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Download date	2025-01-24 12:42:01
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the Autonomous Management School of  
Ghent University and Katholieke Universiteit Leuven

**Vlerick Leuven Gent Working Paper Series 2008/20**

**READY OR NOT...? WHAT'S THE RELEVANCE OF A MESO LEVEL  
APPROACH TO THE STUDY OF READINESS FOR CHANGE**

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## ABSTRACT

Organizational change often yields limited success. Failure in many cases is due to the lack of motivation or readiness for change among organizational members. This study proposes and tests a meso-level model of readiness for change. More specifically this article examined the influence of organizational climate factors on readiness for change over and above the effects of their eponymous lower level psychological climate variables (i.e., trust in top management, history of change, participation in decision making, and quality of change communication). By means of a large scale survey administered in 84 Belgian companies, a total of 2543 responses were collected. HLM analyses revealed a contextual effect for quality of change communication on the three components of readiness for change (emotional, cognitive and intentional), even after controlling for psychological change climate. Furthermore, the results indicated that the individual perceptions of history of change, participation in decision making, and quality of change communication were positively correlated with readiness for change. These findings are discussed in relation to previous literature.

**Key words:** readiness for change, meso-level perspective, history of change, trust in top management, participation in decision making, and quality of change communication.

## INTRODUCTION

Globalization, the emergence of e-business, and the accelerated pace at which technological innovations are introduced, confronted many companies with the necessity to implement changes in strategy, structure, process and culture. Many factors have been identified and suggested to increase the successful implementation of change. An organization's absorptive capacity to deal with changes has been described as one of those critical factors. Although the absorptive change potential resides at the organization level, we concur with the assumption that organizational change can only be established through individual changes (George & Jones, 2001; Schein, 1980). To put it differently, readiness for change is one of the crucial stages that organizational members need to go through in order to enable the successful implementation of change (Armenakis, Harris, & Mossholder, 1993).

Readiness is the cognitive state comprising beliefs, attitudes and intentions toward a change effort. When readiness for change exists, the organization is primed to embrace change and resistance is reduced. If organizational members are not ready, the change may be rejected, and organizational members may initiate negative reactions, such as, sabotage, absenteeism and output restriction. In fact, readiness for change is the cognitive precursor to resistance for change (Armenakis et al., 1993).

The extant literature on the antecedents of individual's readiness for change (e.g., Eby, Adams, Russell, & Gaby 2000; Judge, Thoresen, Pucik, & Welbourne, 1999; Oreg, 2006; Wanberg & Banas, 2000) in general adopted a micro level perspective (Klein & Kozlowski, 2000). Rooted in psychological origins, the micro level perspective assumes that there are variations in individual behavior, and that the emphasis on an aggregate or higher level of this behavior will mask important individual differences that are meaningful in their own right. As such the micro level focus on readiness for change research has concentrated on variations among individual level characteristics that affect individual reactions towards change (e.g. Judge et al., 1999). According to Kozlowski and Klein (2000), however, this single-level perspective cannot fully account for change related behavior and attitudes, because it has been guilty of neglecting higher order contextual factors (i.e. organizational climate) that can significantly affect the impact of individual differences onto individual responses.

So, instead of assuming a single micro level perspective to the study of individual readiness for change, we believe that creating readiness for change is not merely about individual perceptions and cognitions; but is also a socially constructed phenomenon. In other words, an employee uses social information inferred from the organizational context to develop his or her perception of the meaningfulness, the importance, and other characteristics of the change event (Yuan & Woodman, 2007). Therefore in our inquiry we recognize the need to conceptualize contextual effects in terms of organizational change climate as a potential antecedent of individual's perceptions and attitudes toward change (i.e. readiness for change). Since this model incorporates two levels of analysis (individual and organization) a meso-level perspective is adopted (Kozlowski & Klein, 2000).

In this paper we will first elaborate on the salience of adopting a multilevel perspective (i.e., meso-level) instead of a single level perspective to research in organizations, and how the meso-level perspective is a more appropriate framework to represent organizational reality. Then we discuss the current literature on readiness for change and the boundaries of the prevailing micro level perspective in this field of research. Next, we briefly introduce the social information processing theory (Salancik & Pfeffer, 1978) and how this theory helps to understand why readiness for change is not only a function of individual cognitive processes but also the result of how colleagues perceive organizational change (i.e., contextual effects). In that respect, a concept closely linked to the idea of contextual effects as crucial predictors of readiness for change is organizational change climate (James & Jones, 1974). In brief, the primary goal of this research is to determine whether organizational change climate adds significant insight into the extant knowledge on how individual readiness for change is shaped.

## **THE MULTILEVEL PERSPECTIVE: THE PREFERRED RESEARCH PARADIGM IN ORGANIZATIONAL SCIENCE**

There is increasing interest in research that is modeling phenomena that cut across multiple levels of theory (e.g., House, Rousseau, & Thomas-Hunt, 1995; Klein, Dansereau, & Hall, 1994; Rousseau, 1985). For too long, micro-researchers have routinely neglected the effects of the organizational contexts within which individual behavior occurs. Macro-researchers, on the contrary, have continuously neglected the

means by which individual behavior, perceptions, affect, and interactions give rise to higher level phenomena (Kozlowski & Klein, 2000). The study of organizational phenomena, however, cannot always be sliced into single level relationships, which often is the province of both micro and macro-research. After all organizational systems are very complex entities, and in that respect the unification of those systems into a specified set of relationships between single-level constructs is simply not justifiable.

The meso-level or multilevel perspective provides an alternative for both single micro-macro level perspectives. The shift to the meso-level approach, however, implies a new challenging way of thinking about research designs and modeling. Organizational scholars for the most part trained in micro *or* macro thinking, should learn to think in terms of multilevel, that is in terms of micro *and* macro. This stream of thinking conceives organizations as hierarchically nested systems (Hofmann, Griffin, & Gavin, 2000). To neglect these different system levels (i.e. individual, group, and organization) in the conceptualization and development of research designs would lead to incomplete and misspecified models (Klein & Kozlowski, 2000; Kozlowski & Klein, 2000). In sum, one can see that even a simple definition of organizations implies multiple levels of analysis – including, but not limited to, variables describing individuals, leaders, the relationship between leaders and subordinates, groups of individuals, the organization as a whole, and the external environment. These multiple levels act simultaneously to shape, create, encourage, and reward behavior in organizations and must be considered, or at least recognized, when attempting to gain a more complete understanding of organizations (Capelli & Sherer, 1991; Klein et al., 1994; Rousseau, 1985).

### **LIMITATIONS IN READINESS FOR CHANGE RESEARCH**

In alignment with the positive psychology tradition, Armenakis et al. (1993) defined readiness for change as people's beliefs, attitudes, and intentions regarding the extent to which changes are needed and their perception of individual and organisational capacity to successfully make those changes. It is a force that binds individuals to a course of action deemed necessary for the successful implementation of a change initiative (Herscovitch & Meyer, 2000). Since it involves an attitude

towards change it is manifested through three channels: (1) emotional readiness for change; (2) cognitive readiness for change; and (3) intentional readiness for change.

The fact of being strongly rooted in the psychology tradition, research on readiness for change has been biased toward a single micro level focus. Although Lewin (1951) noted that potential sources of readiness for change lie both within the individual and the individual's environment, and despite the recent attention paid to individual, context and process characteristics as constituent elements of readiness for change (Holt, Armenakis, Harris, & Feild, 2007); only a limited number of studies actually considered the combined effect of individual and context attributes in predicting individual readiness for change. However, it should be noted that the studies (e.g. Eby et al., 2000; Oreg, 2006; Wanberg & Banas, 2000) that did examine the combined effect of both sets of factors are flawed in several respects.

A first concern is that the results of those studies (i.e. Eby et al., 2000; Oreg, 2006; Wanberg & Banas, 2000) are often based on data collected in single organizations or a specific sector. Consequently, the results produced by these studies need to be interpreted with the necessary caution, especially with regard to contextual effects. It is a peculiar logic to draw conclusions about the effects of organizational context factors on readiness for change when analyses are based on individual variation in perceptions of employees working in one and the same organization. In fact, what these studies measure is within-group variation of perceived organizational context instead of contextual differences in terms of between-group variation. Furthermore, when those single micro level studies attempt to generalize findings from individual-level differences to higher levels (i.e. contextual effects), they may commit an atomistic fallacy (Klein & Kozlowski, 2000). In other words, it is not because the relation holds at the lower level (individual level) that conclusions can be drawn that the relation will hold at a higher level.

Secondly, since data gathered with respect to context variables (e.g. Eby et al., 2000; Oreg, 2006; Wanberg & Banas, 2000) are often cases of nested or so-called multilevel data, OLS regression is not the most appropriate way for handling this kind of data (Hofmann et al., 2000; Hox, 1998). To put it differently, the use of OLS regression for dealing with multilevel data is not without problems. For example, the random errors in OLS regression are assumed to be independent, normally distributed, and have constant variance. Some of these assumptions, however, will not hold when a higher-level component (i.e. group level) is added to an individual-level component



in the equation. Because the random error associated with the group-level component is likely to vary across groups, the assumption of constant variance will be violated (Bryk & Raudenbush, 1992). Furthermore, the assumption of independence does not hold because random errors of individuals in the same group are more similar than those in different groups (Bryk & Raudenbush, 1992). Among other things these violations of statistical assumptions have serious implications for assessing the explanatory power of variables at each of the different levels via the calculation of  $R^2$ 's (Hofmann et al., 2000). Multilevel modeling represents an alternative way for dealing more effectively with nested data structures, because these models are specifically designed to overcome the problems of OLS regression. To conclude, multilevel modeling is a conceptual and statistical mechanism that provides a solution for examining relationships between constructs that cross levels of analysis. Thus multilevel modeling and theorizing gives an excellent guiding framework to analyze the contextual effects of organizational climate on individual readiness for change.

### **INDIVIDUAL READINESS FOR CHANGE: A SOCIALLY CONSTRUCTED PHENOMENON**

The idea that attitudes and organizational behaviour are a sole function of individual dispositions and needs is outmoded. Already in the 1950's, Kurt Lewin saw behaviour not as the mere result of personality, but as function of both personality and environment (Lewin, 1951). Despite the popularity and rich historical tradition of this 'interactionist view', the number of organizational studies that examined the incremental influence of social context factors over and above their individual level equivalents has clearly lagged behind the theoretical progress on this topic.

Building further on Lewin's premises (1951), the social information processing theory (Salancik and Pfeffer, 1978) suggests that individuals, as adaptive organisms, adapt attitudes, behaviour, and beliefs to their social context and to the reality of their own past and present behaviour and situation. This assumption leads to the conclusion that one can learn a lot from studying the social environment within which behavior occurs. Furthermore this theory asserts that an employee uses social information to develop his or her perception of the meaningfulness, importance, and other characteristics of the job. Similarly it has been suggested that the meaning of and the attitudes toward change events are, at least partially, social constructions

(Armenakis et al., 1993; Yuan & Woodman, 2007). In short, we believe that people's attitudes toward change are shaped through the context that accompanies organizational change.

### **CONTEXTUAL EFFECTS: ORGANIZATIONAL CLIMATE OF CHANGE**

In terms of the environment or context of change, several authors place significant emphasis on the role of organizational climate (Beer & Nohria, 2000; Burnes & James, 1995; Schneider, Brief, & Guzzo, 1996). For example, Burnes and James (1995) see organizational climate as one of the few mechanics that drives successful change. Its role is to confirm or deny the legitimacy of the new arrangements that emerge from the change. Despite the general agreement that exists among both practitioners and scholars about the relevance of climate as a key antecedent that shapes employees' reactions toward change, the number of studies that actually examined the relationship between organizational change climate and readiness for change is scant (e.g., Jones, Jimmieson, & Griffiths, 2005). In the Jones et al. study it was hypothesized that employee perceptions of an organizational culture strong in human relation values and open systems values would be associated with heightened levels of readiness for change. Using a longitudinal research design, these propositions were tested on a limited sample of 67 employees working in the same state government department. Due to the small sample size of that study and the fact that data collection was confined to only a single organization, the conclusions that could be drawn about the contextual effects of climate on readiness for change were constrained.

Based upon these gaps identified, our study explored the effects of climate on individual readiness for change. Organizational climate was selected not only because it is a crucial catalyst to motivate people to adjust to changes, but also because literature itemizes the climate concept into different hierarchical levels (i.e., organization, team, individual) (James & Jones, 1974; Moran & Volkwein, 1992). So, the added value of the study on change climate lies in the ability to provide a conceptual link between the organizational level and the individual level of a phenomenon under examination. Moran et al. (1992; 20) describe 'organizational climate as a relatively enduring characteristic of an organization which distinguishes it

from other organizations: and (a) embodies members' collective perceptions about their organization with respect to such dimensions as autonomy, trust, cohesiveness, support, recognition, innovation and fairness; (b) is produced by member interactions; (c) serves as a basis for interpreting the situation; (d) reflects the prevalent norms, values and attitudes of the organization's culture; (e) acts as a source of influence for shaping behaviour. From this definition we conclude that organizational climate consists of 'shared perceptions'. In other words, given the influence of, for example, the social information processing mechanism (Salancik & Pfeffer, 1978), individuals within the same group may develop similar perceptions of and attach similar meanings to the group-level variable. In situations where these perceptions and/or meanings are sufficiently shared, James, James and Ashe (1990) suggested that one can use aggregated individual perceptions to describe the context in psychologically meaningful terms. In fact, what we are saying is that organizational change climate is the aggregate measure of people's perceived psychological change climate, and that both types of climate are assumed to affect people's readiness for change.

### **THE CONTENT DIMENSIONS OF ORGANIZATIONAL CLIMATE**

Despite the high relevance and rich research tradition of climate in organizational science, several authors highlighted problems of conceptualization and measurement (Forehand & Gilmer, 1964; Glick, 1985; Guion, 1973). This conceptual diversity together with the specification of appropriate dimensions is one of the more persistent problems the field has been confronted with. Because of this problem, Glick (1985) suggested the simple rule that one should choose climate dimensions in function of the criterion being examined.

In the identification process of dimensions, we believe that the human relations climate model provides an excellent framework from which climate dimensions can be chosen (Patterson et al., 2005). Indeed a human relations orientation with its emphasis on belonging, trust, and cohesion, achieved through participation, support and open communication, may relate to an employee's confidence and capability to undertake new workplace challenges and changes. This assumption is consistent with a growing body of research evidence (Jones et al., 2005, Burnes & James, 1995; Zammuto & O'Connor, 2005).

For instance, Burnes and James (1995) observed that change resistance was low when a supportive and participative culture was present, characteristics that are consistent with the human relations philosophy.

On the basis of this literature, we identified three indicators of change climate measured at the individual level: (1) trust in top management, (2) participation in decision making, and (3) quality of change communication. In addition to these three, we added a fourth dimension 'history of change' as a potential enabler of readiness for change. After all, it is contended that past change experiences are alive in the present and shape how people will act and react in the future (Lau & Woodman, 1995; Pettigrew, Woodman, & Cameron, 2001).

In summary, in this inquiry the four indicators of climate measured at the individual level are (1) trust in top management, (2) history of change, (3) participation in decision making, and (4) quality of change communication. Trust in top management and history of change both refer to the conditions or the internal context under which change is occurring. Strongly interwoven with this internal change context is the way how change is implemented (i.e. process factors of change). Quality of change communication and participation in decision making are two process factors that can make a difference in times of complex change.

Theorists describe trust as a concept that represents the degree of confidence employees have in the goodwill of their leader, specifically the extent to which they believe that the leader is honest, sincere, and unbiased in taking their positions into account (Folger & Konovsky, 1998; Korsgaard, Schweiger, & Sapienza, 1995). The second context factor history of change refers to the stories, the expectancies and the beliefs about how the organization has dealt with change in the past (XXXX, in press). So, organizational members' perceptions about the internal context of change are shaped not only by current but also past change events. Several authors expressed the view that participation is a special type of delegation by which management shares authority with employees (Leana, 1986; Early & Lind, 1987). According to Manville and Ober (2003) this style of management affords employees the opportunity to gain some control over important decisions and is often a way designed to promote ownership of plans for change. The final climate dimension quality of change communication refers to how change is communicated. The clarity, the frequency and openness determine whether or not communication is effective (Miller, Johnson, & Grau, 1994)

Although, according to James et al. (1974; 1990), individuals will develop psychological interpretations of trust in top management, history of change, participation in decision making, and quality of change communication (i.e. psychological change climate), these perceptions do not become dimensions of organizational climate until they are shared and agreed upon. Thus the aggregated level of these four psychological climate variables can only come into existence through processes like the social information processing mechanism. In multilevel modeling this idea of how lower level variables compose higher level phenomena can be empirically checked. Since the composition model for psychological climate – organizational climate involves a direct consensus model (Chan, 1998), within-group agreement should be computed for all four variables. It is only through this agreement that the aggregate level of climate can come into existence. Therefore the first aim of this paper is to examine whether the psychological change climate variables trust in top management, history of change, participation in decision making, and quality of change communication allow aggregation at the organizational level.

## **HYPOTHESES**

The factors that affect readiness for change are manifold and can be classified into several groupings (Holt et al., 2007). A first important set of variables involves the process factors of change or the way how a specific change is implemented. In this inquiry the psychological climate dimensions quality of change communication and participation in decision making are conceived as important process factors of change. Apart from these process factors, Armenakis and Bedeian (1999) suggested that responses to change also depend on the conditions under which change occurs. In our case trust in top management and history of change are considered as internal context factors that create opportunities or constraints in the sense making process of change.

In their seminal work on creating readiness for change, Armenakis et al. (1993) mentioned several influence strategies that can be used by change agents to increase readiness for change. The first one is persuasive communication, which is mainly a source of providing explicit information about the reasons and urgency for change. The second one is active participation, which involves the active involvement of employees in strategic changes. Participation in decision making, and quality of change communication are two of the most effective tools at the change agent's

disposal to get people buy into the change (Armenakis & Harris, 2001; Covin & Kilmann, 1990). Employees must believe that their opinions have been heard and given careful respect and consideration, because self-discovery through active participation can produce a genuine feeling of psychological ownership over a change project (Dirks, Cummings, & Pierce, 1996). Thus, organizations with limited access to participation are less likely to achieve cooperation in times of change (Reichers, Wanous, & Austin, 1997). Communication is a second vital mechanism to the effective implementation of organizational change (Bordia, Hunt, Paulsen, Tourish, & Difonzo, 2004; Schweiger & Denisi, 1991). Poorly managed change communication often results in widespread rumors, which provides a fertile ground for the development of negative feelings and beliefs about change. Briefly, what is said matters, and the rigor and consciousness in the communication of change are what differentiates a successful change from one derailed by resistance and uncertainty (Ford & Ford, 1995).

In organizations where trust in top management exists, and where change projects have been implemented successfully in the past, organizational members are more likely to develop positive attitudes towards new changes. A vast amount of literature denotes that trust of organizational members in their leader is a salient antecedent of people's cooperation in implementing strategic decisions and an essential factor in predicting people's openness toward change (Eby et al., 2000; Korsgaard et al., 1995; McManus, Russell, Freeman, & Rohricht, 1995; Rousseau & Tijoriwala, 1999). Trust in top management is critical in shaping people's responses to change, because it helps to reduce the change related feelings of stress and uncertainty, both major inhibitors of readiness for change. Finally, readiness for change is also affected by the track record of an organization in dealing effectively with change. If organizational changes have failed in the past, employees will develop negative expectations about new change initiatives and subsequently become more reluctant towards new change. In their study on cynicism about organizational change, Wanous, Reichers and Austin (2000) noted that history of change is correlated with the motivation to support change. Based upon their findings these authors suggested that the higher the pre-existing level of cynicism about organizational change, the more executives need to confront and discuss previous failures before moving ahead. In alignment with this literature, we propose the following four hypotheses:

*Hypothesis 1 (H1): Individual readiness for change is positively correlated with the perceived quality of change communication (individual level).*

*Hypothesis 2 (H2): Individual readiness for change is positively correlated with the perceived participation in decision making (individual level).*

*Hypothesis 3 (H3): Individual readiness for change is positively correlated with the perceived history of change (individual level).*

*Hypothesis 4 (H4): Individual readiness for change is positively correlated with the perceived trust in top management (individual level).*

Not only do we expect to find support for the hypothesized relationships between individual readiness for change and the four psychological change climate dimensions, from a multilevel viewpoint it is asserted that contextual effects need to be accounted for in explaining individual readiness for change. According to Johns (2006) context factors are a set of situational opportunities and constraints that need to be included to develop a better understanding to individual change reactions. Although context can operate at multiple levels (e.g. environment, sector, organization, department, team, etc.) (Capelli & Sherer, 1991), we assume that the *shared perception* of the four organizational climate variables will have a significant influence on individual readiness for change. In multilevel theory this type of modeling is called a top-down cross level model, addressing the influence of macro levels (for example, organization or group characteristics) on micro levels (for example, individuals) (Kozlowski & Klein, 2000). More specifically, such a model focuses on contextual factors at higher levels that constrain and influence lower level phenomena (Diez-Roux, 2003). Thus, based on above discussion we propose:

*Hypothesis 5: Organizational change climate factors are related to individual readiness for change after controlling for psychological change climate factors.*

## METHOD

### Sample

Data were collected from 2543 employees of 84 companies in Belgium representing a wide variety of industry sectors including healthcare services, finance, insurance, consumer products, education, high technology, telecommunications, consultancy, and defense. Of all participating organizations in this study 42 per cent were nonprofit. The number of respondents in each organization ranged from 4 to 145, with a mean of 31.

In each organization a manager was our contact person to collect our data. In each case the manager was asked to identify a specific change project that was the most salient for all members of the unit. This person also was asked to survey the members that were affected by the change project. Each potential respondent was contacted by this in-company manager either face-to-face or written communications. Potential participants were explained the purpose of the study and informed that the questionnaire should be completed with keeping in mind the specific change project. Participation was purely on voluntary basis and anonymously. To maximize the anonymity, respondents had the option not to fill in demographic information like age or sex. In addition to further protect this anonymity age was assessed using ranges of years. Of the respondents that also completed the demographic information 841 were male and 495 were female. With respect to age the following distribution was noted: 59 respondents were 24 years or younger, 381 were between 25-34 years, 462 were between 35-44 years, and 379 were 45 years or older.

### Measures

The dependent variable readiness for change was measured along three dimensions: (1) *emotional readiness for change*, (2) *cognitive readiness for change*, and (3) *intentional readiness for change*. The scales were adapted from Boonstra and Bennebroek-Gravenhorst (1998), Metselaar (1997), and Oreg (2006). Each scale consisted of three items. Sample items are “I have a good feeling about the change” (emotional readiness for change,  $\alpha = .85$ ), “I think that most of the changes will have a negative effect on the clients we serve” (cognitive readiness for change,  $\alpha = .72$ ), and “I am willing to make a significant contribution to change” (intentional readiness



for change,  $\alpha = .88$ ). Ratings were on a 5-point Likert scale with anchors that range between 1 (totally disagree) to 5 (totally agree).

Organizational climate dimensions are the aggregate measures of the psychological climate dimensions trust in top management, history of change, participation in decision making and quality of change communication. These four scales were adapted from pre-existing multi-item scales with adequate psychometric properties. The three-item scale *trust in top management* ( $\alpha = .74$ ) was taken from Albrecht and Travaglioni (2003), and Kim and Mauborgne (1993). A sample item is “The executive management fulfills its promises.” The measurement of *history of change* consists of a four-item scale ( $\alpha = .74$ ) adapted from Metselaar (1997). Items for this scale are “Past changes were generally successful”, and “Our company has proven to be capable of major changes”. To capture *participation in decision making* six items ( $\alpha = .79$ ) were used from Lines (2004) and Wanous et al. (2000). An example item is “Decisions concerning work are taken in consultation with the staff members who are affected”. Finally, *quality of change communication* is a six-item scale ( $\alpha = .86$ ) adapted from Miller et al. (1994). Sample items include “Information provided on change is clear”, and “We are sufficiently informed of the progress of change.” All ratings on these four scales were on a 5-point Likert scale (1 = totally disagree to 5 = totally agree).

To check the construct validity of our instrument, all seven variables (i.e., readiness for change and psychological change climate) were subjected to a confirmatory factor analysis. The measurement model with seven correlated latent factors fitted the data very well ( $\chi^2/df = 5.94$ ; GFI = .94; NFI = .94; TLI = .94; CFI = .95; RMSEA = .04), and offered evidence for the dimensional structure of the study's variables.

## **Analysis**

In conducting multiple level research, researchers need to clarify several methodological choices before they can start their analysis. Klein and Kozlowski (2000) identified four critical steps that should be followed when performing multilevel research. The first step involves answering the ‘what question’. What is the nature of each higher level construct and how should each construct be operationalized (i.e. global, shared, or configural construct)? The second step is a

model choice. What kind of model describes the predicted relationships among the constructs? (i.e. single-level model, cross-level model, or homologous multilevel model). The third step is a sampling choice and more specifically choices with regard to the ratio higher level units/lower level units, and the variability between and within units that is needed to ensure a reliable test of the relationships. After having answered these three questions, the researcher should be able to make a correct analytical choice (step 4). All four choices are interrelated. For example, the choice to study the impact of a higher level shared construct (step 1) on an individual level outcome implies the choice of a cross-level model (step 2). Subsequently, these decisions affect the number of data to be collected (step 3) and the selection of an appropriate data analytical technique (step 4).

***Indices of interrater agreement.*** The higher level constructs (i.e. organizational climate dimensions) in this study as we already noted are shared constructs. In this case, the researcher's challenge is to gather a sample containing sufficient between-unit variability to assess the effects of unit differences, but at same time sufficient within-unit homogeneity to warrant aggregation of lower level data to the unit level (Klein & Kozlowski, 2000). So, a first step of our analysis was to examine the construct validity of our four organizational climate dimensions in terms of between-unit and within-unit variability. Therefore we computed three measures of interrater agreement (Lebreton & Senter, 2007):  $R_{wg(j)}$  (James, Demaree & Wolf, 1984), the intraclass correlation coefficient (1) (ICC(1), McGraw & Wong, 1996), and the intraclass correlation coefficient (2) (ICC(2), Bliese, 2000). The  $R_{wg(j)}$  index assesses the within group agreement on a given variable within a given unit. Both intraclass correlation coefficients provide an idea of the extent to which group membership is accounted for members' ratings. More specifically the ICC(1) provides an estimate of the proportion of total variance of a measure that is explained by unit membership. The ICC(2) is an index that measures the reliability of group means within a sample. All three measures will help us in answering the question whether our individual psychological climate measures can be aggregated at the organizational level.

*Type of multilevel model.* Klein and Kozlowski (2000) outlined three classes of models that describe the relationships among the independent and dependent variables of a study: (1) single level models, (2) cross-level models, and (3) homogenous multilevel models. In this study the model studied is a cross-level direct effects model. Such a model suggests that a predictor variable at one level of analysis influences an outcome variable at a different level of analysis.

Our cross-level direct effects model is a product of the incremental paradigm of multilevel research in organizational science (Hofmann & Gavin, 1998), which states that group level variables act as main effects in the prediction of individual-level outcomes. In essence, in this study we are interested in whether organizational change climate provides incremental prediction of readiness for change over and above the individual level dimensions of psychological change climate. So, what is examined is the influence of group level variables on individual level outcomes after controlling for various individual-level predictors. In other words, this kind of model is a contextual model (Firebaugh, 1980).

*Sample size requirements.* Although there are no specific guidelines regarding sample sizes required for hierarchical linear models, several simulation studies have made recommendations regarding sufficient sample sizes for accurate estimation (Bryk & Raudenbush, 1992; Kreft, 1996; Maas & Hox, 2004). In general a large number of groups appears more important than a large number of individuals per group (Van der Leeden & Busing, 1994; Snijders & Bosker, 1994). Although the results of the available simulation studies are not in complete agreement, they all conclude that the regression coefficients are estimated without bias while their standard errors tend to be biased downward with small sample sizes at the group level.

On the basis of their simulation study, Maas and Hox (2004) suggested the following rule of thumb: if one is only interested in the fixed effects of the model, 10 groups can lead to good estimates. If one is also interested in contextual effects, 30 groups are needed. If one also wants correct estimates of the standard errors, at least 50 groups are needed. In addition, to guarantee that a multilevel study has sufficient power (i.e. 90) to detect cross-level effects, Kreft (1996) suggested the 30/30 rule. To be on the safe side, researchers should strive for a sample of at least 30 groups with 30 individuals per group. However, when a large number of groups is present, the number of observations required is reduced. In this inquiry, we believe our sample

design with 84 organizations (group level) and on average 31 individuals per group should suffice to provide unbiased parameter estimates and variance components.

*Analytical procedure.* To test our hypotheses hierarchical linear modeling (HLM) is used. HLM is one of a class of several multilevel random coefficient modeling techniques, which provides an appropriate analysis when multiple levels of data are involved by maintaining requirements of independence for the group-level data (Hofmann, 1997). HLM is conducted in a simultaneous two-stage process (Hofmann et al., 2000). In the first stage, HLM analyzes the relationship among lower level variables (i.e. individual) within each higher level unit (i.e. organization), calculating the intercepts and slope(s) for the lower level model within each unit. In the second step, HLM analyzes the relationship between higher level variables and the intercepts and slopes for each organization.

Raudenbush (1989) provided a HLM template for testing contextual models, where the group level predictor is the aggregate of the individual level predictor (see equations 1a-1b). In that model level 1-predictors are group mean centered. The fact of using group mean centering (i.e.,  $(X_{ij}-X_j)$ ) over non-centered measures (i.e.,  $X_{ij}$ ) for the psychological climate dimensions is superior because it reduces collinearity between the psychological climate and the organizational climate dimensions.

Therefore the model we tested can be summarized as follows:

$$\text{Level-1: } Y_{ij} = \beta_{0j} + \beta_{1j} (X_{ij} - X_j) + \beta_{2j} (Z_{ij} - Z_j) + \beta_{3j} (V_{ij} - V_j) + \beta_{4j} (W_{ij} - W_j) + r_{ij} \quad (1a)$$

or

$$\begin{aligned} \text{READINESS FOR CHANGE (EMORFC, COGRFC, INTRFC)} = & \beta_{0j} + \beta_{1j} (\text{TRUST}_{ij} \\ & - \text{GroupTRUST}_j) + \beta_{2j} (\text{HISTORY}_{ij} - \text{GroupHISTORY}_j) + \beta_{3j} (\text{PARTICIPATION}_{ij} - \\ & \text{GroupPARTICIPATION}_j) + \beta_{4j} (\text{COMMUNICATION}_{ij} - \text{groupCOMMUNICATION}_j) \\ & + \text{error}_{ij} \quad (1b) \end{aligned}$$

and

$$\text{Level-2: } \beta_{0j} = \gamma_{00} + \gamma_{01}X_j + \gamma_{02}Z_j + \gamma_{03}V_j + \gamma_{04}W_j + u_{0j} \quad (2a)$$

or

$$\begin{aligned} \beta_{0j} = & \gamma_{00} + \gamma_{01}\text{GroupTRUST}_j + \gamma_{02}\text{GroupHISTORY}_j + \gamma_{03}\text{GroupPARTICIPATION}_j + \\ & \gamma_{04}\text{GroupCOMMUNICATION}_j + u_{0j} \quad (2b) \end{aligned}$$

and

$$\beta_{1j} = \gamma_{10} + u_{1j} \quad (3)$$

and

$$\beta_{2j} = \gamma_{20} + u_{2j} \quad (4)$$

and

$$\beta_{3j} = \gamma_{30} + u_{3j} \quad (5)$$

and

$$\beta_{4j} = \gamma_{40} + u_{4j} \quad (6)$$

According to Raudenbush (1989) a contextual effect of one of the organizational climate dimensions (e.g. TRUST) is significant only when the between group regression of  $Y_j$  onto  $X_j$  (i.e.  $\gamma_{01}$ ), and the level-2 parameter  $\gamma_{10}$  or within group regression of  $Y_{ij}$  onto  $X_{ij} - X_j$  pooled across groups, are significantly different from each other. In this case the test involves the following formula:

$$(\gamma_{01} - \gamma_{10})/S$$

where

$$S = [\text{Var}(\gamma_{01}) + \text{Var}(\gamma_{10}) - 2\text{Cov}(\gamma_{01}, \gamma_{10})]^{0.5}$$

In HLM software this test can be conducted by specifying a multi-parameter contrast effect. In total, we calculated twelve multi-parameter contrast effects. Thus four contrast effects (one for each climate dimension) were computed per outcome variable (emotional readiness for change, cognitive readiness for change and intentional readiness for change).

To conclude, hypothesis testing involved two steps: (1) the psychological climate variables were entered into the level-1 equation in the model, (2) and the main effects organizational climate dimensions were entered in the level-2 equations.

## RESULTS

### Descriptive statistics

Table I reports the summary statistics, zero-order correlations and the interrater agreement indices for the scales measured at the individual and group level. As displayed in the upper half of Table I, the correlations between the lower level variables indicated strong correlations between all three readiness for change scales. In addition, we noted that the respondents on average scored high on intentional readiness for change (4.15). The correlations between the four psychological climate dimensions were high ranging between  $r = .38$  and  $r = .55$ . These high correlations are not totally unexpected since three of the four psychological climate dimensions (i.e., trust in top management, participation in decision making, and quality of change communication) characterize the human relations climate model (Patterson et al., 2005). The lowest but still a modest correlation was noted between trust in top management and intentional readiness for change ( $r = .20$ ). To assess the degree of multicollinearity, VIF values were computed. None of these values exceeded the cut-off value of 10, indicating that multicollinearity had a limited effect.

Within the group level variables (see bottom half of Table I), strong correlations were observed between trust in top management, participation in decision making and quality of change communication. The correlations of history of change with participation in decision making and quality of change communication were lower.

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Insert Table 1 About Here

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### Shared constructs or not: empirical evidence for aggregation

The values of the three interrater agreement indices indicate that the four psychological climate dimensions have a shared equivalent at the organizational level (see Table I). To put it differently these measures suggest that trust in top management, history of change, participation in decision making, and quality of change communication can be aggregated.

In a recent paper by Lebreton and Senter (2007), standards for interpreting  $R_{wg(J)}$  values have been suggested. Values that range between .51 and .70 have moderate agreement, whereas values between .71 and .90 indicate strong agreement. Common practice is to conclude that the aggregation of the psychological climate variables to the organization level is appropriate if the  $R_{wg(J)}$  mean equals or exceeds .70. The mean  $R_{wg(J)}$  scores for trust in top management, history of change, participation in decision making, and quality of change communication were all greater than .80, showing strong levels of agreement (Lebreton & Senter, 2007).

The ICC(1) scores can be interpreted in terms of effect sizes. Specifically a value of .01 might be considered a small effect, a value of .10 might be considered a medium effect, and a value of .25 might be considered a large effect (Murphy & Myers, 1998). All ICC(1) values were medium effect sizes with scores ranging between .18 and .24. A value of .18, for example, suggests that 18 per cent of the variance in individual's responses to quality in change communication resides at the level of organization membership. In short, these scores indicate a substantial amount of variance in the organizational climate dimensions that can be attributed to organizational membership.

Finally, the reliability scores for the four organization-level variables (ICC(2)) all exceed the recommended .70 level (Nunnally & Bernstein, 1994), providing evidence that the group means for trust in top management, history of change, participation in decision making, and quality of change communication are reliable. Thus, from an empirical perspective we conclude that the aggregation of our psychological climate variables at the organization level can be justified.

### **Hypothesis testing**

A set of conditions must be met in order for our hypotheses (H1-H5) to be supported. First, one should expect meaningful variance within and between group variance in emotional, cognitive and intentional readiness for change (condition 1). Secondly, after assessing the degree of within and between group variance in those three outcome variables, one should examine whether there is significant variance across groups in the intercept term (condition 2). Thirdly to support H1-H4, the level-1 slope parameters ( $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$ ) should be significant (condition 3). And for



hypothesis 5 to be supported, the level-2 slope parameters ( $\gamma_{01}, \gamma_{02}, \gamma_{03}, \gamma_{04}$ ), as well as the multi-parameter contrast effects have to be significant (condition 4).

To examine the first condition, analysis for each outcome variable (i.e. emotional readiness for change, cognitive readiness for change and intentional readiness for change) started with a fitting of an unconditional model. Although the unconditional model does not test hypotheses per se, it describes how much of the total variance in the dependent variables can be attributed to the individual and organizational level. From these unconditional models, we inferred that there was considerable variance residing between groups in emotional readiness for change ( $ICC(1) = .122/.614 = .20$ ), cognitive readiness for change ( $ICC(1) = .081/.505 = .16$ ), and intentional readiness for change ( $ICC(1) = .056/.391 = .14$ ). This implies that respectively 80, 84 and 86 per cent of the variance in these outcome variables is attributable to differences in individuals.

A  $\chi^2$  test was performed on the between-group variance in each outcome variable ( $\sigma^2_{emorfc_{uo}}, \sigma^2_{cogrfc_{uo}}, \sigma^2_{intrfc_{uo}}$ ) to determine whether significant variance in the intercept term existed across groups. In alignment with the second condition the three estimated variance components were found to be highly significant ( $\sigma^2_{emorfc_{uo}} = .083, \chi^2(78) = 478.75, p < .001$ ;  $\sigma^2_{cogrfc_{uo}} = .027, \chi^2(78) = 296.40, p < .001$ ;  $\sigma^2_{intrfc_{uo}} = .049, \chi^2(78) = 335.93, p < .001$ ).

Table II presents the estimated level-1 and level-2 coefficients that resulted from the hierarchical linear modeling analyses. In step 1 the random intercept with the four psychological climate variables was tested. In step 2 the full contextual model with the four organizational climate dimensions was tested. From these analyses we inferred that in a model without higher level variables strong support was found for H1, H2 and H3. So, positive correlations were observed between the three outcome variables with quality of change communication, participation in decision making, and a successful history of change. Only in the case of cognitive readiness for change, trust in top management had a positive and significant correlation. Because the psychological climate dimensions are group mean centered, a slope coefficient refers to expected increase(s) or decrease(s) in the outcome variables depending on people's individual score deviations from the level-1 predictor group means (e.g.  $(X_{ij} - X_j)$ ). For example, in the case of the fixed effect of quality of change communication on emotional readiness for change the parameter coefficient ( $\beta_4$ ) was .31. This implies that when a respondent scores one point higher on perceived quality of change

communication than the average person in his or her organization, that person will score .31 higher on emotional readiness for change on the condition that all other predictor variables are set to zero.

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Insert Table II About Here

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The level-1 residual variance in the unconditional model ( $\sigma^2_{rij/unconditional}$ ) was used to compute the  $R^2$ 's for the psychological climate dimensions as level-1 predictors ( $(\sigma^2_{rij/unconditional} - \sigma^2_{rij/step1}) / \sigma^2_{rij/unconditional}$ ). This set of four variables accounted respectively for 41 per cent of the explained variance in cognitive readiness for change, 22 per cent in emotional readiness for change, and 7 per cent in intentional readiness for change.

As displayed in Table II the fixed effects for the level-2 predictors in step 2 (organizational trust in top management ( $\gamma_{01}$ ), organizational history of change ( $\gamma_{02}$ ), organizational participation in decision making ( $\gamma_{03}$ ), and organizational quality of change communication ( $\gamma_{04}$ )) were used to test H5. After controlling for the level-1 psychological climate variables, only organizational quality of change communication had a positive and significant effect on emotional, cognitive and intentional readiness for change. This implies that independent of a person's score on trust in top management, history of change, quality of change communication, and participation in decision making, the fact of simply being a member of a group that perceives high quality of change communication, has a substantial effect on individual readiness for change. In addition, we noted that organizational history of change had a positive and significant effect on cognitive readiness for change.

By means of the GLS hypothesis test option in HLM, we examined four multi-parameter contrast effects ((contrast 1 =  $\gamma_{04emorfrc} - \gamma_{40emorfrc}$ ), (contrast 2 =  $\gamma_{04cogrfrc} - \gamma_{40cogrfrc}$ ), (contrast 3 =  $\gamma_{04intrfc} - \gamma_{40intrfc}$ ), (contrast 4 =  $\gamma_{02cogrfrc} - \gamma_{20cogrfrc}$ )). The  $\chi^2$  statistic tests for contrast 1, 2 and 3 were highly significant (contrast 1:  $\chi^2(1) = 10.72$ ,  $p < .001$ ; contrast 2:  $\chi^2(1) = 23.67$ ,  $p < .001$ ; contrast 3:  $\chi^2(1) = 14.80$ ,  $p < .001$ ), whereas the  $\chi^2$  statistic test for contrast 4 was only significant at the .10 level ( $\chi^2(1) = 3.63$ ,  $p < .10$ ). In conclusion, these findings suggest that there is a contextual effect of quality of change communication on readiness for change.

## DISCUSSION

This study was designed to investigate the impact of organizational change climate above and over the effects of psychological change climate on people's attitude towards organizational change measured in terms of emotional, cognitive and intentional readiness for change. It was intended to demonstrate the importance of a meso-level approach to the study of organizational phenomena (House et al., 1995), such as reactions of organizational members when confronted with change. The findings provided evidence that readiness for change is not purely the result of individual perceptions, but is also a socially constructed phenomenon. To put it differently, our analyses showed that a significant amount of variance in emotional, cognitive and intentional readiness for change resided at the organizational level. The fact of simply being part of a group seems to explain a substantial amount of variance (ranging between 14 and 20 per cent) in individual's attitudes toward change. This observation supports the image that individuals in organizations do not exist in a vacuum, but that their perceptions, attitudes and behavior are a function of both individual and context effects (Lewin, 1951).

In support of our hypotheses (H1, H2, and H3) and the literature we note that the individual perceptions of the climate factors *history of change*, *participation in decision making*, and *quality of change communication* are essential predictors of people's readiness for change. Based on these findings, it seems that honoring past change successes is a valuable change readiness mechanism, because positive change stories may encourage change recipients to engage in change. Although very few studies considered an organization's history as a driver of readiness for change (Bordia, Restubog, Jimmieson, & Irmer, 2007; Pettigrew et al., 2001), it has been suggested that readiness for change is affected by the track record of successful implementation of organizational changes (XXXX, in press). In other words, a positive experience with previous change projects will activate employees' readiness; a negative experience will inhibit their readiness (Bernerth, 2004).

Both change process variables quality of change communication and participation in decision making characterize management support, but are also key dimensions of transformational leadership behavior (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). During major change the head of the organization or executive management are key persons to warrant a successful change outcome.

Leaders are needed to provide vision, inspiration, and conviction and to demonstrate integrity, provide meaning, and generate trust, and communicate values in order to create a basis in which openness and flexibility towards change can thrive (Bommer, Rich, & Rubin, 2005). Organizational members should have the general feeling that the organization cares for their well-being and is supportive of their concerns about change (Eisenberger, Huntington, Hutchinson, & Sowa, 1986). Thus, perceived management support during change may impact one's reaction to the impending change such that it is perceived as less threatening, and may influence one's overall schema for organizational change such that the change is viewed more favorably (Eby et al., 2000).

It is obvious that in the light of getting people prepared for adjustment to change, that participation in decision making and quality of change communication are both tools that management should use (Armenakis et al., 1993). In other words, if practitioners want to achieve effective and continuous change in their organization, they should think about implementing well-designed and well-developed interventions geared toward facilitating and enhancing positive social relationships in their organizations. Through participation in decision making, people get the opportunity to have impact regarding a proposed change, and gradually build the skills, the knowledge and efficacy necessary to cope effectively with continuous change (Dirks et al., 1996). Also communication is crucial to increase acceptance of change, since it helps people to make sense of changes already under way, makes changes more salient and helps reframe them (Weick, 1995). In particular, the quality of communication is what differentiates a successful change from one derailed by resistance and uncertainty (Ford & Ford, 1995). So, an important role of management and change agents in times of change is one of managing language and dialogue (Ludema & Di Virgilio, 2007).

Despite the support for the first three hypotheses, the fourth hypothesis could not be confirmed. Individual perceived trust in top management only had a positive significant relationship with cognitive readiness for change, but not with emotional or intentional readiness for change. This finding suggests that some antecedents may have their primary influence on how people feel about change, whereas others may have impact on what they do, and yet others on what they think about it. If that would be the explanation for this result, this study has demonstrated the relevance of using a multifaceted definition over a unified conceptualization of readiness for change

(Piderit, 2000). An alternative explanation for the fact that only a positive effect was found for cognitive readiness for change may be attributed to the particular nature of the items on the trust scale.

Of all organizational climate dimensions only organizational quality of change communication had a main effect on all three readiness for change outcomes, and this after controlling for psychological change climate. Furthermore, it explained a substantial part of the variance in readiness for change that resided between groups. Thus independent of an individual's perceptions of the organization's climate, just being member of an organization that highly values the quality of communication during change has a positive influence on people's individual readiness for change. Thus, quality of change communication accounts for an individual and contextual effect in shaping employees' readiness for change. Based on these results one may conclude that the perceived quality of change communication operates like a central nerve system in times of change. Glitches to the nerve system in the human body may cause paralysis, uncontrolled movements, blindness, and in the worst case scenario even lead to death. Analogous to this nerve system, the need for high quality information and communication will determine the survival of a change project. When crucial information about change does not reach its recipients, is misinterpreted, or wrongfully processed, people will start to question the urgency and relevance of change and ultimately build resistance towards change.

Although the social information processing theory (Salancik & Pfeffer, 1978) posits that the attitudes that individuals develop towards change are directed by the social context information (e.g., quality of change communication), the theory does not explain the reference points people use for the formation of their attitudes (Erickson, 1998). People compare themselves with other members in their social system (i.e. organization). Dependent on the outcome of this comparison, people may engage or resist change (Burkhardt, 2004). Thus, instead of treating the absolute group means of organizational climate as the only type of contextual effects, an alternative could be individual-within-the-group effects. This kind of contextual effect suggests that readiness for change depends on where an individual stands relative to the group average for the organizational climate dimensions. In literature these effects are so-called frog-pond effects (Firebaugh, 1980). The term frog pond captures the comparative or relative effect that is central to theories of this type: depending on the size of the pond, the very same frog may be small (if the pond is large) or large (if the

pond is small) (Kozlowski & Klein, 2000). Although the absolute group averages of trust in top management, history of change, and participation in decision making did not affect readiness for change it may be that their frog-pond effects actually do. In that respect a limitation of this study and at the same time a challenge for future research is developing designs that allow testing for frog-pond effects.

### **Study considerations**

Like all studies, this study has both strengths and weaknesses. As for its strengths, this inquiry is one of the very few studies that acquired data on the context of change (i.e. trust in top management, history of change), the process of change (i.e. participation in decision making and quality of change communication), and readiness for change in a broad and heterogeneous cross section of Belgian companies. In short, the large number of companies, changes and respondents helped increase confidence in the stability of the results.

Another advantage of the study was the emphasis on the climate concept as one of the key mechanisms that facilitates or inhibits adjustment to change. The benefit of this concept lies in its ability to easily distinguish its effects at different levels of analysis (i.e. psychological change climate and organizational change climate). In addition, in change management literature one of the climate dimensions *history of change*, has tended to be ignored as a critical context factor (Bordia et al., 2007; Pettigrew et al., 2001). In this study, however, we offered some evidence to consider this history when examining employees' change attitudes.

To our knowledge, this study is one of the very few that recognized the importance of using a multifaceted definition of readiness for change (Piderit, 2000). As a matter of fact, treating readiness as a unified concept unduly simplifies the term by assuming that how people behave under conditions of change completely corresponds with how they think and feel about change (Oreg, 2006). In addition, our focus on readiness for change is embedded in a positive psychology approach, instead of following the mainstream, which assumes that people resist change (Dent & Goldberg, 1999). We believe that this positive approach, which emphasizes on the strengths rather than malfunctioning, will provide some new fascinating insights into the pertinent role of human functioning in times of change (Abrahamson, 2004).

With respect to the used methodology, multilevel theory and research provides a solid theoretical foundation and a set of powerful analytical tools to examine organizational phenomena that cut across multiple levels (Kozlowski & Klein, 2000). Although single-level models are important to identify and explore specific variables at some point, the future of organizational science lies in approaches that are more integrative and seek to understand phenomena from a combination of perspectives. In this regard, the findings of our study support the call for more meso-level or multilevel research perspectives in the area of organizational change (House et al., 1995; Herold, Fedor, & Caldwell, 2007; Fedor, Caldwell, & Herold, 2006).

Despite the many advantages, our study has some limitations. For instance, we only focused on organizational change climate as a contextual variable. Future research, however, would do well to examine other readiness for change related contextual variables like the impact of an organization's structure, its strategy for dealing with change, market evolutions, etc. Furthermore, it is clear that other levels beside organizational level are affected by change. For example, what's the importance of the work team culture in shaping employees' readiness for change? So, there is a clear need to further identify the relevance of other units of analysis (e.g., team and department) as key levels to cross-level research on readiness for change. The drawback however of taking three levels of analysis into a design is the need for a larger sample size. Generalizing the 30/30 rule (Kreft, 1996) to a three level design would imply that the number of respondents at the lowest level of analysis would be multiplied by a factor of 30. This would mean that responses of approximately 27,000 individuals spread over 900 teams in 30 organizations should be collected to ensure the accuracy of estimated parameters and variance components.

With regard to methodology, a possible concern could be the fact that the researchers were not in control of the selection of participants in each organization and therefore may have biased the results. We believe however that it is very unlikely that the contact persons chose to solicit only those members in favor or not in favor of the change. If that would have been the case, we would have found limited variance available to be explained in the study, reducing the likelihood of finding significant results. In addition, in the case the contact persons had chosen individuals favorable or unfavorable to changes, the means for the three outcome variables and four psychological climate dimensions would approximate the maximum or minimum

theoretical values (i.e., 5 and 1). The means, however, do not seem to support the presence of such selection bias.

Another flaw in the methodology of our study is the fact that survey data were collected only once, after the organizational change had already been underway. Because of that, we cannot draw firm conclusions about the causality in the relationships found between the study's variables. In previous inquiries, however, it has been demonstrated that similar context and process variables shape people's reactions towards change (XXXX, in press; Jimmieson et al., 2005). Another issue associated with the fact that data were collected only once and by the same instrument is mono-method bias. Harman's one factor model test, however, showed that a model with separate factors for scales yielded better fit over a common factor model, suggesting that common method variance was not such a large validity threat in this inquiry. This issue of common method could be anticipated in the future by administering one survey that measures readiness for change to one sample of respondents, and a second survey that assesses organizational climate to a similar sample of respondents in the company or work unit.

Finally, although theory supports the multifaceted structure of readiness for change over a unified concept (Piderit, 2000), we believe further empirical and theoretical work will be needed to develop a more reliable and valid instrument that measures those three components of readiness for change. We believe, our study may provide a first stepping stone to the further development of such an instrument.

In conclusion, despite its strengths and weaknesses, research that attempts to understand the meaning of different factors that influence effective change is essential, because organizational change remains a necessary condition to survive in an ever more competitive and turbulent business environment.



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**TABLE I Means, standard deviations, interrater agreement indices, and correlation table of individual-level and group-level variables**

Variable	<i>M</i>	<i>SD</i>	ICC(1)	ICC(2)	R <sub>wg(j)</sub>	1	2	3	4	5	6	7	8	9	10
Individual level (N = 2543)															
1. Emotional RFC	3.57	.76				.85									
2. Cognitive RFC	3.49	.71				.54***	.72								
3. Intentional RFC	4.15	.61				.57***	.38***	.88							
4. History of change	3.33	.67				.33***	.57***	.23***	.74						
5. Trust in top management	3.13	.76				.32***	.48***	.20***	.53***	.74					
6. Participation	3.02	.76				.47***	.50***	.28***	.42***	.55***	.79				
7. Quality communication	3.41	.71				.29***	.45***	.23***	.38***	.46***	.51***	.86			
Group level (N = 84)															
8. Org. history of change	3.36	.34	.19	.86	.88										
9. Org. trust in top management	3.26	.37	.21	.87	.83								.48***		
10. Org. participation	3.15	.38	.24	.89	.88								.29**	.60***	
11. Org. quality communication	3.52	.32	.18	.85	.89								.25*	.48***	.58***

Note. Cronbach's alpha is on the diagonal

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$

**TABLE II Results of HLM for hypothesis testing**

	Cognitive readiness for change			Emotional readiness for change			Intentional readiness for change											
	Step 1		Step 2	Step 1		Step 2	Step 1		Step 2									
	<i>Coeff</i>	<i>SE</i>	<i>Df</i>	<i>Coeff</i>	<i>SE</i>	<i>Df</i>	<i>Coeff</i>	<i>SE</i>	<i>Df</i>									
Fixed effects																		
Level-1 main effects																		
Trust ( $\beta_1$ )	.10***	.02	2273	.09***	.02	83	.05	.02	2273	.04	.03	83	.00	.02	2273	.01	.02	83
History ( $\beta_2$ )	.44***	.04	2273	.42***	.03	83	.25***	.03	2273	.25***	.03	83	.10***	.02	2273	.10***	.03	83
Participation ( $\beta_3$ )	.16***	.02	2273	.16***	.03	83	.06*	.02	2273	.06*	.03	83	.13***	.02	2273	.13***	.02	83
Communication ( $\beta_4$ )	.13***	.02	2273	.13***	.02	83	.31***	.02	2273	.31***	.03	83	.10***	.02	2273	.11***	.03	83
Level-2 main effects																		
GroupTrust ( $\gamma_{01}$ )				-.05	.08	79				-.12	.12	79				-.14	.09	79
GroupHistory ( $\gamma_{02}$ )				.26***	.08	79				.02	.11	79				.02	.08	79
GroupParticipation ( $\gamma_{03}$ )				.04	.08	79				-.24	.12	79				.03	.08	79
GroupCommunication ( $\gamma_{04}$ )				.50***	.08	79				.72***	.12	79				.45***	.08	79
Variance components																		
$U_{0j}$	.08			.03			.14			.08			.06			.05		
$U_{1j}$	-			.01			-			.01			-			.00		
$U_{2j}$	-			.02			-			.01			-			.00		
$U_{3j}$	-			.05			-			.02			-			.02		
$U_{4j}$	-			.01			-			.01			-			.02		
$\Gamma_{ij}$	.25			.23			.39			.37			.31			.30		

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .