

# Organizational Change Questionnaire–Climate of Change, Processes, and Readiness: Development of a New Instrument

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**ABSTRACT.** On the basis of a step-by-step procedure (see T. R. Hinkin, 1998), the authors discuss the design and evaluation of a self-report battery (Organizational Change Questionnaire–Climate of Change, Processes, and Readiness; OCQ–C, P, R) that researchers can use to gauge the internal context or climate of change, the process factors of change, and readiness for change. The authors describe 4 studies used to develop a psychometrically sound 42-item assessment tool that researchers can administer in organizational settings. More than 3,000 organizational members from public and private sector organizations participated in the validation procedure of the OCQ–C, P, R. The information obtained from the analyses yielded 5 climate-of-change dimensions, 3 process-of-change dimensions, and 3 readiness-for-change dimensions.

**Keywords:** assessment of climate of change and change process, readiness for change, scale development

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IN TIMES WHEN CHANGE IS MORE THE RULE than the exception, the ability of organizations to be receptive and open to change has become paramount. Because the future is often uncertain in terms of change, people in general are not motivated to change unless there are compelling reasons to do so. Consequently, a key issue in managing and planning change projects effectively is creating a basis that supports change.

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Overall, researchers have found a strong consensus about the salient role of (a) the internal circumstances under which change occurs (climate of change), (b) the process of how change is dealt with, and (c) the level of readiness for change in understanding the processes that lead to successful change implementation (Armenakis, Harris, & Feild, 1999; Kotter, 1995; Mento, Jones, & Dirndorfer, 2002; Sashkin & Burke, 1987). Despite the relevance of climate of change, process of change, and readiness for change in predicting change behavior, there are few well-validated available measures that assess these components (Holt, Armenakis, Harris, & Feild, 2007). Because a diagnosis of the factors that facilitate an organization's capacity for change is a *condicio sine qua non* before moving further with the next phases of a planned change project (Ten Have & Ten Have, 2004), it is essential for practitioners to have an instrument that allows them to make a reliable and valid assessment of readiness for change and its enablers: the climate-of-change and process-of-change elements. Therefore, the main purpose of this study was to develop a battery that measures these components of change.

### *Shortcomings in Alternative Measures*

Assuming that the practical soundness of useful research on change requires the appreciation of the climate or the context that accompanies change, reactions toward change (i.e., readiness for change), together with the analysis of the process variables (Pettigrew, 1990), the development of this battery—the Organizational Change Questionnaire—Climate of Change, Process, and Readiness (OCQ—C, P, R)—can be value added for practitioners and scholars. To our knowledge, the extant instruments that cover these three large categories (i.e., context or climate of change, process of change, and readiness for change) can be improved in some respects. For example, Belasco's (1990) instrument and Stewart's (1994) tool have provided no construct validity information. In addition, the scales were developed to measure the perception of those people leading the change, instead of assessing the attitudes of all stakeholders involved in the change process (change recipients included).

Other instruments are the Organizational Climate Measure (OCM; Patterson et al., 2005) and the Readiness for Organizational Change Measure (ROCM; Holt, Armenakis, Feild, & Harris, 2007). However, a major problem with the OCM is that it is an omnibus measure of organizational climate and therefore not always as relevant for the diagnosis of change-specific perceptions. Also, an initial concern with the ROCM is it was tested on a specific sample of organizations, and therefore, that may limit the generalizability of that instrument. Furthermore, it is difficult to distinguish the context scale from the content scale, raising concerns about the instrument's overall construct validity. Because of the shortcomings of these tools, this article discusses the development of a new battery of measures of climate of

change, change process factors, and readiness for change that is grounded in theory, is empirically sound, and deals with several of the aforementioned shortcomings.

### *Readiness for Change, Climate of Change, and Process Factors of Change*

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 sum, readiness for change reflects beliefs, feelings, and intentions regarding the extent to which changes are needed and perceptions of individual and organizational capacity to successfully enact those changes (Armenakis, Harris, & Mossholder, 1993).

In this battery, readiness for change is conceived as a multifaceted concept that comprises an emotional dimension of change, a cognitive dimension of change, and an intentional dimension of change. This multifaceted view of readiness for change as a triadic attitude instead of unifacted operationalization is better at capturing the complexity of the phenomenon. It is assumed that intentional, cognitive, and affective reactions toward change come into play at different stages in the change process, and do not necessarily coincide (George & Jones, 2001; Piderit, 2000). Researchers have tried to classify the elements that shape change recipients' readiness for change (Armenakis & Bedeian, 1999; Holt et al., 2007). Several factors have been identified, but only two have been distinguished as key components that make or break readiness for change: (a) climate of change and (b) the way change is dealt with (i.e., process of change).

### *Interpersonal Dimension of Change: The Human Relations Movement*

In times of change, interpersonal interaction with peers and superiors is highly valued, making the nature of such relationships a salient feature in shaping people's readiness for change. People need trust, support, and cooperation to function effectively. Therefore, one of the major tasks and challenges of management is to empower employees and facilitate their participation, commitment, and loyalty (Schneider, Brief, & Guzzo, 1996). This focus on building supportive, cooperative, trusting relationships and creating commitment is central to the human relations movement (Emery & Trist, 1965; McGregor, 1960). According to this movement, organizational effectiveness can be achieved by successfully managing the interpersonal relationships in organizations.

A growing body of research evidence has indicated that the human relations orientation mobilizes the forces and energies necessary to create an employee's confidence and capability to undertake new workplace challenges and changes (Jones, Jimmieson, & Griffiths, 2005; Zammuto & O'Connor, 1992). Jones et al. and Zammuto and O'Connor have highlighted that organizational climates with flexible and supportive structures are conducive to establishing a positive

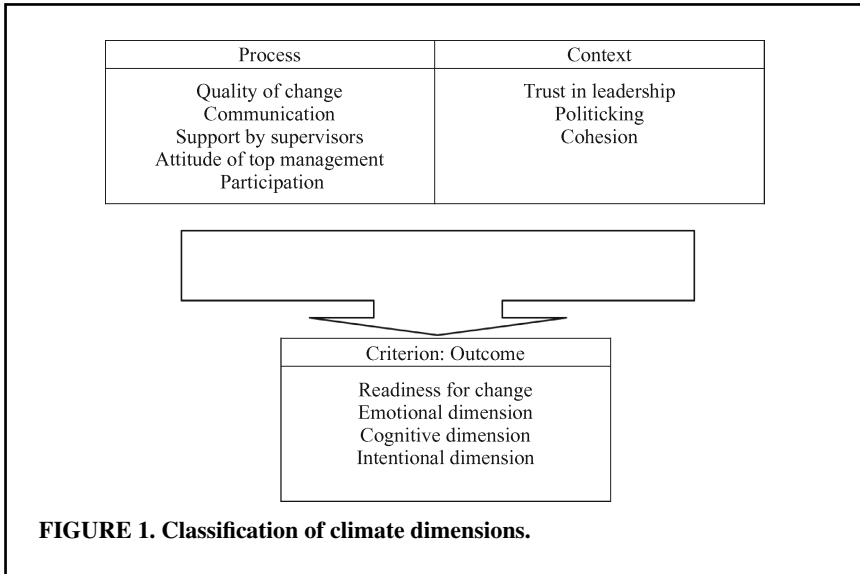
attitude toward change. Furthermore, Burnes and James (1995) observed that change resistance was low in supportive and participative conditions were present, characteristics that are consistent with the human relations philosophy. Last, Tierney (1999) noted that the psychological climate dimensions of trust, participation, and support are preconditions for an environment conducive of change.

The elements that represent this interpersonal dimension reside at the context-of-change level (e.g., trust in leadership) and process-of-change level (e.g., involvement in decision making). Contrary to the plethora of general definitions of organizational climate, the change literature lacks good conceptualizations of change climate. In her research, Tierney (1999) defined climate of change as employees' perceptions of which organizational change initiatives in an organization are expected, supported, and rewarded. In the present study, *climate of change* is conceived in terms of general context characteristics conducive of change. It refers to employees' perceptions of the internal circumstances under which change occurs. The process part of change has a more transient character and refers to the actual approach of how a specific change project is dealt with. The context and process of organizational change have both been identified as major contributors of employees' readiness for change (Holt, Armenakis, Harris et al., 2007).

### *The 10 Dimensions of the Battery*

By choosing the human relations perspective, we delineated a framework from which the climate dimensions and process factors were tapped as antecedents of readiness for change. This deductively driven selection process resulted in a parsimonious delineation of the content of the battery that describes the essential context and process factors of readiness for change in terms of interpersonal relationships. Apart from the tridimensional measurement of readiness for change (i.e., emotional, cognitive, and intentional readiness for change), the instrument encompasses the following seven dimensions: (a) quality of change communication, (b) participation, (c) attitude of top management toward organizational change, (d) support by supervisors, (e) trust in leadership, (f) cohesion, and (g) politicking. (The Appendix shows a description of each of the aforementioned dimensions.) We also used these definitions as a part of the content adequacy test for the items constructed.

In sum, these 10 dimensions cover the complex mix of change by including the context of change (i.e., climate of change), the process of change, and the reaction toward change (Armenakis & Bedeain, 1999; Pettigrew, 1990). Quality of change communication, participation, attitude of top management toward organizational change, and support by supervisors all pertain to how change is dealt with (i.e., process). The internal context of change (i.e., climate of change) involves trust in leadership, cohesion, and politicking. Last, as mentioned before, readiness for change is a multifaceted attitude toward change, comprising emotional, cognitive, and intentional readinesses for change (see Figure 1).



Having discussed the reasons for developing the OCQ–C, P, R and defined the framework from which OCQ–C, P, R dimensions were tapped, in the remainder of the present article we describe in detail the studies that have been conducted on the validation process of the OCQ–C, P, R.

### Validation Studies

Traditional psychometric theory asserts that a quantitative survey instrument should meet the following three standards of validity: (a) content validity, (b) construct validity, and (c) criterion-related validity (Anastasi, 1982; Hinkin, 1998; Nunnally, 1978). The validation procedure encompassed four studies. We designed Study 1 to examine the content validity of the items developed. Study 2 involved a first test of the factor structure and the construct validity of the items. Study 3 examined whether the scales that emerged from Study 2 could be replicated in a different sample. We simultaneously evaluated the scales for convergent validity, discriminant validity, known-groups validity, shared-group variance, and concurrent validity. Last, Study 4 was a first step toward the development of an English version of the original Dutch OCQ–C, P, R.

#### *Item Development: Pilot Study*

In accordance with previous validation studies, we followed Hinkin's (1998) guidelines suggesting that survey items should be developed by first specifying

the domain, then developing items to assess that domain, and last determining the extent to which items measure the specified domain. We consulted the literature on climate dimensions (Burnes & James, 1995; James et al., 2008; Patterson et al., 2005; Tierney, 1999; Zammuto & O'Connor, 1992) and readiness for change (Armenakis et al., 1993; Holt, Armenakis, Harris et al., 2007) to inductively generate our items. We independently wrote items for each of the 10 dimensions. This process yielded a large set of items. Then, items were rewritten or eliminated if they were poorly worded, duplicated other items, or seemed inconsistent with the dimension descriptions (see the Appendix). Last, Herman van den Broeck reviewed the items for clarity and redundancy. This entire item-generation process yielded a final selection of 63 items.

### *Content Validity*

Following the procedure that Chen, Gully, and Eden (2001) described, a panel of 10 judges examined the content validity of the 63 items along the dimensions described in the Appendix. Each of the 10 panel judges was an academic staff member in the organizational behavior department of a prominent business school in Belgium. These judges were given the descriptions of the 10 dimensions and asked to base their designations on the definitions provided. Apart from the 63 items, we added 9 filler items referring to goal orientation and risk-taking–reward orientation. None of these filler items was classified in the 10 specified dimensions, providing a first indication of the content adequacy and discriminant validity of the 63 items.

*Results.* The percentage of interrater agreement was calculated as a measure of content adequacy (Chen et al., 2001). Table 1 displays the 10 dimensions, initial number of items that were developed before the content adequacy test, item designation according to the expert panel, percentage of interrater agreement, and scale to which our items were initially assigned.

Although the content adequacy test is a viable way to determine whether the items that were generated represent the underlying latent constructs, an important point raised by the panel judges is that they classified all 63 items from a general change perspective, whereas several items in the questionnaire actually have a change-specific character. In other words, our item pool comprised items with a more general content and items that we specifically designed toward measuring the perception of an ongoing company- or department-specific change. A reevaluation of the items (see Table 1) reveals that a part can be grouped as more general and another part can be grouped as change-specific. In following this classification, we noticed that our context factors (i.e., trust in leadership, politicking, and cohesion) have a general content, whereas the process factors (i.e., quality of change communication, participation, support by supervisors) and

TABLE 1. Results of Content Adequacy Test

Dimension	Original number of items	Item retained after content adequacy test	% of agreement among raters	Original scale	Item type
1. Process of change Quality of change communication (QCC)	6	I03: I am regularly informed on how the change is going.	100	QCC	S
		I12: There is good communication between project leaders and staff members about the organization's policy toward changes.	100	QCC	S
		I22: Information provided on change is clear.	100	QCC	S
		I36: Information concerning the changes reaches us mostly as rumours.	100	QCC	S
		I47: We are sufficiently informed of the progress of change.	100	QCC	S
		I65: Corporate management team keeps all departments informed about its decisions. <sup>a</sup>	100	TLE	G
Participation (PAR)	12	I76: Two-way communication between the corporate management team and the departments is very good. <sup>a</sup>	80	TLE	G
		I20: Corporate management team clearly explains the necessity of the change. <sup>a</sup>	80	ATC	S
		I05: Changes are always discussed with all people concerned.	70	PAR	G
		III: Those who implement change, have no say in developing the proposals.	100	PAR	S
		I25: Decisions concerning work are taken in consultation with the staff who are affected.	100	PAR	G

**TABLE 1. Results of Content Adequacy Test (Continued)**

Dimension	Original number of items	Item retained after content adequacy test	% of agreement among raters	Original scale	Item type
		I34: My department's management team takes account of the staff's remarks.	80	PAR	G
		I35: Departments are consulted about the change sufficiently.	100	PAR	S
		I42: Staff members were consulted about the reasons for change.	100	PAR	S
		I50: Front line staff and office workers can raise topics for discussion.	90	PAR	G
		I51: Our department provide sufficient time for consultation.	70	PAR	G
		I71: It is possible to talk about outmoded regulations and ways of working.	80	PAR	G
		I74: The way change is implemented leaves little room for personal input.	80	PAR	S
		I77: Staff members are sufficiently involved in the implementation of the changes by our department's senior managers.	70	PAR	S
Attitude of top management toward change (ATC)	4	I17: Corporate management team has a positive vision of the future.	70	ATC	S
		I66: Corporate management team is actively involved with the changes.	80	ATC	S
		I69: Corporate management team supports the change process unconditionally.	80	ATC	S

*(Continued on next page)*



TABLE 1. Results of Content Adequacy Test (Continued)

Dimension	Original number of items	Item retained after content adequacy test	% of agreement among raters	Original scale	Item type
Support by supervisors (SBS)	6	I01: Our department's senior managers pay sufficient attention to the personal consequences that the changes could have for their staff members.	90	SBS	S
		I37: Our department's senior managers coach us very well about implementing change.	90	SBS	S
		I38: Our department's senior managers have trouble in adapting their leadership styles to the changes.	70	SBS	S
		I15: My manager does not seem very keen to help me find a solution if I have a problem. <sup>a</sup>	70	TLE	G
		I31: If I experience any problems, I can always turn on my manager for help. <sup>a</sup>	70	TLE	G
		I40: My manager can place herself/himself in my position. <sup>a</sup> I60: My manager encourages me to do things that I have never done before. <sup>a</sup>	70 80	TLE TLE	G G
2. Climate of change or internal context					
Trust in leadership (TLE)	10	I19: Corporate management team consistently implements its policies in all departments.	60	TLE	G
		I44: Corporate management team fulfils its promises.	100	TLE	G
		I58: If I make mistakes, my manager holds them against me.	70	TLE	G
		I08: Within our organization, power games between the departments play an important role.	100	POL	G
Politicking (POL)	5	I09: Staff members are sometimes taken advantage of in our organization.	70	POL	G
		I30: In our organization, favoritism is an important way to achieve something.	100	POL	G
Cohesion (COH)	5	I02: It is difficult to ask help from my colleagues.	90	COH	G
		I14: There is a strong rivalry between colleagues in my department.	90	COH	G
		I24: I doubt whether all of my colleagues are sufficiently competent.	90	COH	G
		I48: I have confidence in my colleagues.	90	COH	G

(Continued on next page)

**TABLE 1. Results of Content Adequacy Test (Continued)**

Dimension	Original number of items	Item retained after content adequacy test	% of agreement among raters	Original scale	Item type
3. Readiness for change		I61: My department is very open.	90	COH	G
Emotional readiness for change (EMRE)	5	I04: I have a good feeling about the change project.	90	EMRE	S
		I33: I experience the change as a positive process.	90	EMRE	S
		I75: I find the change refreshing.	100	EMRE	S
		I55: I am somewhat resistant to change. <sup>a</sup>	70	COGRE	G
		I73: I am quite reluctant to accommodate and incorporate changes into my work. <sup>a</sup>	60	COGRE	G
Cognitive readiness for change (COGRE)	6	I41: I think that most changes will have a negative effect on the clients we serve.	100	COGRE	G
		I59: Plans for future improvement will not come too much.	60	COGRE	G
		I62: Most change projects that are supposed to solve problems around here will not do much good.	70	COGRE	G
		I39: The change will improve work. <sup>a</sup>	90	EMRE	S
		I56: The change will simplify work. <sup>a</sup>	90	EMRE	S
Intentional readiness for change (INRE)	4	I18: I want to devote myself to the process of change.	100	INRE	S
		I57: I am willing to make a significant contribution to the change.	100	INRE	S
		I67: I am willing to put energy into the process of change.	90	INRE	S

*Note.* Only the items whose percentage of interrater agreement was .60 or greater are displayed. G = general item; S = change-specific item.

<sup>a</sup>Items that were initially developed to represent another climate dimension but received a new classification after the content adequacy test.

the readiness variables (i.e., emotional and cognitive readinesses for change) were a mixture of general and change-specific items. Not taking this difference into consideration would flaw further validation of our questionnaire. In particular, factor analyses may yield biased findings if one is not aware of this distinction. We anticipated the following dimensions would emerge from the item and factor analyses in Study 2: quality of change communication (process, change specific), participation in change project (process, change specific), attitude of top management toward change project (process, change specific), ability of management to lead a change project (process, change specific), participatory management (context, general), politicking (context, general), cohesion (context, general), general support by supervision (context, general), trust in leadership (context, general), cognitive readiness for change (general), emotional readiness for change (change specific), and intentional readiness for change (change specific).

### *Questionnaire Administration and Item Analysis*

We designed a questionnaire that incorporated all items from the pilot study (i.e., 63 items). The questionnaire was specifically developed by taking into account the feedback from the panel that some items had a more general character, whereas others had a more change-specific character. In the first part of the survey, respondents were asked to indicate their level of agreement with statements on change in general by using a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The second part of the questionnaire dealt with the more change-specific items and was introduced by the following instruction:

This part contains questions about [specific change within department or organization X]. We are interested in finding out about people's attitudes to change. In answering the following questions, please have [the specific change project] in mind. Especially try to remember those things that particularly affected you and your immediate colleagues.

The general part (i.e., internal context variables, cognitive readiness for change) comprised 28 items, whereas the change-specific part (i.e., process variables, emotional readiness and intentional readiness for change) comprised 35 items. We used the data we gathered on the basis of this questionnaire for item analyses and exploratory factor analyses (EFAs) in Study 2. All items in the questionnaire were phrased so that participants could report their level of agreement by using a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

*Organizational context.* In Study 2, we collected data from for-profit ( $n = 18$ ) and nonprofit ( $n = 24$ ) organizations. All 42 Belgian organizations had recently announced a large-scale change (i.e., downsizing, reengineering, total

quality management, culture change, technological innovation). The 42 organizations represented several sectors including information technology, petrochemicals, telecommunications, fast-moving consumer products, finance and insurance, consultancy, health-care and medical services, but also government services (i.e., police departments, schools).

We acquired data on 1,358 individuals and included them in the analyses. On average, 32 people from each organization answered the questionnaire. As was the case for all studies reported throughout this article, participants filled out the survey on a voluntary and anonymous basis. Therefore, we did not collect all the demographic information from the respondents. The numbers of participants from for-profit and nonprofit organizations were almost equal: for for-profit, 54% ( $n = 738$ ); for nonprofit, 46% ( $n = 620$ ). In addition, the sample consisted of more male participants (64%,  $n = 244$ ) than female participants (36%,  $n = 138$ ), and more participants holding a nonmanagerial position (54%,  $n = 479$ ) than a managerial position (46%,  $n = 406$ ). Last, participants' age was heterogeneous: In all, 3% ( $n = 11$ ) were younger than 25 years of age; 33% ( $n = 121$ ) were 25–34 years of age; 35% ( $n = 127$ ) were 35–44 years of age; and 29% ( $n = 103$ ) were older than 44 years of age. In short, this sample involved a varied set of organizations and respondents to examine the validity of the OCQ–C, P, R.

*Procedure factor analyses.* The OCQ–C, P, R is a diagnostic tool that incorporates three separate questionnaires aimed at measuring the following: (a) the climate of change or internal change context (C), (b) the process of change (P), and (c) the readiness for change (R). Therefore, we factor analyzed the climate-of-change, process-of-change, and readiness-for-change items separately. We factor analyzed 22 items for change climate, 26 items for process of change, and 15 items for readiness for change by using principal axis factoring and direct oblimin rotation (Conway & Huffcutt, 2003). In Study 3, we replicated the factor structure found in Study 2 by conducting confirmatory factor analyses (CFAs) on new data (Hurley et al., 1997).

We performed an initial EFA to check empirically the discernment of the battery into the following three major categories: C, P, and R. A three-factor solution was forced with a direct oblimin rotation to simplify the interpretation of the factors. Together, these three factors explained 43% of the total variance. Overall, the item-loading pattern endorsed the conceptual distinction between climate of change or internal context, process of change, and readiness for change. The so-called *process* items had their primary loadings on the first factor, with loadings larger than or approximating .40. Only two items—I38 and I46—had secondary factor loadings exceeding .25. The ambiguous loading pattern of these items could be because these were reversed-scored items. Regarding the readiness-for-change items, all items loaded on a single factor, except for cognitive readiness for change, which also had high secondary loadings (approximating .25) on a third

factor representing the climate of change. This is not a complete surprise because the items of cognitive readiness had a general character similar to the internal context items. To conclude, on the basis of the loading patterns, the third factor encapsulated the climate of change or internal context. Only the items referring to trust in leadership (i.e., I19, I44, I65, I76) had unexpectedly primary loadings on the process factor.

*Results EFAs for C, P, R.* The extraction of factors resulted from the following two procedures: (a) the scree plot examination (Cattell, 1966) and (b) the eigenvalues greater than one criterion check (Kaiser, 1960). In general, the preliminary findings of our pilot study and content validity study were confirmed. Of the 22 internal context items, we omitted 4 because their primary loadings were less than .40 on their targeted factor or had high secondary loadings on other factors. The remaining 18 items yielded five dimensions explaining 50.45% of the total variance. Regarding our 26 process-of-change items, we retained 15 items representing three factors that together explained 52.6% of the variance. Last, of the 15 items that were originally developed for measuring the readiness-for-change variables, 9 items were retained. These nine items had a three-factorial structure that explained 58.1% of the total variance. Tables 2–4 show the factors and items that were retained after an overall evaluation of the findings collected from EFAs, interitem analyses, and content adequacy evaluation.

*Climate of change or internal context factors.* Factor 1, termed *general support by supervision*, contained four items (i.e., I15, I31, I40, and I60) that were initially classified by the panel judges as *support by supervision*. However, this factor is not the original process variable that represents the experienced support and understanding during a change project, instead it is an internal context factor referring to the overall support provided by management independent of a specific change. Factor 2, which was termed *trust in leadership* (i.e., I19, I44, I65, and I76), incorporates four items that we developed as items representative of the climate-of-change factor of trust in leadership. Because six items were omitted, we noticed that the participants had a more specific conceptualization of trust in leadership. An examination of the content of these items suggests that Factor 2 measures the trustworthy communication by senior management in general. Factor 3, which was termed *cohesion*, comprised five items originally designed to assess (a) the perception of togetherness or sharing in the organization and (b) cooperation and trust in the competence of team members. Four items were retained (i.e., I14, I24, I48, and I61), causing no significant change in the content of this dimension. The fourth factor was a factor that emerged from the process factor of participation. Three items were kept (i.e., I5, I25, and I50), referring to participatory management instead of actual involvement in the implementation of change. Last, our fifth internal context factor—*politicking*—perfectly mirrored the results of the content adequacy test. I8, I9, and I30 had high factor loadings measuring the perceived level of political games.

**TABLE 2. Exploratory Factor Analysis of Climate of Change or Internal Context Factors**

Item	General support by supervisors ( $\alpha = .82$ )	Trust in leadership ( $\alpha = .79$ )	Cohesion ( $\alpha = .74$ )	Participatory management ( $\alpha = .79$ )	Politicking ( $\alpha = .68$ )
I15: My manager does not seem very keen to help me find a solution if I have a problem. <sup>a</sup>	.729	-.036	-.038	.008	-.119
I31: If I experience any problems, I can always turn on my manager for help.	.824	.007	-.040	.000	.014
I40: My manager can place herself or himself in my position.	.725	.044	-.007	.026	-.061
I60: My manager encourages me to do things that I have never done before.	.513	.074	-.006	.032	.074
I19: Corporate management team consistently implements its policy in all departments.	-.009	.748	-.092	-.046	.028
I44: Corporate management team fulfills its promises.	.046	.688	.001	.015	.036
I65: Corporate management team keeps all departments informed about its decisions.	-.036	.574	.033	.091	-.098
I76: Two way communication between corporate management team and departments is very good.	.078	.597	.049	.045	-.103
I14: There is strong rivalry between colleagues in my department. <sup>a</sup>	-.050	-.078	-.581	.060	-.124
I24: I doubt whether all of my colleagues are sufficiently competent. <sup>a</sup>	-.034	.101	-.519	-.020	-.084
I48: I have confidence in my colleagues.	.038	.005	-.778	.034	.083

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TABLE 2. Exploratory Factor Analysis of Climate of Change or Internal Context Factors (Continued)

Item	General support by supervisors ( $\alpha = .82$ )	Trust in leadership ( $\alpha = .79$ )	Cohesion ( $\alpha = .74$ )	Participatory management ( $\alpha = .79$ )	Politicizing ( $\alpha = .68$ )
I61: My department is very open.	.141	.025	-.623	-.003	.034
I05: Changes are always discussed with all people concerned.	.009	.061	-.017	.806	.024
I25: Decisions concerning work are taken in consultation with the staff who are affected.	-.059	-.010	-.039	.901	.019
I50: Front line staff and office workers can raise topics for discussion.	.171	.008	.013	.412	-.087
I08: Within our organization, power games between the departments play an important role.	.038	-.035	.028	.005	.624
I09: Staff members are sometimes taken advantage of in our organization.	-.016	-.083	.077	-.059	.473
I30: In our organization, favoritism is an important way to achieve something.	-.100	-.002	.005	-.011	.650

<sup>a</sup>Reverse-scored item.

TABLE 3. Exploratory Factor Analyses of Change-Specific Process Factors

Item	Involvement in the change process ( $\alpha = .88$ )	Ability of management to lead change ( $\alpha = .82$ )	Attitude of top management toward change ( $\alpha = .73$ )
I03: I am regularly informed on how the change is going.	.699	.019	.076
I12: There is good communication between project leaders and staff members about the organization's policy toward changes.	.698	.054	.040
I22: Information provided on change is clear.	.794	-.012	.022
I47: We are sufficiently informed of the progress of change.	.760	.000	-.012
I35: Departments are consulted about the change sufficiently.	.718	.061	-.009
I42: Staff members were consulted about the reasons for change.	.595	.006	.086
I01: Our department's senior managers pay sufficient attention to the personal consequences that the changes could have for their staff members.	.227	.531	-.083
I13: Our department's executives speak up for us during the change process.	.095	.699	-.133
I37: Our department's senior managers coach us very well about implementing change.	.197	.637	-.037
I38: Our department's senior managers have trouble in adapting their leadership styles to the changes. <sup>a</sup>	-.107	.687	-.081
I46: Our department's executives focus too much on current problems and too little on their possible remedies. <sup>a</sup>	-.019	.486	.143
I49: Our department's executives are perfectly capable of fulfilling their new function.	-.024	.687	.100
I17: Corporate management team has a positive vision of the future.	.270	.065	.493
I66: Corporate management team are actively involved with the changes.	.154	.053	.572
I69: Corporate management team supports the change process unconditionally.	-.002	.041	.664

<sup>a</sup>Reverse-scored item.



TABLE 4. Exploratory Factor Analysis of Readiness for Change Dimensions

Item	Intentional readiness for change ( $\alpha = .89$ )	Cognitive readiness for change ( $\alpha = .69$ )	Emotional readiness for change ( $\alpha = .70$ )
I18: I want to devote myself to the process of change.	.866	.033	.005
I57: I am willing to make a significant contribution to the change.	.782	-.036	-.091
I67: I am willing to put energy into the process of change.	.895	.012	.058
I41: I think that most changes will have a negative effect on the clients we serve. <sup>a</sup>	.020	.433	-.190
I59: Plans for future improvement will not come to much. <sup>a</sup>	.040	.572	.000
I62: Most change projects that are supposed to solve problems around here will not do much good. <sup>a</sup>	-.027	.887	.064
I04: I have a good feeling about the change project.	-.011	.062	-.782
I33: I experience the change as a positive process.	.069	-.013	-.818
I75: I find the change refreshing.	-.002	-.011	-.500

<sup>a</sup>Reverse-scored item.

*Process of change factors.* The result of the first change-specific factor was more complicated than expected. In all, six items loaded on this factor. Four of the items were intended to measure quality of change communication (i.e., I3, I12, I22, and I47). Two items (i.e., I35, and I42) were designed to gauge the extent to which organizational members participate in the change process. The idea that these items tended to cluster in one factor should not come as a surprise because the quality of change communication—in combination with participation in the change project—can create a sense of ownership or control of the change process. Therefore, Factor 1 was labeled *involvement in the change process*. The second factor that emerged from the factor analysis comprised six items (i.e., I1, I37, I38, I13, I46, and I49) and measured the process factor of support by supervision. Although I1, I37, and I38 were classified by the expert panel as items representing support by supervision, the second set of items (i.e., I13, I46, and I49) were assigned across two dimensions (i.e., support by supervisors and trust in leadership). The ambiguity that arises from the expert panel and the data driven findings compelled us to revise the content of this dimension. All six items referred to the perceived ability of management to deal with the change project. Therefore, this dimension was called *ability of management to lead the change*. Last, the third factor that was retained from the analysis counts three items (i.e., I17, I66, and I69) and involved the stance that top management takes regarding a specific change project. In other words, *attitude of top management toward the change project* is about the active involvement and support of top management during the change process.

*Readiness-for-change factors.* The first factor—intentional readiness for change—was a perfect reflection of the content adequacy test. I18, I57, and I67 loaded high on this first factor, indicating that intentional readiness for change is about the effort and energy organizational members are willing to invest in the change process. Regarding the second and third factors, I55, I73, I39, and I56 did not yield the expected pattern of loadings. Because of the high secondary loadings of these items, and because the loading pattern contradicted the evaluation made by the judgment panel, we omitted these items in the further development of the OCQ—C, P, R. The second factor, which was initially labeled *cognitive readiness for change*, comprised three items (i.e., I41, I59, and I62) and measured the beliefs and thoughts organizational members hold about the outcomes of change. Because all three items were formulated in a negative sense, they seem to somewhat overlap with what literature calls *cynicism about organizational change* (Wanous, Reichers, & Austin, 2000). The third factor, which was termed *emotional readiness for change*, comprised three items and aimed to capture the feelings about a specific change project being introduced (i.e., I4, I33, and I75). A final note regarding these three readiness-for-change components is that cognitive readiness for change involves more of an attitude toward change in general, whereas emotional readiness and intentional readiness for change are both reactions toward a specific change.

*Interitem analyses.* In addition to the EFAs, the next step was to evaluate whether the items and scales retained in Tables 2–4 had adequate variability. Although there are no absolute cutoff scores of what are high variability and low variability in items, standard deviations around the means of at least 0.5 on traditional 5-point Likert-type scales can be considered as acceptable variability. All 42 items displayed in Tables 2–4 had standard deviations higher than 0.5, with values that ranged between 0.71 for I57 and 1.45 for I75. The means of item variances for the 11 scales were also acceptable, with values ranging between 0.53 (for intentional readiness for change) and 1.24 (for emotional readiness for change). Although we did not exclude any of the 42 items, we noted that the scale of intentional readiness for change had a lower level of variability ( $SD = 0.53$ ) and higher mean ( $M = 4.09$ ) compared with the other scales in the OCQ–C, P, R.

The following step in analyzing these 42 items was an examination of the intercorrelation matrix between the items and their scales. All items had item-total intercorrelations greater than .4 (Hinkin, 1998). Because all items reached this recommended minimum level, we did not omit any of them.

*Internal consistency reliability.* On the basis of the promising results from the EFAs and interitem analyses, one could expect that the 11 scales that emerged from previous analyses would show acceptable internal consistency. This was the case with Cronbach alphas ranging between .68 (for politicking) and .89 (for intentional readiness for change).

*Conclusion.* A comparison of the results from Study 2 with the findings from the content adequacy test showed that the data-driven dimensions form a good representation of the expected structure that was assumed to emerge from the items generated in the pilot study. We found strong evidence for the unidimensional structure of the climate-of-change factors (of cohesion and politicking). Trust in leadership was refined, entailing a revision of the meaning of this scale. This new scale captured the trustworthiness of communication by management in general. Furthermore, the process factors of participation and support by supervision had an internal context part that was independent of any specific involvement in the change process. Subsequently, these new context dimensions were called *general support by supervision* and *participatory management*.

Regarding the change process factors, the factorial structure of attitude of top management toward change was corroborated. However, for both process factors (quality of change communication and participation), we noticed that a more general loading pattern encompassed both dimensions. This new factor that we produced from the combination of both factors was labeled *involvement in the change process*. Last, we noticed that the process part of support by supervision referred to supervision's ability to deal with a specific change project. Thus, we called this factor *ability of management to lead change*.

To conclude, the anticipated three-factor structure of the readiness for change variables was also confirmed: The structure comprised the factors of emotional readiness for change, cognitive readiness for change, and intentional readiness for change. The results from Studies 1 and 2 provided fairly strong evidence for the content and construct validity of the scales. In Study 3, this factor structure was replicated by using CFAs.

### *CFA*

To replicate the items, scales, and factors that emerged from Study 2, in Study 3 we collected data from 47 different organizations covering several activities and sectors. This sample included more for-profit organizations than nonprofit organizations (for for-profit,  $n = 35$ ; for nonprofit,  $n = 12$ ). Similar to that in Study 2, the sample involved organizations that recently announced large-scale changes.

The procedure for collecting data in each organization was similar to the one described in Study 2. A total of 1,285 individuals filled out the survey, meaning that, on average, 27 employees for each organization agreed to participate. This sample included more participants from the for-profit sector ( $n = 797$ , 62%) than from the nonprofit sector ( $n = 488$ , 38%). In addition, we observed that there were slightly more people with a nonmanagerial job position ( $n = 491$ , 53%) than a managerial job position ( $n = 433$ , 47%) and more male respondents ( $n = 594$ , 62.5%) than female respondents ( $n = 357$ , 37.5%) and that the age of the participants followed a heterogeneous distribution: 5% ( $n = 48$ ) were younger than 25 years old; 28.5% ( $n = 261$ ) were 25–34 years old; 36.5% ( $n = 334$ ) were 35–44 years old; and 30% ( $n = 273$ ) were older than 44 years old. In short, this replication study included a heterogeneous sample of participants.

*Results.* We performed CFAs to further analyze the factor structure of the OCQ–C, P, R, and we provided additional evidence of the construct validity of the 11 scales. Table 5 shows a summary of the results of these analyses.

The results indicate that the fit of the climate-of-change (i.e., cohesion, politicking, trust in leadership, participatory management and general support by supervision), the process (i.e., attitude of management toward change, involvement in the change process, ability of management to lead change), and readiness variables (i.e., emotional readiness for change, cognitive readiness for change, and intentional readiness for change) was acceptable. The values for the normed  $\chi^2$  index of the three first-order factor models (i.e., mod1, mod6, and mod11) were within the boundaries of 2.0 and 5.0 (Kline, 2004). The goodness of fit index (GFI) exceeded the .9 cutoff value, indicating adequate fit of these models. Also, the root mean square residual (RMSR) index was satisfying, with values smaller than .05. Accompanying root mean square error of approximation (RMSEA), values

TABLE 5. Summary of Confirmatory Factor Analyses ( $N = 1,285$ )

Model	$\chi^2$	$\chi^2/df$	RMR	GFI	RMSEA	CFI	NFI	NNFI
Internal context (18 items)								
Mod01: Five-factor model	363.29	2.91	.03	.97	.04	.97	.95	.96
Mod02: Five-factor model, with error specification between I65 and I76 (first order)	264.32	2.13	.03	.98	.03	.98	.97	.98
Mod03: Null model	7947.51	51.94	.29	.41	.20	N/A	N/A	N/A
Mod04: Single-factor model	3160.97	23.42	.10	.74	.13	.61	.60	.56
Mod05: Second-order model	482.99	3.72	.05	.96	.05	.96	.94	.95
Process (15 items)								
Mod06: Three-factor model (first order)	419.94	4.83	.03	.96	.06	.96	.95	.95
Mod07: Three-factor model, with error specification between I38 and I46 (first order)	385.01	4.48	.03	.96	.05	.96	.95	.95
Mod08: Null model	7791.99	74.21	.32	.32	.24	N/A	N/A	N/A
Mod09: Single-factor model	1173.13	13.04	.05	.87	.10	.86	.85	.84
Mod10: Second-order model (with equality constraint)	420.12	4.72	.03	.96	.05	.96	.95	.95
Outcome (9 items)								
Mod11: Three-factor model (first order)	116.95	4.87	.03	.98	.06	.98	.98	.97
Mod12: Null model	5006.17	139.06	.25	.42	.33	N/A	N/A	N/A
Mod13: Single-factor model	1380.61	51.13	.07	.77	.20	.73	.72	.64
Mod14: Two-factor model (emotional readiness for change and cognitive readiness for change as one factor)	382.91	14.73	.05	.93	.10	.93	.92	.90
Mod15: Second-order model (with equality constraint)	120.46	4.82	.03	.98	.06	.98	.98	.97

Note. Mod = model; RMR = root mean square residual; GFI = goodness of fit index; RMSEA = root mean square error of approximation; CFI = comparative fit index; NFI = normed fit index; NNFI = nonnormed fit index; N/A = not applicable to incremental fit indexes.

were also good, with values smaller than the .08 criterion. In addition, the incremental fit indexes—the normed fit index (NFI), the nonnormed fit index (NNFI), and the comparative fit index (CFI)—reached the recommended criterion levels of .9. Overall, the first-order five-factor model of climate of change (mod1), the first-order three-factor model of process (mod6), and the first-order three-factor model of readiness for change (mod11) fit the data well.

*Model misspecification.* Although we feel safe in saying that our hypothesized models (i.e., mod1, mod6, mod11) fit the data well, Mulaik et al. (1989) suggested that well-fitting models may suffer from misspecification, suggesting that alternative models should be considered. Before comparing alternative models, we first examined model misspecification by evaluating modification indexes (MIs) for variances, covariances, and regression weights.

The modification index of the error covariance between the trust-in-leadership items I65 (i.e., corporate management team keeps all departments informed about its decisions) and I76 (i.e., two-way communication between corporate management team and departments is very good) suggested a reparameterization of the first-order five-factor model of climate of change (mod1) by reestimation of a new model that incorporates this error covariance (mod2). The specification of the error covariance between I65 and I76 has substantive meaning because the error correlation between both items indicates possible redundancy in the item content. A chi-square difference test ( $\Delta\chi^2$ ) between the model without the error specification (mod1) and the model with error specification (mod2) showed that the latter model had significantly better fit,  $\Delta\chi^2_{\text{mod1-mod2}} (1, N = 98.97), p < .001$ . Regarding the first-order three-factor process model (mod6), we observed that a reparameterization with the free estimation of the error covariance (mod7) between items I38 (i.e., “Our department’s senior managers have trouble in adapting their leadership styles to the changes”) and I46 (i.e., “Our department’s executives focus too much on current problems and too little on their possible remedies”) yielded a better fit,  $\Delta\chi^2_{\text{mod6-mod7}} (1, N = 34.93), p < .001$ . Again, specifying the error covariance between both items was justified because it may indicate redundancy in item content. Last, regarding the first-order three-factor readiness-for-change model (i.e., mod11), no reparameterization on the basis of MI specification was acceptable.

*Model comparison.* Apart from respecification on the basis of MIs, we made a comparison of the hypothesized models (i.e., mod1, mod6, mod11) against at least three alternative models (i.e., null model, first-order single-factor model, and second-order factor model). In direct comparisons between Model 1 and the null model (i.e., model in which no variables are related, mod3) and the single-factor model (i.e., model in which all 18 items represent a single factor that could be labeled *climate of change*, mod4), the chi-square differences demonstrated the superiority of the first-order five-factor model:  $\Delta\chi^2_{\text{mod3-mod1}} (28,$

$N = 7584.22$ ),  $p < .001$ ;  $\Delta\chi^2_{\text{mod4-mod1}}(10, N = 2797.68)$ ,  $p < .001$ . Similarly, we found that the hypothesized first-order three-factor models for both process models— $\Delta\chi^2_{\text{mod8-mod6}}(18, N = 7372.05)$ ,  $p < .001$ ;  $\Delta\chi^2_{\text{mod9-mod6}}(3, N = 753.19)$ ,  $p < .001$ —and readiness-for-change models— $\Delta\chi^2_{\text{mod12-mod11}}(8, N = 4889.12)$ ,  $p < .001$ ;  $\Delta\chi^2_{\text{mod13-mod11}}(3, N = 1263.66)$ ,  $p < .001$ —yielded better fit than the more restricted models (i.e., null model and single-factor model).

An alternative to the hypothesized first-order models was to specify a structure that accounts for the variances and covariances between the first-order latent factors. These models were also labeled *second-order factor models* (Rindskopf & Rose, 1988) and put structure onto the first-order factors by introducing a general latent factor. To ensure that the number of data points exceeded the number of parameters to be estimated in the second-order models of the process factors and readiness-for-change factors (mod10 and mod15), the variances of the residuals of these factors were constrained to equality (Byrne, 2001).

A comparison of the GFIs for the hypothesized first-order climate-of-change model (mod1) against the second-order climate of change model (mod5) showed that the indexes (i.e., GFI, RMSR, RMSEA, NFI, NNFI, and CFI) were lower in the second-order model. Although the fit was still acceptable, with values that exceeded the required cutoff criteria, the chi-square difference test between both models indicated a significant lower fit for the second-order model,  $\Delta\chi^2_{\text{mod5-mod1}}(5, N = 119.70)$ ,  $p < .001$ . Although this second-order model is more parsimonious, the lower fit indicated it is better to rely on the first-order model. The second-order structure for the process and readiness for change models (mod10 and mod15) did not yield worse nor better fit, as indicated by the chi-square difference tests:  $\Delta\chi^2_{\text{mod10-mod6}}(2, N = 0.18)$ , *ns*;  $\Delta\chi^2_{\text{mod15-mod11}}(1, N = 3.49)$ , *ns*. The only difference between the first-order three-factor models and the second-order models is that in the second-order models, a structure was imposed onto the correlational pattern among the first-order factors (Rindskopf & Rose, 1988). Thus, making a choice between first-order and second-order models rests purely on theoretical reasoning.

In further comparing alternative models, we also tested a first-order two-factor readiness for change model (mod14) in which both the cognitive and emotional components of readiness for change were combined into a single factor. This collapse into two instead of three factors is supported by the theory of planned behavior (Ajzen, 1991), which states that affect and cognition are attitudinal precursors of people's intention to act. Results from our analyses demonstrated that the two-factor model in terms of fit was no improvement over the three-factor model,  $\Delta\chi^2_{\text{mod14-mod11}}(1, N = 265.97)$ ,  $p < .001$ .

*Conclusion.* Although other potential models could be tested, we felt the models summarized in Table 5 were the only ones that had substantive meaning. Therefore, we did not compare the numerous combinations of two-, three-, and

four-factor models. In sum, the analyses suggested that the 42 items constituted an acceptable version of internal context variables, process factors of change, and readiness for change.

### *Scale Evaluation and Replication*

Beyond the construct validity evidence provided by factor analyses, we further checked for convergent validity, discriminant validity, known-groups validity, concurrent validity, and shared-variance validity. We used data from Study 3 to explore the convergent validity, discriminant validity, known-groups validity, and shared variance of constructs at the unit level. To examine both convergent and discriminant validity of the OCQ–P, C, R, we explored the correlations between the (five) climate, (three) process, and (three) readiness-for-change scales (see Table 6). Regarding known-groups validity, we performed ANOVAs with sector (for-profit organization vs. nonprofit organization) and job level (managerial position vs. nonmanagerial position) as fixed factors to detect subgroup differences in the 11 dimensions. To assess concurrent validity, we regressed the three readiness-for-change variables onto the change climate and process factors. Last, we computed three measures of interrater reliability (Lebreton & Senter, 2007) to determine the reliability of these individual level constructs at the work unit or organization level (i.e., shared variance validity).

*Convergent and discriminant validity.* Measures that assess related things should correlate more highly (i.e., convergent validity) than measures that assess distinct phenomena (i.e., discriminant validity). This implies that the correlations between change climate and other change-climate scales, between process and other process-of-change scales, and between readiness and other readiness scales should be stronger than the correlations of readiness–process, readiness–climate, and process–climate. In total, 22 tests were performed (see Table 7). Also, 15 of the 22 tests were confirmed, suggesting that the scales of the OCQ–C, P, R have demonstrated fairly adequate convergent and discriminant validity.

*Known-groups validity.* Known-groups validity is based on hypotheses that certain groups of respondents will score differently on a scale than others (Spector, 1994). A first important group difference to be investigated is the perceived difference in change climate scores between for-profit and nonprofit sector employees. The literature has suggested that generic context features of the for-profit and nonprofit sectors can elicit differences in how people think about, experience, and perceive change (Boyne, 2002; Pettigrew, Woodman, & Cameron, 2001). For example, researchers have noted that the public and private sectors are distinct in vision, ownership, markets, values, performance expectations, or strategic



TABLE 6. Summary of Correlations Among Context, Process, and Outcome Variables (Study 3,  $N = 1,285$ )

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. General support by supervisors	3.72	0.79	<b>.80</b>										
2. Trust in leadership	3.04	0.76	.32***	<b>.79</b>									
3. Cohesion	3.53	0.79	.39***	.23***	<b>.77</b>								
4. Participatory management	3.41	0.90	.42***	.36***	.37***	<b>.78</b>							
5. Politicking	3.10	0.81	-.33***	-.52***	-.40***	-.41***	<b>.67</b>						
6. Involvement in the change process	3.01	0.78	.31***	.56***	.26***	.42***	-.42***	<b>.87</b>					
7. Ability of management to lead change	3.24	0.64	.54***	.49***	.38***	.45***	-.45***	.62***	<b>.80</b>				
8. Attitude of top management toward change	3.59	0.72	.29***	.53***	.24***	.30***	-.36***	.55***	.51***	<b>.72</b>			
9. Intentional readiness for change	4.20	0.59	.18***	.20***	.14***	.23***	-.17***	.27***	.30***	.34***	<b>.86</b>		
10. Cognitive readiness for change	3.46	0.76	.32***	.48***	.31***	.37***	-.50***	.48***	.53***	.42***	.31***	<b>.69</b>	
11. Emotional readiness for change	3.64	0.76	.26***	.38***	.23***	.30***	-.29***	.53***	.47***	.42***	.53***	.51***	<b>.84</b>

Note. Items in boldface reflect the Cronbach's alphas inserted in D. T. Campbell and D. W. Fiske's (1999) multitrait multimethod technique.

\*\*\*,  $p < .001$ .

**TABLE 7. Summary Tests for Convergent-Discriminant Validity of Scales**

Comparison correlation	$r_{(xy)}$	$r_{(zy)}$	$r_{(xz)}$	$\Delta r_{(xy)}$ and $r_{(zy)}$	$t$	$p$ (one-tailed)
$r(\text{process-ATC})-r(\text{outcome-ATC})$	.53	.39	.43	.14	5.44	.001
$r(\text{process-INV})-r(\text{outcome-INV})$	.59	.44	.41	.15	5.96	.001
$r(\text{process-ABMC})-r(\text{outcome-ABMC})$	.56	.43	.41	.13	5.24	.001
$r(\text{process-ATC})-r(\text{context-ATC})$	.53	.34	.43	.19	7.48	.001
$r(\text{process-INV})-r(\text{context-INV})$	.59	.39	.40	.20	7.85	.001
$r(\text{process-ABMC})-r(\text{context-ABMC})$	.56	.46	.37	.10	3.96	.001
$r(\text{outcome-INRE})-r(\text{process-INRE})$	.42	.31	.47	.11	4.22	.001
$r(\text{outcome-COGRE})-r(\text{process-COGRE})$	.41	.47	.39	-.06	-2.25	.01
$r(\text{outcome-EMRE})-r(\text{process-EMRE})$	.52	.47	.39	.05	1.97	.02
$r(\text{outcome-INRE})-r(\text{context-INRE})$	.42	.18	.34	.24	8.18	.001
$r(\text{outcome-COGRE})-r(\text{context-COGRE})$	.41	.40	.24	.01	0.33	.37
$r(\text{outcome-EMRE})-r(\text{context-EMRE})$	.52	.29	.29	.23	8.03	.001
$r(\text{context-GENSUP})-r(\text{outcome-GENSUP})$	.36	.25	.30	.11	3.58	.001
$r(\text{context-TLE})-r(\text{outcome-TLE})$	.36	.35	.27	.01	0.33	.37
$r(\text{context-COH})-r(\text{outcome-COH})$	.35	.23	.31	.12	3.91	.001
$r(\text{context-PARMA})-r(\text{outcome-PARMA})$	.39	.30	.29	.09	2.96	.001
$r(\text{context-POL})-r(\text{outcome-POL})$	.41	.32	.28	.09	2.98	.001
$r(\text{context-GENSUP})-r(\text{process-GENSUP})$	.36	.38	.40	-.02	-0.72	.24
$r(\text{context-TLE})-r(\text{process-TLE})$	.36	.52	.37	-.16	-5.99	.001
$r(\text{context-COH})-r(\text{process-COH})$	.35	.29	.43	.06	2.16	.02
$r(\text{context-PARMA})-r(\text{process-PARMA})$	.39	.39	.40	.00	0.00	.5
$r(\text{context-POL})-r(\text{process-POL})$	.41	.41	.40	.00	0.00	.5

*Note.* The  $t$  values for the difference between two dependent correlations from the same sample were computed using the following formula:  $t = (r_{xy} - r_{zy}) \times \text{SQRT} [\{(n-3)(1 + r_{xz})\} / \{2(1 - r_{xy}^2 - r_{xz}^2 - r_{zy}^2 + 2r_{xy} \times r_{xz} \times r_{zy})\}]$ , where SQRT = square root. GENSUP = general support by supervisors; TLE = trust in leadership; COH = cohesion; PARMA = participatory management; POL = politicking; INV = involvement in the change process; ABMC = ability of management to lead change; ATC = attitude of top management toward change; INRE = intentional readiness for change; COGRE = cognitive readiness for change; EMRE = emotional readiness for change. For each  $t$ ,  $df = 1282$ .

constraints (Hull & Lio, 2006) and that these differences in generic characteristics shape employees' perceptions of change.

Apart from for-profit group versus nonprofit group membership, a second important group membership to be considered is the job level held by respondents. According to the hierarchical differentiation theory, managerial–nonmanagerial membership affects the attitudes, beliefs, intentions and behaviors of members (Van Maanen & Barley, 1985). For example, Strebel (1998) noticed that management and employees perceive change differently, with managers seeing change as an opportunity, for both the business and themselves, and employees typically seeing change as disruptive, intrusive, and likely to involve loss.

An analysis of variance was performed to assess the main effects and interaction effects of both job level and sector on the climate-of-change, process and readiness-for-change dimensions. Tables 8 and 9 show the means for each group combination. We observed that respondents from the for-profit sector on average scored significantly higher on trust in leadership, involvement in the change process, attitude of top management toward change, intentional readiness for change, and emotional readiness for change. We noted a lower score for participatory management. Regarding job level, we found that respondents holding a managerial position reported higher scores on all change climate scales, except for politicking. To conclude, we noted significant interaction effects for general support by supervision, cohesion, ability of management to lead change, and intentional readiness for change. In short, as expected our scales effectively discriminated between sector and job position.

*Concurrent validity.* For an alternative to prospective validation, researchers often obtain test scores and criterion measures simultaneously and determine how strongly the two correlate. In the OCQ–C, P, R, both climate of change and process are considered as antecedents of readiness for change (Eby, Adams, Russell, & Gaby, 2000; Holt, Armenakis, Feild, et al., 2007). Using regression, after controlling for the effects of sector and job position, these eight predictors explained 13% of the variance in intentional readiness for change, 35% of the variance in cognitive readiness for change, and 25% of the variance in emotional readiness for change. Not all eight climate and process factors were related with the three readiness for change variables (see Table 10). In addition, the fact that these antecedents yielded different effect patterns supported the assumption for measuring readiness for change as a multifaceted concept.

*Shared variance validity.* In situations where individual perceptions or meanings are sufficiently shared, one can use the aggregated individual perceptions to describe climate of change and process factors of change in psychologically meaningful terms (James et al., 2008; James, James, & Ashe, 1990). This implies that the individual-perceived scales can become organizational or work-unit

**TABLE 8. Comparison of Main-Effect Differences for Sector and Job Type: A Summary of Known-Groups Differences**

Main-effect variable	Sector ( <i>N</i> = 1,285)				Job type ( <i>N</i> = 924)			
	For profit ( <i>n</i> = 797)		Nonprofit ( <i>n</i> = 488)		Managerial ( <i>n</i> = 433)		Nonmanagerial ( <i>n</i> = 491)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Climate of change	3.70	0.83	3.75	0.73	3.85	0.72	3.65	0.79
General support by supervisors	3.14	0.77	2.88	0.74	3.17	0.79	2.88	0.69
Trust in leadership	3.52	0.80	3.55	0.78	3.69	0.72	3.47	0.84
Cohesion	3.29	0.91	3.61	0.85	3.70	0.78	3.25	0.95
Participatory management	3.13	0.82	3.07	0.78	2.85	0.80	3.23	0.80
Politicking								
Process of change								
Involvement in the change process	3.08	0.78	2.91	0.75	3.26	0.78	3.25	0.95
Ability of management to lead change	3.26	0.66	3.19	0.60	3.39	0.62	3.11	0.60
Attitude of top management toward change	3.72	0.72	3.39	0.67	3.75	0.75	3.47	0.66
Readiness for change								
Intentional readiness for change	4.23	0.61	4.14	0.56	4.32	0.54	4.14	0.60
Cognitive readiness for change	3.47	0.78	3.43	0.72	3.72	0.66	3.33	0.75
Emotional readiness for change	3.71	0.76	3.55	0.75	3.86	0.70	3.56	0.74

TABLE 9. Comparison of Interaction Effect Differences for Sector and Job Type: A Summary of Known-Groups Differences

Interaction-effect variable	For profit ( <i>N</i> = 458)						Nonprofit ( <i>N</i> = 466)					
	Managerial ( <i>n</i> = 196)		Nonmanagerial ( <i>n</i> = 262)		Managerial ( <i>n</i> = 237)		Nonmanagerial ( <i>n</i> = 229)		Managerial ( <i>n</i> = 237)		Nonmanagerial ( <i>n</i> = 229)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Climate of change												
General support by supervisors	3.91	0.70	3.61	0.85	3.80	0.73	3.71	0.71	3.80	0.73	3.71	0.71
Trust in leadership	3.31	0.75	3.04	0.73	3.06	0.81	2.69	0.61	3.06	0.81	2.69	0.61
Cohesion	3.80	0.67	3.42	0.88	3.60	0.74	3.53	0.80	3.60	0.74	3.53	0.80
Participatory management	3.54	0.80	3.11	0.98	3.83	0.74	3.41	0.90	3.83	0.74	3.41	0.90
Politicking	2.84	0.83	3.19	0.86	2.86	0.77	3.27	0.71	2.86	0.77	3.27	0.71
Process of change												
Involvement in the change process	3.50	0.72	3.00	0.69	3.05	0.76	2.74	0.69	3.05	0.76	2.74	0.69
Ability of management to lead change	3.52	0.61	3.13	0.64	3.29	0.61	3.10	0.56	3.29	0.61	3.10	0.56
Attitude of top management toward change	4.04	0.71	3.65	0.64	3.51	0.70	3.27	0.61	3.51	0.70	3.27	0.61
Readiness for change												
Intentional readiness for change	4.48	0.52	4.19	0.59	4.19	0.52	4.08	0.60	4.19	0.52	4.08	0.60
Cognitive readiness for change	3.85	0.61	3.41	0.77	3.61	0.68	3.23	0.72	3.61	0.68	3.23	0.72
Emotional readiness for change	4.09	0.61	3.67	0.69	3.67	0.72	3.43	0.77	3.67	0.72	3.43	0.77

**TABLE 10. Test for Concurrent Validity: A Summary of Ordinary Least Squares Regression Analyses**

Variable	Intentional readiness for change ( $R^2 = .18$ )		Emotional readiness for change ( $R^2 = .34$ )		Cognitive readiness for change ( $R^2 = .44$ )	
	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$
Sector (for profit)	-.09	-2.67**	-.11	-3.74***	-.05	-1.66
Job position (managerial)	-.07	-2.15*	-.07	-2.30*	-.10	-3.69***
General support by supervisors	.01	0.31	.00	0.05	.03	0.79
Trust in leadership	-.03	-0.69	.02	0.61	.19	5.47***
Cohesion	-.00	-0.02	.01	0.30	.04	1.43
Participatory management	.12	3.21***	.08	2.26*	.04	1.29
Politicizing	.07	1.88	.03	0.89	-.18	-5.61***
Involvement in the change process	.09	2.09*	.29	7.43***	.06	1.70
Ability of management to lead change	.08	1.71	.18	4.32***	.24	6.12***
Attitude of top management toward change	.25	6.11***	.10	2.72**	.05	1.56

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

**TABLE 11. Summary of Interrater Agreement Indexes for Change Climate Scales**

Variable	<i>M</i> $R_{wg(J)}$	<i>Mdn</i> $R_{wg(J)}$	ICC(1)	ICC(2)
General support by supervisors	.81	.83	.03	.49
Trust in leadership	.84	.86	.18	.86
Cohesion	.81	.83	.09	.72
Participatory management	.76	.79	.21	.88
Politicking	.75	.78	.21	.82
Involvement in the change process	.90	.90	.16	.88
Ability of management to lead change	.91	.91	.14	.84
Attitude of top management toward change	.86	.87	.24	.89
Intentional readiness for change	.92	.94	.10	.75
Cognitive readiness for change	.82	.85	.16	.83
Emotional readiness for change	.86	.86	.13	.83

*Note.* Intraclass correlation coefficients (ICCs) are measures that assess whether aggregation of lower level variables is justified. ICC(1) = ICC that provides an estimation of the proportion of total variance of a measure that is explained by unit membership. ICC(2) = ICC that determines the reliability of the group means within a sample.

dimensions when they are shared and agreed upon (James & Jones, 1974). Three measures of interrater agreement were computed to determine whether these scales can be used at a higher level of analysis than its individual level (Lebreton & Senter, 2007). Table 11 displays all three indexes for each change climate dimension separately.

Common practice is to conclude that aggregation of lower level scales to a higher level is appropriate when the mean  $R_{wg(J)}$  or median  $R_{wg(J)}$  equals or exceeds .70. All 11 scales of our instrument exceeded the recommended level. Also, the reliability of the group means was adequate, ICC(2). Only the reliability score for general support by supervision was smaller than the .70 level. Of the ICC(1) values, 8 of 11 were medium effect sizes with scores ranging between .13 and .24, and 3 were small effect sizes (.10 or smaller), indicating that only a small part of the variation in the measure resided at the organizational level. In summary, these three indexes suggested that the scales of our questionnaire, with exception for general support by supervision, can be aggregated at the organizational level of analysis.

#### *English Version of OCQ-C, P, R*

Although the Dutch version of the OCQ-C, P, R demonstrated adequate validity, the purpose of Study 4 was to replicate the factor structure of this

questionnaire with a sample of native English-speaking respondents. A common procedure for guarding against language bias in measurement scales is back translation. A Dutch–English interpreter translated the Dutch OCQ–C, P, R into English, and then we translated this version back into Dutch. Because the meaning of the translated version was the same as the first version, we decided that the scales had translation equivalence.

The English version of the OCQ–C, P, R was administered in a public sector agency in Suffolk County, England. Changes were made to the political structures of the Council of Suffolk County, and a range of initiatives had been taken to promote a more corporate approach, to encourage partnership working and develop locality arrangements. A total of 799 individuals participated on a voluntary basis. Because we guaranteed absolute anonymity, respondents had the choice of not completing the demographic information. On the basis of those who completed this information, we noted that the majority of the respondents had a management position in their company: 72% ( $n = 539$ ) worked in a managerial position, whereas 28% ( $n = 210$ ) worked in a nonmanagerial position. Regarding age, 5.5% ( $n = 42$ ) were younger than 25 years, 16.5% ( $n = 128$ ) were 25–34 years old, 25% ( $n = 195$ ) were 35–44 years old, and 53% ( $n = 417$ ) were older than 44 years. Regarding gender of participants who completed the OCQ–C, P, R, 49% ( $n = 384$ ) were male and 51% ( $n = 403$ ) were female.

In this replication study, we conducted a CFA of the climate-of-change, process-of-change, and readiness-for-change scales to further analyze the factor structure and provide additional evidence of the construct validity of our questionnaire. Results from these analyses indicated that the 18 climate-of-change items were adequately represented by the five-factor model (with error specification between I65 and I76). The values reported for GFI (.94) and CFI (.91) all exceeded the recommended cutoff score. The values for NFI (.88) and NNFI (.89) approximated the .9 criterion. The  $\chi^2/df$  value (3.79) was well within the recommended range of values. This was also the case for the RMSR (.05) and RMSEA (.06) values. A factor structure test of the 15 process items showed that a three-factor model (involvement in the change process, ability of management to lead change, and attitude of top management towards change) yielded the best fit when we excluded I35 (i.e., “Departments are consulted about the change sufficiently”) and I47 (i.e., “We are sufficiently informed of the progress of change”) from the involvement in the change-process scale,  $\chi^2/df = 4.85$ , RMSR = .04, RMSEA = .07, GFI = .94, CFI = .91, NFI = .89; NNFI = .89. Last, to achieve adequate fit for the three-factor readiness model, we omitted I75 (i.e., “I find change refreshing”) from the analysis. All fit indexes for the hypothesized three-factor model (eight items) were good, indicating that this model was well represented by the data,  $\chi^2/df = 3.98$ , RMSR = .02, RMSEA = .06, GFI = .98, CFI = .96, NFI = .95, NNFI = .93.

In conclusion, the English version of the Dutch OCQ–C, P, R constituted an acceptable version of the climate-of-change, process, and readiness factors when



we omitted the following three items: I35 (involvement in the change process), I47 (involvement in the change process), and I75 (emotional readiness for change). Although the fit indexes were not as high as they were in Study 3, they were acceptable. These lower fit indexes were not completely unexpected because our original Dutch version was tested on a much broader sample of organizations (more than 80), whereas the translated version was based on data acquired from a single company. Despite the limitations of the four studies, we believe that there is strong agreement in the factor structure of the original and translated versions of the questionnaire. Thus, these findings support the construct validity of the OCQ-C, P, R.

## Discussion

We designed this study to construct a new instrument that measures the circumstances under which change embarks (i.e., climate of change or internal context), the way a specific change is implemented (i.e., process), and the level of readiness at the individual level. Independent of the content of change (i.e., what change is about) and the individual attributes of those undergoing change, the OCQ-C, P, R allows a thorough diagnostic investigation of the change climate or internal organizational sources that are available to deal more effectively with change. Despite the general consensus about the salient role of organizational climate in understanding the processes that lead to successful change implementation (Beer & Nohria, 2000; Heracleous, 2001; Schneider et al., 1996), the alignment between change climate and readiness for change has been rarely examined (Jones et al., 2005). Thus, an important step toward a more successful implementation of change projects starts with a reliable and valid assessment of the crucial levers of readiness for change. Therefore, we designed a psychometrically sound instrument that measure climate of change, process of change, and readiness for change, which then can serve as a guide for developing a strategy for the effective implementation of change. To fulfill this objective, we followed these steps that Hinkin (1998) developed: (a) to specify the content dimensions of change climate by integrating organizational climate theory and readiness for change literature, (b) to develop items that measure the domain, and (c) to determine the extent to which items measure that domain. Last, this tool was tested in multiple field settings to increase the ecological validity.

A first challenge in developing the instrument was specifying a theoretically meaningful universe that represented the climate of change, process factors of change, and readiness for change, but that also explained the dynamics between those sets of variables. On the basis of a growing body of literature, the human relations perspective (Emery & Trist, 1965; McGregor, 1960) offered a framework from which the dimensions were tapped as relevant sources of readiness for change (Burnes & James, 1995; Jones et al., 2005; Tierney, 1999; Zammuto & O'Connor, 1992). In short, the human relations framework

provided a conceptually sound model from which we developed the OCQ-C, P, R. We deduced 10 dimensions from the literature: three climate-of-change variables (i.e., trust in leadership, politicking, and cohesion), four process variables (i.e., participation, support by supervisors, quality of change communication, and attitude of top management toward change), and three readiness-for-change variables (i.e., cognitive, intentional, and emotional readinesses for change). The item generation process for those 10 dimensions resulted in 63 items.

After consulting 10 experts on the subject matter (i.e., content validity study), we regrouped these 63 items into 12 dimensions. We conducted three independent field studies to further examine the reliability and validity of these scales. Although the intended factor structure (12 dimensions) did not completely emerge (participation in change project and quality of change communication loaded on one factor), we feel that the 11 factors that emerged can be useful in an organizational setting. To analyze the factor structure, we administered the original 63 items to more than 3,000 employees at various levels of hierarchy in more than 85 organizations. The criteria used to examine the reliability, factor validity, construct validity (i.e., convergent and discriminant validity), known-groups validity, concurrent validity, and shared-variance validity were satisfied. In sum, these findings suggest that our 42-item Dutch OCQ-C, P, R meets the standards of a psychometrically sound measurement instrument (American Psychological Association, 1995; Hinkin, 1998). These 42 items represented the following 11 scales: general support by supervision (climate of change), trust in leadership (climate of change), cohesion (climate of change), participatory management (climate of change), politicking (climate of change), involvement in the change process (process of change), ability of management to lead change (process of change), attitude of top management toward change (process of change), cognitive readiness for change, emotional readiness for change, and intentional readiness for change.

To conclude, because we designed and tested the items and scales of the OCQ-C, P, R in organizations just before and during the implementation of change, we recommend administering this tool under similar conditions of change (stages before and during implementation).

### *Strengths of the OCQ-C, P, R*

There are several unique contributions made by the OCQ-C, P, R. First, because the authors followed an accepted step-by-step procedure in designing this instrument (Hinkin, 1998), it can be concluded that initial evidence of reliability and validity is provided. The OCQ-C, P, R is a welcome tool for both practitioners and scholars because it is a scientifically valid alternative to the available tools that assesses simultaneously the climate of change, the process of change, and readiness for change.

A second value added by this instrument is both its person-centered emphasis and its organization-centered emphasis. Although measured at an individual level of analysis, Study 3 demonstrated that the individual perceptions of change climate can be aggregated at the work unit or organization level (i.e., shared variance validity). In other words, the 11 scales except for that of *general support by supervision* gauge both psychological and organizational change climates (James et al., 2008). Therefore, the individual measure focus is consistent with literature that called for a more person-centered approach to organizational change (e.g., Aktouf, 1992) and allows an exploration of not only differences in readiness between individuals (i.e., psychological change climate), but also differences between groups of individuals (i.e., teams, work units, and organizations).

A third value added is the brevity of the OCQ-C, P, R. With only 42 items, this questionnaire covers 11 dimensions. Furthermore, because the climate-of-change, process-of-change, and readiness-for-change scales showed adequate reliability and validity, there is no need to fully administer the questionnaire. For example, if one is only interested in the general context under which change occurs, one can administer the 18 internal context items (five scales) without jeopardizing the psychometric quality of these scales. Therefore, because of its brevity, this instrument can be combined with other scales to assess change recipients' beliefs about change (Armenakis, Bernerth, Pitts, & Walker, 2007), cynicism about organizational change (Stanley, Meyer, & Topolnytsky, 2005), change recipients internal attributes (Holt, Armenakis, Harris, et al., 2007), and many other change related variables. In short, the OCQ-C, P, R not only passes the scientific requirements (i.e., reliability and validity), but also scores excellently in terms of practicality (Thorndike & Hagen, 1969). Practicality is concerned with a wide range of factors such as economy and convenience. Instrument length is an area in which economic and time pressures dominate. Although more items in our OCQ-C, P, R could have provided even higher reliability scores, in the interest of limiting the pressure on individual respondents and organizations, we kept the number of items to a minimum. In addition, a measuring device passes the convenience test if it is easy to administer. Because the contact persons and participants in our samples reported no difficulties in completing the questionnaire, we can assume that the questionnaire instructions were clear enough and easy to administer.

A fourth value added by this instrument is that it assesses the perceptions of those involved in the change process (i.e., stakeholders of change). Therefore, it can be a helpful tool for identifying the possible gaps between change agents', managers', and human resource management professionals' expectations about the change effort and those of other organizational members. If significant gaps are identified, one can plan actions and design a strategy to increase readiness for change.

A fifth value added by this instrument involves its advantages over related measurement tools such as the OCM (Patterson et al., 2005) and the ROCM (Holt,

Armenakis, Feild, et al., 2007). Although the OCM can offer an alternative for measuring the internal context under which change embarks, it was not designed to diagnose specific events like organizational change. Consequently, a major issue when applying the OCM to a change-specific context is its omnibus measurement nature. In other words, this tool incorporates a large number of dimensions that are not relevant for the diagnosis of employees' readiness for change, and as such would imply a serious breach against the scientific principle of parsimony when used. Even a more viable alternative could be the four scales that Holt et al. developed. Although this instrument (ROCM) passed the necessary scientific requirements, it has some areas of concern that are covered by the OCQ-C, P, R. One of the concerns of the ROCM is that it was only tested in two organizations, both undergoing structural changes. To put it differently, the generalizability of the results of the ROCM may be limited. However, the OCQ-C, P, R was based on data acquired from a wide range of participants with different organizational backgrounds and types of change (e.g., incremental change, transformational change). Another advantage over the ROCM is that readiness in the OCQ-C, P, R incorporates cognitive, affective, and intentional components instead of purely cognitive terms (Piderit, 2000). To conclude, the OCQ-C, P, R has the advantage that the climate-of-change, process, and readiness variables can be measured separately.

### *Limitations and Future Research Directions*

Despite the many positive notes, some further validation research is required. A first point of notice is that the number of dimensions in the OCQ-C, P, R (i.e., mod11) did not align with the hypothesized model (i.e., mod12). Respondents did not make the distinction between participation in the change project and quality of change communication. A second remark involved the tests conducted regarding convergent and discriminant validities. More appropriate tests should be performed by looking at correlations with related instruments such as the ROCM. Regarding the concurrent validation, this type of validity provides weaker evidence for criterion validity than does predictive validation. Concurrent validation is stronger when the climate-of-change factors, the process factors, and the readiness variables are collected independently for the same individuals. Therefore, future researchers should first assess the change context and the process factors of change, and approximately 2 weeks later, they should administer the readiness-for-change scales. Last, more research is needed for the cross-validation of the OCQ-C, P, R. At present, projects are set up to further validate the instrument in French- and Arabic-speaking regions of the world.

In conclusion, we believe that initial steps have been made toward the development of an instrument that assesses change climate as perceived through the eyes of the change recipients. Although the findings reported are encouraging, the

results need to be replicated. Therefore, we hope we motivate other researchers to further explore and refine the OCQ–C, P, R.

### AUTHOR NOTES

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**APPENDIX**  
**Description of the Content of 10 Climate Dimensions**

Climate dimension	Description	Source
Internal context		
Trust in leadership	<p><i>Trust in leadership</i> is the extent to which staff members perceive their supervisors and top management as trustworthy. Does management practice what they preach? Do they keep their promises? Are they honest and fair towards all departments? To put it differently, employees feel they can communicate openly about problems, without running the risk of being held responsible for it.</p>	<p>M. A. Korsgaard, H. J. Sapienza, &amp; D. M. Schweiger, 2002; R. Lines, M. Selart, B. Espedal, &amp; S. T. Johansen, 2005; F. D. Schoorman, R. C. Mayer, &amp; J. H. Davis, 2007</p>
Politicking	<p><i>Politicking</i> describes the perceived level of political games within the organization. A high degree of politicking leads to unnecessary expense, considerable delays, and unwillingness to share knowledge.</p>	<p>R. W. Allen, D. L. Madison, L. W. Porter, P. A. Renwick, &amp; B. T. Mayes, 1979</p>
Cohesion	<p><i>Cohesion</i> refers to the extent of cooperation and trust in the competence of team members? It is the perception of togetherness or sharing within the organization setting, including the willingness of members to support each other. In general are colleagues accessible?</p>	<p>D. J. Koys &amp; T. A. Decotiis, 1991</p>
Process		
Participation	<p><i>Participation</i> is the extent to which staff members are involved in and informed about decisions that directly concern them, decisions about organizational change inclusive. Can procedures and guidelines be discussed bottom up? In other words, is the information supplied by front line staff considered, and is the frontline involved in the change process?</p>	<p>R. Lines, 2004; K. I. Miller &amp; P. Monge, 1986</p>

(Continued on next page)



**APPENDIX**  
**Description of the Content of 10 Climate Dimensions (Continued)**

Climate dimension	Description	Source
Support by supervisors	<i>Support by supervisors</i> is conceived as the extent to which employees experience support and understanding from their immediate supervisor. More specifically it measures their openness to reactions of their staff and their ability to lead them through the change process.	R. Eisenberger, R. Huntington, S. Hutchison, & D. Sowa, 1986; R. Eisenberger, F. Stinglhamer, C. Vandenberghe, I. Sucharski, & L. Rhoades, 2002
Quality of change communication	<i>Quality of change communication</i> refers to how change is communicated. The clarity, frequency, and openness determine whether communication is effective. Are the staff clear about how they must apply change in practice? Should they learn about changes through rumours?	V. D. Miller, J. R. Johnson, & J. Grau, 1994
Attitude of top management toward change	<i>Attitude of top management toward change</i> involves the stance top management is taking with regard to change. Does management support the change initiative? Are they actively involved in the change?	L. Carter, D. Ulrich, & M. Goldsmith, 2005; T. J. Covin & R. H. Kilmann, 1990
Readiness for change		
Emotional readiness for change	<i>Emotional readiness for change</i> is the affective reactions toward change.	S. Oreg, 2006; K. S. Piderit, 2000
Cognitive readiness for change	<i>Cognitive readiness for change</i> is the beliefs and thoughts people hold about the change. For example, what are the benefits or disadvantages caused by the change?	S. Oreg, 2006; K. S. Piderit, 2000
Intentional readiness for change	<i>Intentional readiness for change</i> is the extent to which employees are prepared to put their energy into the change process.	S. Oreg, 2006; K. S. Piderit, 2000

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