relations climate and internal process climate) on organizational readiness to change. The results provided new insights into the relationship between the variables, particularly related to previous findings assuming human relations climate to be the most prominent climate type in a general organizational context, as well as the police organization

(Hartnell et al., 2011; Koritzinsky, 2015; Lone et al., 2017). More precisely, the findings in this study contradicted previous research, suggesting that internal process plays an important role in change readiness situations demonstrated in the police organization. Both the direct and indirect effects of human relations climate was found non-significant. However, communication did positively predict change readiness when going through the internal process climate as well as directly, and thus strengthen the implication of a salient internal process climate in the police during change.

The findings in this study provides an extension in climate research in the context of specific organizations. As Yilmaz (2013) suggested, the need for a tailored approach to change is highly relevant to identify the possible facilitators of change in a specific organization and in a particular organizational context. Hopefully, this study provides important insight regarding the approach to change in specific organizations such as the Norwegian police, and thus inspires to future research of possible facilitators of change readiness in relation to organizational climate types.

References

Ahmad, S., Zulkurnain, N. N. A., & Khairushalimi, F. I. (2016). Assessing the validity and reliability of a measurements model in structural equation modeling (SEM). *British Journal of Mathematics & Computer Science, 15*(3), 1-8. doi:10.9734/BJMCS/2016/25183

Ali, I. M., Pascoe, C., & Warne, L. (2002). Interactions of organizational culture and collaboration in working and learning. *Educational Technology & Society, 5*(2), 60-68. Retrieved from http://www.jstor.org/stable/jeductechsoci.5.2.60?seq=1#page_scan_tab_contents

Armenakis, A. A., & Fredenberger, W. B. (1997). Organizational change readiness practices of business turnaround change agents. *Knowledge and Process Management, 4*(3), 143-152. doi:10.1002/(SICI)1099-1441(199709)4:3<143::AID-KPM93>3.0.CO;2-7

Armenakis, A. A., Harris, S. G., & Mossholder, K. W. (1993). Creating readiness for organizational change. *Human Relations, 46*(6), 681-703. doi:10.1177/001872679304600601

Balliet, D., Wu, J., & De Dreu, C. K. (2014). Ingroup favoritism in cooperation: A meta-analysis. *Psychological Bulletin, 140*(6), 1556-1581. doi:10.1037/a0037737

Bamford, D. R., & Forrester, P. L. (2003). Managing planned and emergent change within an operations management environment. *International Journal of Operations & Production Management, 23*(5), 546-564. doi:10.1108/01443570310471857

Bang, H. (2013). Organisasjonskultur: En begrepsavklaring [Organizational culture: A concept clarification]. *Tidsskrift for Norsk Psykologforening, 50*(4), 326-336. Retrieved from: http://www.psykologtidsskriftet.no/index.php?seks_id=318400&a=3

Bartels, J., Pruyn, A., De Jong, M., & Joustra, I. (2007). Multiple organizational identification levels and the impact of perceived external prestige and communication climate. *Journal of Organizational Behavior, 28*(2), 173-190. doi:10.1002/job.420

Bollen, K. A., & Stine, R. A. (1992). Bootstrapping goodness-of-fit measures in structural equation models. *Sociological Methods & Research, 21*(2), 205-229. doi:10.1177/0049124192021002004

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). New York: Guilford Press.

Burnes, B. (2004). Emergent change and planned change–competitors or allies? The case of XYZ construction. *International Journal of Operations & Production Management, 24*(9), 886-902. doi:10.1108/01443570410552108

Burnes, B. (2009). *Managing change: A strategic approach to organizational dynamics* (5th ed.). Harlow: FT/Prentice Hall.

By, R. T. (2005). Organisational change management: A critical review. *Journal of Change Management, 5*(4), 369-380. doi:10.1080/14697010500359250

Bø, M. T. N. (2014). *Organizational climate differences in the Norwegian police.* (Master's thesis), University of Oslo, Oslo. Retrieved from https://www.duo.uio.no/handle/10852/39799

Cabrera, A., Collins, W. C., & Salgado, J. F. (2006). Determinants of individual engagement in knowledge sharing. *The International Journal of Human Resource Management, 17*(2), 245-264. doi:10.1080/09585190500404614

Cabrera, E. F., & Cabrera, A. (2005). Fostering knowledge sharing through people management practices. *The International Journal of Human Resource Management, 16*(5), 720-735. doi:10.1080/09585190500083020

Cameron, K. S., & Quinn, R. (2011). *Diagnosing and changing organizational culture: Based on the competing values framework.* USA: John Wiley & Sons Inc.

Denison, D. R. (1996). What is the difference between organizational culture and organizational climate? A native's point of view on a decade of paradigm wars. *Academy of Management Review, 21*(3), 619-654. doi:10.5465/AMR.1996.9702100310

Denison, D. R., & Spreitzer, G. M. (1991). Organizational culture and organizational development: A competing values approach. *Research in Organizational Change and Development, 5*(1), 1-21. Retrieved from: http://www.scirp.org/(S(czeh2tfqyw2orz553k1w0r45))/reference/ReferencesPapers.aspx?ReferenceID=607793

Dennis, H. S. (1974). *A theoretical and empirical study of managerial communication climate in complex organizations.* (Doctoral thesis), Purdue University Ann Arbor, Michigan. Retrieved from https://search.proquest.com/docview/302756085?accountid=14699

Dietz, J., Pugh, S. D., & Wiley, J. W. (2004). Service climate effects on customer attitudes: an examination of boundary conditions. *Academy of Management Journal, 47*(1), 81-92. doi: 10.2307/20159561

DIFI. (2013). Rapport 2013:3 Evaluering av Politidirektoratet [Report 2013:3 Evaluation of the Police Directorate]. Oslo: Direktoratet for forvaltning og IKT.

Dillard, J. P., Wigand, R. T., & Boster, F. J. (1986). Communication climate and its role in organizations. *Communications, 12*(2), 83-102. doi:10.1515/comm.1986.12.2.83

Dovidio, J. F., & Banfield, J. C. (2015). Intergroup cooperation. In D. A. Schroeder & W. G. Graziano (Eds.), The Oxford Handbook of Prosocial Behavior (pp. 562-581). New York, NY: Oxford University Press; US. doi:10.1093/oxfordhb/9780195399813.013.002

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50. doi:10.2307/3151312

Gaertner, S. L., & Dovidio, J. F. (2000). *Reducing Intergroup Bias: The Common Ingroup Identity Model*. Philadelphia, Pa: Psychology Press.

Glick, W. H. (1985). Conceptualizing and measuring organizational and psychological climate: Pitfalls in multilevel research. *Academy of Management Review, 10*(3), 601-616. doi:10.2307/258140

Glisson, C., & James, L. R. (2002). The cross-level effects of culture and climate in human service teams. *Journal of Organizational Behavior, 23*(6), 767-794. doi:10.1002/job.162

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed.). Harlow: Pearson.

Hartnell, C. A., Ou, A. Y., & Kinicki, A. (2011). Organizational culture and organizational effectiveness: a meta-analytic investigation of the competing values framework's theoretical suppositions. *Journal of Applied Psychology, 96*(4), 677. doi: 10.1037/a0021987

Hayes, A. F., & Krippendorff, K. (2007). Answering the call for a standard reliability measure for coding data. *Communication Methods and Measures, 1*(1), 77-89. doi:10.1080/19312450709336664

Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods, 7*(2), 191-205. doi:10.1177/1094428104263675

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115-135. doi:10.1007/s11747-014-0403-8

Hoe, S. L. (2008). Issues and procedures in adopting structural equation modeling technique. *Journal of Applied Quantitative Methods, 3*(1), 76-83. Retrieved from: https://www.researchgate.net/publication/26504075_Issues_and_Procedures_in_Adopting_Structural_Equation_Modeling_Technique

Horn, J. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 30*(2), 179-185. doi:10.1007/BF02289447

Jackson, D. L. (2003). Revisiting sample size and number of parameter estimates: Some support for the N: q hypothesis. *Structural Equation Modeling, 10*(1), 128-141. doi:10.1207/S15328007SEM1001_6

James, L. R., Choi, C. C., Ko, C. H. E., McNeil, P. K., Minton, M. K., Wright, M. A., & Kim, K. (2008). Organizational and psychological climate: a review of theory and research. *European Journal of Work and Organizational Psychology, 17*(1), 5-32. doi: 10.1080/13594320701662550

James, L. R., & Jones, A. P. (1974). Organizational climate: A review of theory and research. *Psychological Bulletin, 81*(12), 1096-1112. doi:10.1037/h0037511

Johnson, J. J., & McIntye, C. L. (1998). Organizational culture and climate correlates of job satisfaction. *Psychological Reports, 82*(3), 843-850. doi:10.2466/PR0.82.3.843-850

Jones, R. A., Jimmieson, N. L., & Griffiths, A. (2005). The impact of organizational culture and reshaping capabilities on change implementation success: The mediating role of readiness for change. *Journal of Management Studies, 42*(2), 361-386. doi:10.1111/j.1467-6486.2005.00500.x

Kalliath, T. J., Bluedorn, A. C., & Gillespie, D. F. (1999). A confirmatory factor analysis of the competing values instrument. *Educational and Psychological Measurement, 59*(1), 143-158. doi:10.1177/0013164499591010

Kirsh, B. (2000). Organizational culture, climate and person-environment fit: Relationships with employment outcomes for mental health consumers. *Work, 14*(2), 109-122. Retrieved from: https://content.iospress.com/articles/work/wor00075

Kline, R. B. (2011). *Principles and practice of structural equation modelling* (third ed.). New York: The Guilford Press.

Koritzinsky, V. H. (2015). *Measuring police climate: The development and evaluation of an instrument measuring police organizational climate.* (Master's thesis), University of Oslo, Oslo. Retrieved from https://www.duo.uio.no/handle/10852/44755

Kuenzi, M. (2008). *An integrated model of work climate* (Doctoral dissertion), University of Central Florida, Orlando, Florida. Retrieved from http://stars.library.ucf.edu/etd/3463/

Kuenzi, M., & Schminke, M. (2009). Assembling fragments into a lens: A review, critique, and proposed research agenda for the organizational work climate literature. *Journal of Management, 35*(3), 634-717. doi:10.1177/0149206308330559

Lamond, D. (2003). The value of Quinn's competing values model in an Australian context. *Journal of Managerial Psychology, 18*(1), 46-59. doi:10.1108/02683940310459583

Lei, P. W., & Wu, Q. (2007). Introduction to structural equation modeling: Issues and practical considerations. *Educational Measurement: Issues and Practice, 26*(3), 33-43. doi:10.1111/j.1745-3992.2007.00099.x

Lewin, K. (1947). Frontiers in group dynamics: Concept, method and reality in social science; social equilibria and social change. *Human Relations, 1*(1), 5-41. doi:10.1177/001872674700100103

Lone, J. A., Garnås, A., Myklebust, T., Bjørklund, R., Hoff, T., & Bjørkli, C. (2017). Organizational climate and investigation performance in the Norwegian police: A qualitative study. *Journal of Investigative Psychology and Offender Profiling, 14*(3), 227-245. doi:10.1002/jip.1474

Lømo, L. L. (2017). *The Relationship between employee participation, organizational commitment, and sharing and cooperation within healthcare organizations* (Master's thesis), University of Oslo, Oslo. Retrieved from https://www.duo.uio.no/handle/10852/57290

MacCallum, R. C., Roznowski, M., & Necowitz, L. B. (1992). Model modifications in covariance structure analysis: The problem of capitalization on chance. *Psychological Bulletin, 111*(3), 490-504. doi:10.1037/0033-2909.111.3.490

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7*(1), 83-104. doi:10.1037/1082-989X.7.1.83

MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research, 39*(1), 99-128. doi:10.1207/s15327906mbr3901_4

Mann, C. (2003). Observational research methods. Research design II: Cohort, cross sectional, and case-control studies. *Emergency Medicine Journal, 20*(1), 54-60. doi:10.1136/emj.20.1.54

McDonald, R. P., & Ho, M.-H. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods, 7*(1), 64-82. doi:10.1037/1082-989X.7.1.64

McKay, P. F., Avery, D. R., & Morris, M. A. (2008). Mean racial-ethnic differences in employee sales performance: The moderating role of diversity climate. *Personnel Psychology, 61*(2), 349-374. doi:10.1111/j.1744-6570.2008.00116.x

Miller, V. D., Johnson, J. R., & Grau, J. (1994). Antecedents to willingness to participate in a planned organizational change. *Journal of Applied Communication Research, 22*(1), 59-80. doi:10.1080/00909889409365387

Moran, E. T., & Volkwein, J. F. (1992). The cultural approach to the formation of organizational climate. *Human relations, 45*(1), 19-47. doi:10.1177/001872679204500102

Naumann, S. E., & Bennett, N. (2000). A case for procedural justice climate: Development and test of a multilevel model. *Academy of Management Journal, 43*(5), 881-889. doi:10.2307/1556416

NOU 2012:14. (2012). *Rapport fra 22. Juli-kommisjonen [Report from the 22nd of July Commission]*. Retrieved from https://www.regjeringen.no/contentassets/bb3dc76229c64735b4f6eb4dbfcdbfe8/no/pdfs/nou201220120014000dddpdfs.pdf

NOU 2013:09. (2013). *Ett politi – rustet til å møte fremtidens utfordringer [One police - ready to face the challenges of the future]*. Retrieved from https://www.regjeringen.no/contentassets/5e2a1012dbc7449e8f57813e7822252b/no/pdfs/nou201320130009000dddpdfs.pdf

Oreg, S. (2006). Personality, context, and resistance to organizational change. *European Journal of Work and Organizational Psychology, 15*(1), 73-101. doi:10.1080/13594320500451247

Ostroff, C., & Schulte, M. (2014). A configural approach to the study of organizational culture and climate. In B. Schneider & K. M. Barbera (Eds.), *The Oxford Handbook of Organizational Climate and Culture* (pp. 532-552). Oxford: Oxford University

Press. Retrieved from https://www.researchgate.net/publication/283284201_A_configural_approach_to_the_study_of_organizational_culture_and_climate

Patil, V. H., Singh, S. N., Mishra, S., & Donavan, D. T. (2008). Efficient theory development and factor retention criteria: Abandon the 'eigenvalue greater than one' criterion. *Journal of Business Research, 61*(2), 162-170. doi:10.1016/j.jbusres.2007.05.008

Patterson, M. G., West, M. A., Shackleton, V. J., Dawson, J. F., Lawthom, R., Maitlis, S., . . . Wallace, A. M. (2005). Validating the organizational climate measure: Links to managerial practices, productivity and innovation. *Journal of Organizational Behavior, 26*(4), 379-408. doi:10.1002/job.312

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879. doi:10.1037/0021-9010.88.5.879

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891. doi:10.3758/brm.40.3.879

Prop. 61 LS (2014–2015). (2015). *Endringer i politiloven mv. (trygghet i hverdagen – nærpolitireformen) [Changes in the police law (safety in everyday life - the local police reform]*. Regjeringen Solberg: Oslo Retrieved from https://www.regjeringen.no/no/dokumenter/prop.-61-s-2014-2015/id2398784/sec1

Quinn, R. E., & McGrath, M. R. (1982). Moving beyond the single-solution perspective: The competing values approach as a diagnostic tool. *The Journal of Applied Behavioral Science, 18*(4), 463-472. doi:10.1177/002188638201800407

Quinn, R. E., & Rohrbaugh, J. (1981). A competing values approach to organizational effectiveness. *Public Productivity Review, 5*(2), 122-140. doi:10.2307/3380029

Quinn, R. E., & Rohrbaugh, J. (1983). A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis. *Management Science, 29*(3), 363-377. doi:10.1287/mnsc.29.3.363

Rusly, F., Sun, P. Y.-T., & L. Corner, J. (2014). The impact of change readiness on the knowledge sharing process for professional service firms. *Journal of Knowledge Management, 18*(4), 687-709. doi:10.1108/JKM-01-2014-0007

Schneider, B. (1975). Organizational climates: An essay. *Personnel Psychology, 28*(4), 447-479. doi:10.1111/j.1744-6570.1975.tb01386.x

Schneider, B., Brief, A. P., & Guzzo, R. A. (1996). Creating a climate and culture for sustainable organizational change. *Organizational Dynamics, 24*(4), 7-19. doi:10.1016/S0090-2616(96)90010-8

Schneider, B., Ehrhart, M. G., & Macey, W. H. (2013). Organizational climate and culture. *Annual Review of Psychology, 64*, 361-388. doi:10.1146/annurev-psych-113011-143809

Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. *The Journal of Educational Research, 99*(6), 323-338. doi:10.3200/JOER.99.6.323-338

Schriesheim, C. A., & Eisenbach, R. J. (1995). An exploratory and confirmatory factor-analytic investigation of item wording effects on the obtained factor structures of survey questionnaire measures. *Journal of Management, 21*(6), 1177-1193. doi:10.1177/014920639502100609

Smidts, A., Pruyn, A., & van Riel, C. (2001). The impact of employee communication and perceived external prestige on organizational identification. *Academy of Management Journal, 44*(5), 1051. doi:10.2307/3069448

Spector, P. E. (2006). Method variance in organizational research: Truth or urban legend? *Organizational Research Methods, 9*(2), 221-232. doi:10.1177/1094428105284955

Sveiby, K.-E., & Simons, R. (2002). Collaborative climate and effectiveness of knowledge work–an empirical study. *Journal of Knowledge Management, 6*(5), 420-433. doi:10.1108/13673270210450388

Thoemmes, F., Rosseel, Y., & Textor, J. (2018). Local fit evaluation of structural equation models using graphical criteria. *Psychological Methods, 23*(1), 27-41. doi:10.1037/met0000147

Tong, Y. K., & Arvey, R. D. (2015). Managing complexity via the competing values framework. *Journal of Management Development, 34*(6), 653-673. doi:10.1108/JMD-04-2014-0029

Ulleberg, P., & Nordvik, H. (2001). *Faktoranalyse*. Trondheim: Tapir Akademisk Forlag

Vakola, M. (2014). What's in there for me? Individual readiness to change and the perceived impact of organizational change. *Leadership & Organization Development Journal, 35*(3), 195-209. doi:10.1108/LODJ-05-2012-0064

Van den Hooff, B., & De Ridder, J. A. (2004). Knowledge sharing in context: the influence of organizational commitment, communication climate and CMC use on knowledge

sharing. *Journal of Knowledge Management, 8*(6), 117-130. doi:10.1108/13673270410567675

Van der Voet, J., Groeneveld, S., & Kuipers, B. (2013). Talking the talk or walking the walk? The leadership of planned and emergent change in a public organization. *Journal of Change Management, 14*(2), 171-191. doi:10.1080/14697017.2013.805160

Verbeke, W., Volgering, M., & Hessels, M. (1998). Exploring the conceptual expansion within the field of organizational behaviour: Organizational climate and organizational culture. *Journal of Management Studies, 35*(3), 303-329. doi:10.1111/1467-6486.00095

Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review, 20*(2), 115-131. doi:10.1016/j.hrmr.2009.10.001

Weiner, B. J. (2009). A theory of organizational readiness for change. *Implementation Science, 4*(1), 67. doi:10.1186/1748-5908-4-67

Witherspoon, C. L., Bergner, J., Cockrell, C., & Stone, D. N. (2013). Antecedents of organizational knowledge sharing: a meta-analysis and critique. *Journal of Knowledge Management, 17*(2), 250-277. doi:10.1108/13673271311315204

Yilmaz, S. (2013). Tailoring model in reforming police organizations towards community policing. *Journal of Organizational Change Management, 26*(5), 897-924. doi:10.1108/JOCM-07-2012-0092

Zarraga, C., & Manuel García-Falcón, J. (2003). Factors favoring knowledge management in work teams. *Journal of Knowledge Management, 7*(2), 81-96. doi: 10.1108/13673270310477306

Zhu, Y.-Q. (2016). Solving knowledge sharing disparity: The role of team identification, organizational identification, and in-group bias *International Journal of Information Management: The Journal for Information Professionals, 36*(6), 1174-1183. doi:10.1016/j.ijinfomgt.2016.08.003

Zohar, D. (2000). A group-level model of safety climate: Testing the effect of group climate on microaccidents in manufacturing jobs. *Journal of Applied Psychology, 85*(4), 587. doi:10.1037/0021-9010.85.4.587

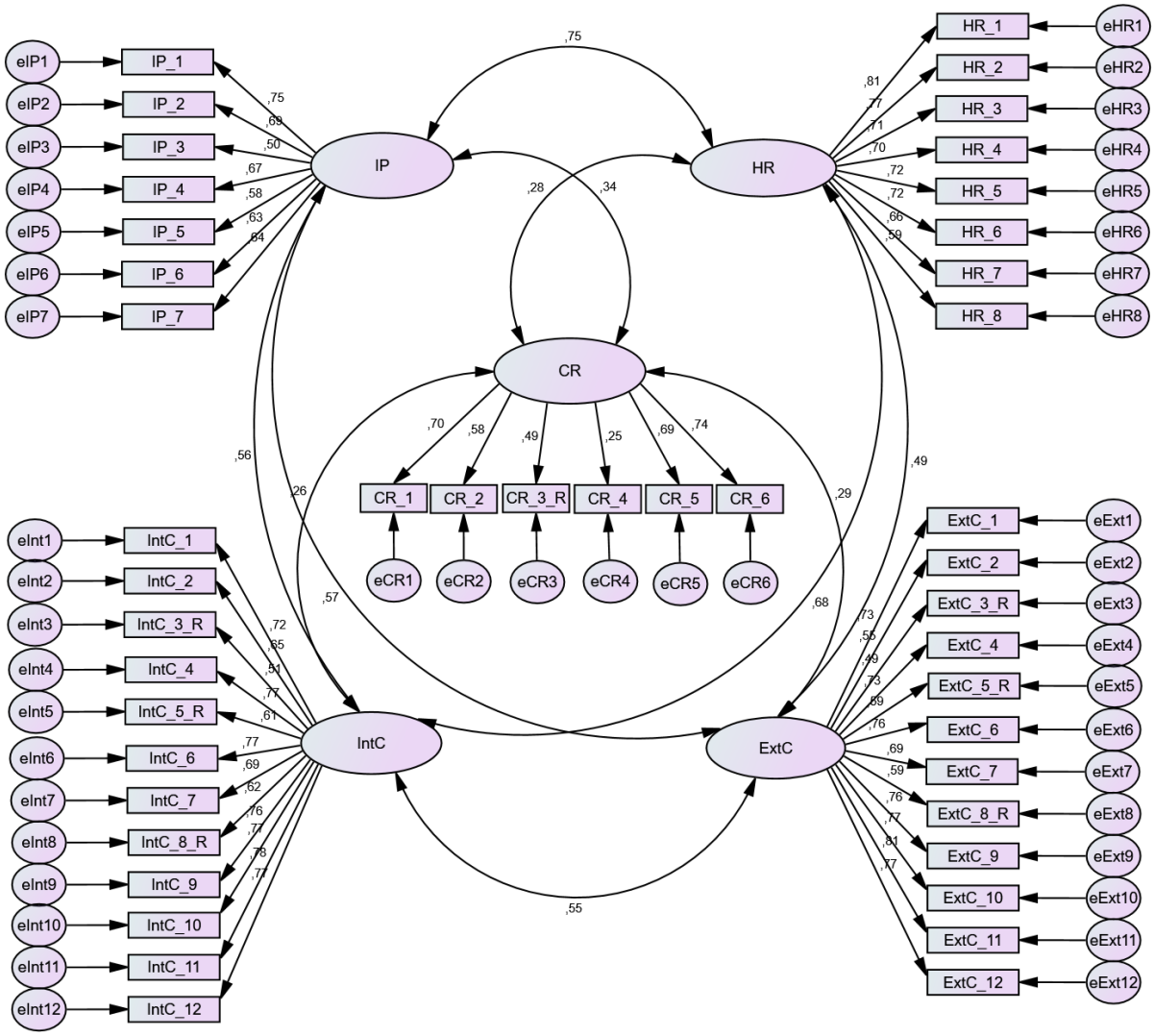
APPENDIX 1: Measures with corresponding items in Norwegian

Construct	Item	Item Statement
Human relations/ Human relations	HR_1	Vi utvikler støttende, positive arbeidsforhold her på enheten
	HR_2	Arbeidsmiljøet er sånn at vi på enheten kommer godt overens med hverandre
	HR_3	Vi har lite konflikt mellom oss på enheten
	HR_4	Vi er forpliktet til hverandre her på enheten
	HR_5	Det er høy moral blant ansatte på enheten
	HR_6	På min enhet hjelper vi ansatte hverandre når det trengs
	HR_7	Hver ansatt har muligheter for utvikling her på enheten
	HR_8	Hver ansatt har muligheter for faglig utvikling her på enheten
Internal Process/ Internal Process	IP_1	Regler og retningslinjer er tydelig kommunisert til oss her på enheten
	IP_2	Etablerte prosedyrer og retningslinjer styrer generelt hvordan vi løser våre arbeidsoppgaver her på enheten
	IP_3	Vi på enheten blir oppfordret til å følge vår stillingsinstruks/stillingsbeskrivelse
	IP_4	Vi på enheten passer på at arbeidsoppgaver er organisert og forutsigbare
	IP_5	Vi er kjent for å gjøre jobben vår effektivt her på enheten
	IP_6	Vi utfører arbeid som alltid er av høy standard her på enheten
	IP_7	Vi jobber for å oppnå maks effektivitet her på enheten
Internal Communication/ Intern kommunikasjon	IntC_1	Folk er innstilt på å dele informasjon på tvers av gruppene her på enheten
	IntC_2	Det er svært lite konflikt mellom gruppene her på enheten

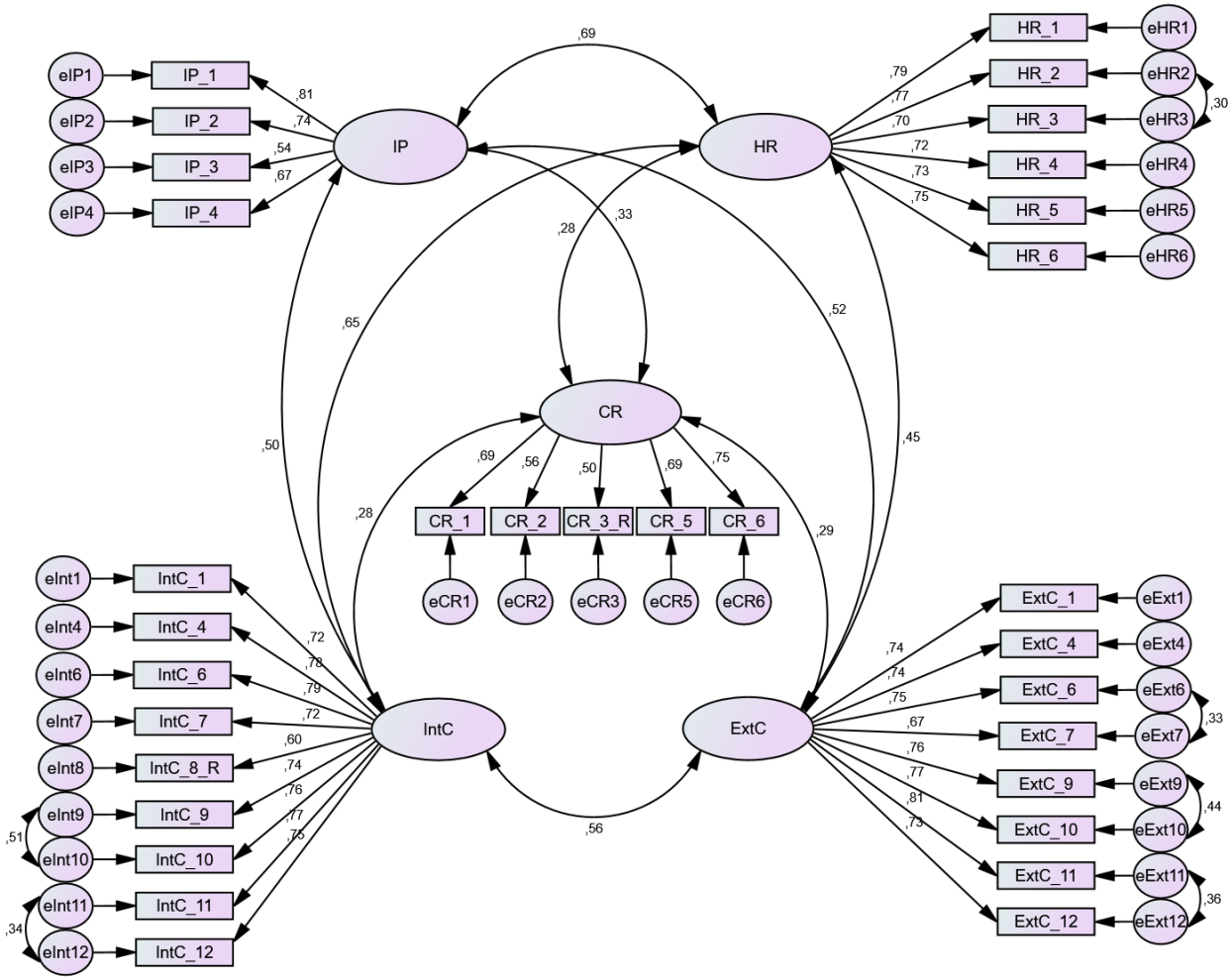
	IntC_3_R	Folk er mistenksomme overfor andre grupper her på enheten
	IntC_4	Det er svært effektivt samarbeid mellom gruppene her på enheten
	IntC_5_R	Det er lite respekt mellom noen av gruppene her på enheten
	IntC_6	Folk er svært innstilt på å dele på kompetanse mellom gruppene her på enheten
	IntC_7	Folk er svært innstilte på å dele på personer med fagkompetanse/kompetansepersoner mellom gruppene her på enheten
	IntC_8_R	Det er mye konflikt om deling av kompetanse mellom gruppene på denne enheten
	IntC_9	Det er effektiv deling av informasjon på tvers av gruppene her på enheten
	IntC_10	Her deler vi mye informasjon på tvers av gruppene på enheten
	IntC_11	Det er stor grad av samarbeid mellom gruppene her på enheten
	IntC_12	Folk er innstilte på å samarbeide på tvers av gruppene her på enheten
External Communication/ Ekstern kommunikasjon	ExtC_1	Folk er innstilt på å dele informasjon på tvers av enhetene her i distriktet
	ExtC_2	Det er svært lite konflikt mellom enhetene her i distriktet
	ExtC_3_R	Folk er mistenksomme overfor andre enheter her i distriktet
	ExtC_4	Det er svært effektivt samarbeid mellom enhetene her i distriktet
	ExtC_5_R	Det er lite respekt mellom noen av enhetene her i distriktet
	ExtC_6	Folk er svært innstilte på å dele på kompetanse mellom enhetene her i distriktet

	ExtC_7	Folk er svært innstilte på å dele på personer med fagkompetanse/kompetansepersoner mellom enhetene her i distriktet
	ExtC_8_R	Det er mye konflikt om deling av kompetanse mellom enhetene her i distriktet
	ExtC_9	Det er effektiv deling av informasjon på tvers av enhetene her i distriktet
	ExtC_10	Her deler vi mye informasjon på tvers av enhetene i distriktet
	ExtC_11	Det er stor grad av samarbeid mellom enhetene her i distriktet
	ExtC_12	Folk er innstilte på å samarbeide på tvers av enhetene her i distriktet
Change Readiness/ Endringsvillighet	CR_1	Når endringer skjer på min enhet tror jeg at jeg er klar for å takle dem
	CR_2	Jeg prøver vanligvis å overbevise folk på min enhet om å akseptere endring
	CR_3_R	Når endringer skjer på min enhet pleier jeg å klage på dem heller enn å gjøre noe med dem
	CR_4	Jeg tror at jeg er mer klar for å akseptere endring enn mine kollegaer på min enhet
	CR_5	Jeg er ikke bekymret for endringer på min enhet fordi jeg tror at det er en måte å takle dem på
	CR_6	Når endringer skjer på min enhet har jeg stort sett til hensikt å støtte dem

APPENDIX 2: Measurement model 1 – Path diagram



APPENDIX 3: Measurement model 2 – Path diagram



APPENDIX 4: Measurement model 2 - Communalities

Item	Communalities
HR_1	.61
HR_2	.70
HR_3	.59
HR_4	.50
HR_5	.51
HR_6	.54
IP_1	.62
IP_2	.56
IP_3	.35
IP_4	.46
IntC_1	.50
IntC_4	.58
IntC_6	.60
IntC_7	.49
IntC_8_R	.36
IntC_9	.66
IntC_10	.70
IntC_11	.64
IntC_12	.60
ExtC_1	.53
ExtC_4	.53
ExtC_6	.56
ExtC_7	.47
ExtC_9	.64
ExtC_10	.65
ExtC_11	.68
ExtC_12	.58
CR_1	.48
CR_2	.32
CR_3_R	.26
CR_5	.52
CR_6	.55