Adapting to change: The value of change information and meaning-making

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A R T I C L E   I N F O

A B S T R A C T

The purpose of this 3-wave study is to examine the micro process of how employees adapt to change over time. We combined Conservation of Resources theory with insights from the organizational change literature to study employees in a Dutch police district undergoing reorganization. A model was tested where employee adaptability, operationalized by the presence of resources, predicts individual adaptive attitudes as well as adaptive behavior over time. Change information was included as a contextual change resource and meaning-making as a personal change resource. The research design allowed for examining longitudinal relationships by capturing data (1) *before* (Time 1), (2) *during* (Time 2), and (3) *after* change implementation (Time 3). We expected adaptability before and during change implementation to predict adaptive attitudes and adaptive behavior (both during and after change implementation). In addition, different indirect effects were tested. Structural equation modeling analyses supported most of the hypothesized relationships between resources and outcomes, although relationships differed from T1 to T2 and from T2 to T3. T1 change information triggered T2 meaning-making which translated into T3 adaptive behavior. The relevance of meaning-making and change information as important predictors of adaptive behavior is emphasized. Implications of these longitudinal findings are discussed.

1. Introduction

Organizational change can be demanding and may constitute a risk factor for employee health and well-being (Armenakis & Harris, 2009; Saksvik et al., 2007). According to Conservation of Resources (COR) theory, change at work can be threatening because it holds a risk of losing valued outcomes for employees (e.g., loss of status, income, social relationships etc.) (Dent & Goldberg, 1999; Hobfoll & Shirom, 2001). Since the pace of change seems to transform organizations into continuously changing "turbulent systems" (Korunka, Ulferts, & Kubicek, 2009), there is a growing need for adaptable employees who can handle change on an ongoing basis. More work is needed on micro-level drivers of successful employee change adjustment. Creating contexts in which employees can adapt to change while maintaining their health and wellbeing is an important goal in itself. In addition, understanding the process towards employee adjustment is important, since ultimately, organizational change will only succeed when it is supported and implemented by change-recipients (Armenakis & Harris, 2009; Bovey & Hede, 2001). The current study therefore addresses the question: what factors can foster employee adjustment to change? We focus on employee adaptability in terms of presence of resources that helps employees respond to change effectively. These resources form important building

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blocks of the overall construct of employee adaptability, i.e. the ability to change and manage transitions at work (cf. Savickas, 1997; Savickas & Porfeli, 2012). Given the growing need to adapt to environmental pressures, employee adaptability may be one of the most important factors that helps employees to stay motivated and healthy at work, and thus contributes to organizations' success.

Traditionally, employees have been viewed as 'resisting' elements in the change process (Dent & Goldberg, 1999). Recently, researchers focus not only on (overcoming) change resistance, but also on adaptive attitudes such as: willingness, openness, and readiness to change (Oreg, Vakola, & Armenakis, 2011). Although these studies help our understanding of attitudinal reactions, more attention should be given to behavioral change and change-supportive adaptive behaviors (Shoss, Witt, & Vera, 2011). This would benefit organizational adaptability (i.e. an organization's capacity to respond adequately to demands for change), as well as employee well-being and longer term adaptation outcomes, since resistance to change has been associated with decreased job satisfaction, irritability, and intentions to quit (Oreg, 2006; Wanberg & Banas, 2000). It is therefore important to understand what factors may boost employee adaptive attitudes and adaptive behavior. This study aims to add to our knowledge of the micro-level process of how employees adapt to change. Rather than focusing on the change event as a unit of analysis, the present longitudinal field study zooms in on employee perceptions of change and the changing work environment in a context of a police district undergoing reorganization. More specifically, the purpose of this study is to examine aspects of adaptability that contribute to successful adjustment to change. We study how employee adaptability, i.e. the presence of change resources (change information and meaning-making) may predict employee adaptive change attitudes, i.e. willingness to change, as well as its behavioral expression, individual adaptive behavior (Griffin, Neal, & Parker, 2007).

1.1. Theoretical background

Change research indicates how an organizational change may be characterized, depending on the perspective of the observer. From a macro perspective, reorganization could be described as an "episodic" change, i.e. a relatively short period of intentional, planned change, while an analysis on the micro-level may observe a more "continuous", ongoing flow of change (Purser & Petranker, 2005; Weick & Quinn, 1999). In the organization under study a large reorganization was introduced whereby the structure of departments and team operations was altered. The organization merged their five districts into three districts, which meant that employees had to re-locate and were required to work flexibly; i.e. in different geographical areas and in new teams. Given that this was a clear change from the 'old system' this change can be described as "episodic". Episodic change is linked to the classic ideas of Lewin (1947). In this view, every change effort starts with 'unfreezing' the status quo or a state of equilibrium. Unfreezing entails preparing for change, communicating change, building psychological safety, creating a sense of urgency around the need for change, making the driving forces for change explicit, and removing restraining forces (e.g., personal defenses, group norms, etc.) that inhibit change (Schein, 1996). The second stage is the 'transition' phase, in which the actual changes take place. This is the phase in which employee learning and behavioral change are required. During transition, the target system is moved to a new equilibrium and it is therefore crucial to build change acceptance and motivation amongst change recipients. During the final phase of Lewin's model (re-freezing), the new equilibrium needs to be enforced, in order to avoid falling back towards the old pre-change situation. New ways of working need to be reinforced in order for the change to 'stick'. The measurement occasions of the current study correspond to these three phases of the change process.

Although Lewin's classic theory includes the role of change agents, group norms and organizational culture (important determinants of organizational change), it primarily takes a macro perspective on how change events unfold. Consequently it may generate insufficient knowledge about how employees perceive, interact with, respond to and adapt to change on the micro-level, where change may be perceived as ongoing and continuous (Brown & Eisenhardt, 1997; Weick & Quinn, 1999). We aim to apply Lewin's perspective to the introduction of change in our organization under study, since it was possible to distinguish the three phases (pre-change actions, implementation phase and post-change phase). In addition, we complement this perspective with a micro-level focus by investigating relationships between employee-level constructs during the three different phases (i.e. unfreeze, transition, re-freeze). As recently emphasized, the micro aspects on the employee-level that contribute to successful change implementation need more attention in organizational change research (Sonenshein & Dholakia, 2012) and adaptation (Shoss et al., 2011).

The ultimate aim of this study is to predict what the organization needed to achieve in order for the reorganization to be a success: enhanced employee adaptive behavior. Adaptive behavior has been operationalized as "…the extent to which an individual adapts to changes in a work system or work roles" (Griffin et al., 2007, p. 329). It refers to flexible behavioral responses and has been proposed to be an important component of employability (Fugate, Kinicki, & Ashforth, 2004; Heijde & Van Der Heijden, 2006).

1.2. Employee adaptability: change resources

To study the process of adapting to change we use the construct of individual 'resources' based on Conservation of Resources (COR) theory (Hobfoll, 1989, 2001). Contextual and psychological resourcefulness, forms an indicator of an employee's adaptability. Employee adaptability can be defined as the quality of being able to change, the ability to manage transitions at work as well as being able to effectively manage change-related stress (cf. Savickas, 1997; Savickas & Porfeli, 2012). Resources can be seen as an integral part of being able to change. Resources have been be defined as "those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies" (Hobfoll, 1989; p. 516). According to this perspective, people are intrinsically motivated to

obtain, retain, and protect as well as accumulate their resources (Hobfoll, 2001). In an organizational change setting this would mean that more adaptable, resourceful employees may be less vulnerable to resource loss and more capable of resource gain during change. This is because they may use resources such as information, social networks and/or self-efficacy to protect or gain other valued outcomes such as useful tools or technologies, energy, social interaction or a better position. Adaptable employees with many resources may therefore also be more open to 'experimenting' with behavioral change (which may be perceived as risky to less resourceful individuals). This experimenting could take the form of pro-actively crafting the changing work environment to their own needs (resource gain) (Hobfoll & Shirom, 2001). COR suggests that these positive gain cycles (i.e. presence of resources leads to more resources) over time may lead to other valued outcomes, such as work engagement, commitment, and well-being (Bakker, 2011; Hobfoll, 2001; Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010).

We include employee adaptability as a predictor of adaptive behavior. Adaptability in this study is captured by two change resources that may add to employees' understanding and adjustment to change. First, change information, a process resource referring to the levels and adequacy of change-related information that employees receive via their supervisors and/or management communication channels, e.g. intranet. Information provision is known in the change literature to be crucial, both during "unfreezing" as well as during the transition phase (e.g., Jimmieson, Terry, & Callan, 2004; Rafferty & Restubog, 2010).

Secondly, we focus on an aspect of adaptability that relates to the psychological resourcefulness of employees, specifically, meaning-making. Meaning-making refers to reflective actions that individuals may undertake to create meaning which are suggested to increase the willingness to adapt to change (Van den Heuvel, Demerouti, Schreurs, Bakker, & Schaufeli, 2009; Van den Heuvel, Demerouti, Schaufeli & Bakker, 2010). Meaning-making is known in literature to be important for change adaptation to the extent that it facilitates understanding during change or adversity. Fig. 1 depicts our research model, which illustrates how resources may have a positive effect on employee adjustment (i.e. adaptive attitudes and adaptive behavior).

1.2.1. Change information

"*Process*" resources are a specific type of contextual resources, and pertain to qualities of the way in which the change is implemented (the process). Examples are communication and information about the change and opportunities to participate in designing/implementing the change. These resources have been shown to be vital for successful change (Bartunek, Krim, Necochea, & Humphries, 1999; Saksvik et al., 2007). In the present study, we focus on change information as communicated to employees. Jimmieson et al. (2004) found that change information was positively related to adjustment in terms of well-being, job satisfaction, and client engagement. The relation was mediated by change self-efficacy. Similarly, change information has been found to be predictive of higher openness to change (Wanberg & Banas, 2000) and less resistance to change (Oreg, 2006). Timely and detailed information seems a critical element of any change endeavor. This may be due to the anxiety/uncertainty reducing effect that information about the pending changes may have on employees (Ashford, 1988; Miller & Monge, 1985). We expect that change information will facilitate adaptive attitudes (willingness to change) as well as behavioral change (adaptive behavior). However, detailed information regarding the change may not be available in every phase of the change implementation process. Therefore, there is a need for employees to use intra-individual 'personal' resources, such as meaning-making, especially in uncertain or dynamic situations with a lot of ambiguity (such as organizational change).

1.2.2. Meaning-making

Building on social and health psychological research on adjustment to adversity (Linley & Joseph, 2004; Taylor, 1983), *meaning-making* has recently been suggested as a facilitating factor during change in organizational settings (Sonenshein & Dholakia, 2012; Van den Heuvel et al., 2009). Meaning-making is concerned with the extent to which individuals are effective in
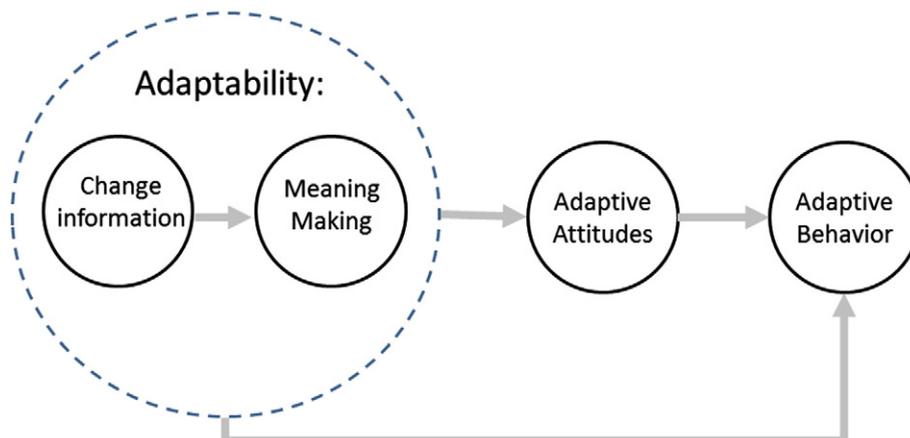
Fig. 1. Change resources adaptation model.

integrating challenging/ambiguous events into a framework of personal meaning using value-based reflection (Park, 2010; Van den Heuvel et al., 2009). Meaning-making has been shown to be positively related to coping with life changes (Linley & Joseph, 2004; Park, 2010). Meaning-making captures whether employees are successful in maintaining a sense of meaningfulness and purpose (Van den Heuvel et al., 2009). Therefore, in line with COR theory, meaning-making has been conceptualized as a personal resource that helps employees to gain and protect other personal resources (Hobfoll, 2001). Meaning-making may be particularly relevant during organizational change, when uncertainty and ambiguity are not easily avoided. Using meaning-making may help employees to process change-related information as communicated by management. In addition, it may also help to reduce uncertainty in the absence of detailed information. In this way, meaning-making may also help employees to protect other resources, such as self-esteem or motivation. In a workplace setting, it has been shown to be positively related to adaptive attitudes and in-role performance during change (Van den Heuvel et al., 2009). Similar sense making processes (i.e. interpreting the environment using beliefs and assumptions) have also been shown to help employees adjust to change (Weber & Manning, 2001; Weick, 1995). Reflecting on ambiguous events and being mindful of how this relates to personal goals and values may help to reduce uncertainty. When employees have found ways in which the change can be meaningful to them, this may help to build acceptance and a sense of control over the new situation. Over time, this may build resilience to deal with change. Given this positive relation between perceived meaning and adaptive behavior, we expect that meaning-making will also be positively related to adaptive behavior over time. The role of meaning-making over time during a longer transition has not been studied as of yet. Adequate information-provision regarding the change is a tool that organizations can use to boost employees' understanding/acceptance of the changes. Meaning-making is a resource that may be used by employees themselves to find meaning in the change. Inherent in meaning-making is the 'digesting' of information that employees receive from their environment. There may therefore be an important link between change information and meaning-making. Sonenshein and Dholakia (2012) show that managerial communication regarding the change can facilitate certain types of employee meaning-making, which in turn helps employees to adapt their behavior. Employees may be triggered to reflect on the changing environment by the information and communications from management. We therefore also expect that change information will have a positive effect on meaning-making. Taken together, based on the above reasoning, we formulate two hypotheses regarding the facilitating role of employee adaptability as expressed by the presence of change resources over time (see also Fig. 1).

Hypothesis 1. Information regarding the change is positively related to (a) meaning-making, (b) adaptive attitudes, and (c) adaptive behavior over time.

Hypothesis 2. Meaning-making is positively related to (a) adaptive attitudes, and (b) adaptive behavior over time.

1.3. Adapting over time

What processes can explain the positive influence of adaptability (i.e. resourcefulness) on employee adaptive behavioral change? Our model suggests different pathways that may explain the positive effect of change information and meaning-making on adaptive behavior. First, the positive influence of pre-change information on employee adaptive behavior over time may be transmitted via adaptive attitudes. Information may reduce uncertainty and therefore facilitates positive attitudes towards the change. Extending previous research on organizational change that aimed to predict positive change attitudes (Jimmieson et al., 2004; Vakola & Nikolaou, 2005), we expect that change information before the change implementation phase will positively relate to adaptive attitudes during implementation, which in turn will predict higher levels of adaptive behavior after formal implementation is completed. This process resembles Lewin's (1947) perspective; that is, pre-change 'unfreezing' needs to take place via communication and information. Employee adaptive attitudes have to (be) build up towards the transition phase. During the actual transition during which change is implemented, information is still an integral part of the process, as employees need to be motivated not only to change their attitudes (willingness to change), but also their behavior in line with the changing environment. After formal implementation is completed (re-freezing phase), employees need to continue their adaptive behaviors in order for the change to be successful in the longer term. This indirect effect of information on attitudes, which in turn influences behavior, is also inherent in classic perspectives on human behavior such as the theory of planned behavior (Ajzen, 1991). Hence,

Hypothesis 3. Time 1 (T1) Change information is indirectly related to T3 adaptive behavior through T2 adaptive attitudes.

Secondly, the positive influence of change information on adaptive behavior over time may also be transmitted via meaning-making during the transition phase. Information regarding the changes may trigger employees' reflection on the changing situation and how this affects them, which in turn may lead to employee adaptive behavior. This is in line with more recent perspectives on change adjustment (e.g., Sonenshein & Dholakia, 2012; Van den Heuvel et al., 2010). The Personal Resources Adaptation Model (Van den Heuvel et al., 2010) suggests that (change) resources in the work environment may trigger personal resources, which in turn may predict work engagement and adaptive behavior. Sonenshein and Dholakia (2012) found a significant relationship between change communications and a change-specific type of meaning-making (change benefit-finding and understanding the change as part of an organizational strategy). In their study, meaning-making, in turn, predicted change implementation behaviors (via commitment, identification and

change-efficacy). However, these relationships have not been tested with a longitudinal design. Our study design allows us to test this indirect effect and our final hypothesis is:

Hypothesis 4. T1 Change information is indirectly related to T3 adaptive behavior through T2 meaning-making.

2. Method

2.1. Design

The panel group that participated in this study was recruited as part of a research project conducted within a Dutch police district undergoing reorganization. The changes (departmental merges, technological innovations, professionalization, and relocation of employees) were aimed at creating a more adaptive organization. Changes were implemented after the first measurement wave and were still ongoing during the second wave. All employees in the district were confronted with the changes in that there were different planning systems and they were required to start working more flexible, at different locations with different colleagues. In addition, all staff members were required to further develop themselves professionally by taking part in training programs. The first measurement wave took place before change implementation. During this time employees were informed via intranet and meetings with their team leaders who dispersed the information from higher management to the lower-level employees. The second measurement wave took place during the implementation of change, when employees were starting to work in new ways, e.g. traveling to new locations for work, working with new teams and the new planning system. All formal changes were implemented at the time of the third measurement. No employees were made redundant. The survey had to be kept as concise as possible to increase response rates and to avoid survey fatigue. We therefore used shortened scales to measure constructs where possible. Adaptive behavior was only measured at T2 and T3 because adaptive behavior captures change-supportive behavior. The items only make sense to answer once change has been implemented. Therefore, adaptive behavior was only measured at T2, when change implementation was in progress.

2.2. Participants

After initial information regarding the purpose of the research via intranet/newsletters, e-mail invitations were sent out to all employees ($N = 1780$). A total of 950 employees completed the online survey (response: 53%). At T2, 1854 invitations were sent, and a total of 810 employees completed the survey (response: 44%). At T3, 1736 invitations were sent out, and a total of 741 employees completed the survey (response 43%). The final sample consisted of 368 employees who completed all three surveys. Nearly two-thirds of the sample were male (63.3%; female: 36.7%), average age was 43.4 years ($SD = 9.84$), and mean tenure was 17.85 years ($SD = 11.25$). The majority of the sample worked in a non-managerial position (90.8%). More than half (56.2%) held a predominantly operational position, while 43.8% of the sample held a predominantly support position (administrative, IT, HR or finance tasks supporting the operational processes). We conducted dropout analysis to examine the differences between the group who completed the T1 survey only and the panel group, as well as the group who completed T1 and T2 versus the panel group. For both comparisons we found no significant differences between the dropout group and the panel group in terms of their demographic profile (age, gender, education and tenure). There was, however, a significant difference between the dropout group and the panel group on reported change information. The drop-out group scored slightly lower on change information than the panel group (T1 vs. panel group: $t = -2.28$, $p < .05$; T1 & T2 vs. panel group: $t = -2.49$, $p < .05$). Besides this difference, no other differences were found on our study variables.

2.3. Measures

Below all validated measurement scales are described. Cronbach's alpha values of all scales can be seen in Table 1, which shows that reliabilities of all scales were acceptable across the three waves. *Change information* was measured using three items based on the scale of Wanberg and Banas (2000) using a 6-point Likert-scale; (1) "strongly disagree" to (6) "strongly agree". An example item is: "I have received adequate information about the change". *Meaning-making* was measured using five items from the meaning-making scale (Van den Heuvel et al., 2009). Sample items were: "I actively take the time to reflect on events that happen in my life", and "I have an understanding of what makes my life meaningful"; (1) "strongly disagree", (6) "strongly agree". *Adaptive attitudes* were assessed using a four-item scale developed by Metselaar (1997). The items measure employees' willingness to change, i.e. the intention to invest time and effort to support the implementation of the change. Example item: "I'm willing to convince colleagues of the benefits the change will bring", and "I'm willing to put effort into achieving the goals of the change", (1) strongly disagree, (5) strongly agree. *Adaptive behavior* was measured at T2 and T3 using the three-item scale developed by Griffin et al. (2007). An example item is: "During the past month I adapted well to the changes in my core tasks". Respondents could indicate how often they had showed the adaptive behavior on a scale ranging from (1) "never" to (5) "very often".

Table 1
Means, Standard deviations (SD), Cronbach's alpha (on the diagonal) and Pearson correlations among study variables.

	Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
Time 1															
1	Managerial (1 = yes, no = 2)	–													
2	Change information	3.72	1.122	−.14[**]	.85										
3	Meaning-making	4.81	.61	−.15[**]	.16[**]	.78									
4	Adaptive Attitudes	3.89	1.10	−.29[**]	.53[**]	.27[**]	.90								
Time 2															
5	Change information	3.75	1.10	−.20[**]	.59[**]	.13[*]	.40[*]	.87							
6	Meaning-making	4.80	.60	−.15[**]	.21[**]	.64[**]	.28[**]	.26[**]	.77						
7	Adaptive attitudes	3.97	1.04	−.28[**]	.40[**]	.21[**]	.70[**]	.45[**]	.30[**]	.90					
8	Adaptive behavior	3.96	.76	−.13[*]	.26[**]	.25[**]	.28[**]	.23[**]	.39[**]	.35[**]	.90				
Time 3															
9	Change information	3.68	1.12	−.18[**]	.52[**]	.13[*]	.36[**]	.58[**]	.22[**]	.40[**]	.18[**]	.91			
10	Meaning-making	4.81	.63	−.14[**]	.25[**]	.60[**]	.30[**]	.22[**]	.61[**]	.22[**]	.25[**]	.27[**]	.80		
11	Adaptive attitudes	3.95	1.03	−.30[**]	.40[**]	.25[**]	.59[**]	.45[**]	.31[**]	.58[**]	.30[**]	.54[**]	.35[**]	.91	
12	Adaptive behavior	4.02	.74	−.03	.24[**]	.26[**]	.26[**]	.26[**]	.34[**]	.32[**]	.44[*]	.28[**]	.32[**]	.35[**]	.90

Note. N = 368.
[**] p < .01
[*] p < .05

2.4. Strategy of analysis

We used structural equation modeling (SEM, Jöreskog & Sörbom, 1996) and the maximum-likelihood method implemented in the AMOS program (Arbuckle, 2007) to analyze the data. Change information, meaning-making and adaptive attitudes were measured at all three measurement occasions, while adaptive behavior was measured only at T2 and T3. All study variables were included as latent factors that were operationalized by the respective items, which were included as their indicators. Change information and adaptive behavior were indicated by three items, meaning-making by five, and adaptive attitudes by four items. Prior to the analyses, we conducted confirmatory factor analyses (CFA) at the item-level to test the measurement model that includes all observed and unobserved study variables and their relationships. Also, we conducted measurement invariance analyses. After these preliminary steps, a number of models were fit to the data in order to test the hypotheses. First, we tested the stability model (M1), which included stability paths from each of the constructs measured at T1/T2 to their corresponding construct measured at T2/T3, as well as synchronous correlations between the latent factors. Two items of the meaning-making scale (i.e. item 1 "I actively take the time to reflect on events that happen in my life" and item 5 "I feel my life is meaningful"), were highly correlated over the three measurement occasions. Therefore, we allowed the measurement errors of these items to be correlated over time (i.e. error of item 1 T1 correlated with error of item 1 T2 and T3) (cf. Edwards & Webster, 2012). According to Pitts, West, and Tein (1996), this specification of covariance between errors of measurement accounts for the systematic (method) variance associated with each specific indicator.

Our proposed research model constitutes a causality model (M2) which included paths between T1/T2 change information and meaning-making to T2/T3 adaptive attitudes and adaptive behavior. The paths from change information T1/T2 to meaning-making T2/T3 were also included. To rule out alternative causal effects of adaptive attitudes and adaptive behavior on the perceived resources, M2 was compared to an alternative, reversed causality model (M3), which consisted of a model with reversed paths (without the paths of M2). Thus, M3 included the paths from T1/T2 meaning-making to T2/T3 change information, as well as the paths from T1/T2 adaptive attitudes to T2/T3 meaning-making and T2/T3 change information; and finally, the paths from T2 adaptive behavior to T3 change information, T3 meaning-making and T3 adaptive attitudes. Finally, we built the reciprocal model (M4) which included both the causality paths (M2) as well as the reversed causality paths (M3).

We controlled for managerial position as this variable was related to most of our study variables (see Table 1). Being in a managerial role would expose one to more information regarding organizational change. Also, a managerial role tends to require more adaptive attitudes on the part of the manager. To account for across-time stability in the scores, we included stability paths from T1 to T2 to T3 and from T1 to T3 for all factors measured over time, as well as synchronous correlations between factors on each measurement occasion. Model fit was assessed using the standard χ^2 test. We also assessed Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) and AIC. As suggested by Marsh, Hau, and Wen (2004), we used the conventional cut-off values to assess model fit i.e., CFI, TLI > .90, and RMSEA < .08 instead of the criteria that have been recommended by Hu and Bentler (1999) (i.e., CFI, TLI > .95, and RMSEA < .06). This was done because the cut-offs suggested by Hu and Bentler tend to be too stringent, in that otherwise acceptable models are too often rejected (Marsh et al., 2004). For the non-nested (reversed) model, we compared the Akaike (AIC) value. Lower values of AIC indicate a better model fit. To test the mediation effect of *Hypothesis 4*, we used a method of estimation proposed by Preacher and Hayes (2008) including bootstrapped estimates for Confidence Intervals. This method requests 5000 bootstrapped samples to estimate the bias corrected confidence intervals for estimates of the product of a (path from T1 information to T2 meaning-making) and b (path from T2 meaning-making to T3 adaptive behavior) model coefficients for the mediated or indirect effects.

3. Results

3.1. Descriptive statistics

Descriptive statistics, correlations, and Cronbach's alpha's are displayed in Table 1. All scales had sufficient reliability at all measurement occasions. Table 1 shows that managerial position was significantly related to all variables and was therefore included as a control variable. Prior to further analyses, we conducted confirmatory factor analyses (CFA) to test the measurement model for each time point. At each time point we compared models with different factor solutions (i.e. 1-, 2-, 3- and 4-factor models). At T1, the 3-factor model (including information, meaning-making and adaptive attitudes) showed an acceptable model fit ($\chi^2 = 175.77$, $df = 51$, CFI = .94, TLI = .93, RMSEA = .08), which was superior to the 1-factor model ($\Delta \chi^2 (3) = 719.05$, $p < .001$). The 3-factor model was also superior to a 2-factor model, where meaning-making and information loaded on 1-factor (adaptability or presence of resources) while adaptive attitudes formed the other factor ($\Delta \chi^2 (2) = 448.22$, $p < .001$). At T2, the 4-factor model (including the factors information, meaning-making, adaptive attitudes and adaptive behavior) showed a satisfactory model fit ($\chi^2 = 199.91$, $df = 84$, CFI = .96, TLI = .95, RMSEA = .06), which was superior to the 1-factor model ($\Delta \chi^2 (6) = 1463.36$, $p < .001$), as well as the 2-factor model (including an adaptability factor formed by meaning-making and change information and a change-related factor formed by adaptive attitudes and adaptive behavior ($\Delta \chi^2 (5) = 1111.63$, $p < .001$)). The 4-factor model was also superior to the 3-factor ($\Delta \chi^2 (3) = 416.84$, $p < .001$) model, in which adaptive attitudes and adaptive behavior were separate factors. At T3, we found a similar result, i.e. the 4-factor model showed a superior model fit ($\chi^2 = 246.27$, $df = 84$, CFI = .95, TLI = .94, RMSEA = .07), when compared to the 1-factor model ($\Delta \chi^2 (6) = 1545.05$, $p < .001$). The 4-factor model was also superior to the 2-factor ($\Delta \chi^2 (5) = 1125.68$, $p < .001$) and 3-factor ($\Delta \chi^2 (3) = 639.47$, $p < .001$) models.

Following this, the model was tested for measurement invariance across the three waves. Factor loadings of each item at the three different waves were constrained to be equal. This constrained model was compared to the free model, where factor loadings were allowed to be different across the measurement waves. Note that the factor loading on one item of each scale had to be constrained to 1 (Arbuckle, 2007). The free model ($\chi^2 = 2183.91$, $df = 795$, CFI = .87, TLI = .86, RMSEA = .07) differed significantly from the constraint model ($\Delta \chi^2 (28) = 210.50$, $p < .001$), indicating that constraining the loadings to be equal across the measurement waves resulted in a slightly worse model fit. This result indicates that the meaning of the items changed over the three measurement occasions. Therefore, results should be read in light of this finding, and be interpreted with caution.

3.2. Longitudinal analyses

Table 2 shows the fit indices of the competing models and the model comparisons. The stability model (M1) showed an acceptable fit to the data. The proposed research model was the causality model (M2), which showed a satisfactory model fit to the data with all indices satisfying the cut-off criteria. As shown by χ^2 difference tests, M2 had a significantly better fit than M1 ($\Delta \chi^2 (12) = 93.58$, $p < .001$). The same holds true for both the reversed causation model (M3) and the reciprocal model (M4) which were also significantly better than the stability model. M3 had a marginally acceptable model fit. M3 was not nested in M2, therefore AIC values were compared as an index of model fit. The AIC value of M2 was lower compared to that of M3, indicating a better model fit for M2. The reciprocal model (M4) did not fit the data significantly better than M2 ($\Delta \chi^2 (9)$ 59.57, *n.s.*). Therefore, M2 is preferable compared to M4, as it is more parsimonious. In addition, Table 2 shows that the AIC value of M2 was lower than M4. This means that M2 explained the underlying structure of the data better. Significant paths in M2 are displayed in Fig. 2.

Hypothesis 1 stated that change information is positively related to (a) meaning-making, (b) adaptive attitudes, and (c) adaptive behavior over time. Partially supporting H1a, we found one significant positive effect of T1 change information on T2 meaning-making. Also, T2 change information had a significant positive effect on T3 adaptive attitudes, partially supporting H1b. In addition, we found partial support for H1c since T1 change information was significantly related to T2 adaptive behavior. Hypothesis 2a was partially supported, since T2 meaning-making had a significant positive effect on T3 adaptive attitudes, however, this was not the case for the T1–T2 relationship. Hypothesis 2b was fully supported by our model; meaning-making had a significant effect on adaptive behavior,

Table 2
Goodness of fit indices and chi-square difference tests of nested structural equation models, $N = 368$.

Model	χ^2	df	Comparison	$\Delta \chi^2$	Δdf	CFI	TLI	RMSEA	AIC
M1: Stability model	1846.66	819				.90	.89	.058	2100.66
M2: Causality model: M1 + T1/T2 Information → T2/T3 MM, Adaptive Attitudes, Adaptive behavior & T1/T2 MM → T2/T3 Adaptive Attitudes, Adaptive Behavior.	1753.08	807	M1–M2	93.58[***]	12	.91	.90	.057	2031.08
M3: Reversed Causality model: T1/T2 MM → T2/T3 Information & T1/T2 Adaptive Attitudes → T2/T3 Information, MM, & T2 Adaptive Behavior → T3 Information, Meaning-making, Adaptive Attitudes	1834.98	810	M2–M3	81.90[***]	3	.90	.89	.059	2106.98
M4: Reciprocal model: M2 + M3	1745.92	798	M2–M4	7.16 *ns*	9	.91	.90	.057	2225.79

Note. Managerial position was controlled for.
[**] $p < .001$
[*] $p < .01$.
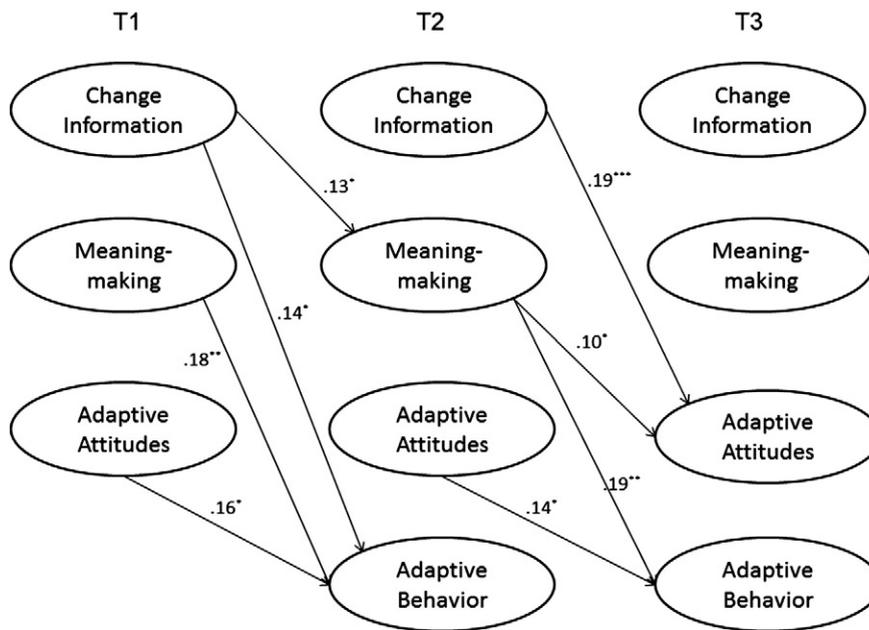
Fig. 2. Significant paths in the structural causality model (M2). Notes: **$p<.01$, *$p<.05$, $N=368$. Maximum likelihood estimates (standardized) are displayed. Measurement models and control variable are not displayed for reasons of clarity.

both between T1–T2 as well as T2–T3. We did not find support for Hypothesis 3 which stated that T1 change information would be indirectly related to T3 adaptive behavior via T2 adaptive attitudes. Although adaptive attitudes had a significant, positive effect on adaptive behavior, the indirect effect of T1 change information on T3 adaptive behavior via T2 adaptive attitudes was not significant, since T1 change information did not predict T2 adaptive attitudes. To test *Hypothesis 4* we used a method of estimation proposed by Preacher and Hayes (2008) including bootstrapped estimates for Confidence Intervals. Support was found for the indirect effect of T1 change information on T3 adaptive behavior via T2 meaning-making. The indirect effect was significant ($z=3.17$, $p<.01$, 95% $CI=.05$–$.21$). The confidence interval did not contain zero, which indicates there is a significant meditation effect of change information on adaptive behavior through meaning-making.

4. Discussion

This study examined the facilitating effects of employee adaptability in terms of the presence of resources on adaptive change attitudes (i.e. willingness to change) and adaptive behavior. For adaptability, we focused on the presence of (1) a contextual resource (change information) and (2) a personal resource (meaning-making). Results showed that change information facilitates employee adjustment to change (i.e. adaptive attitudes and adaptive behavior together) over time. Using a longitudinal cross-lagged panel design, we showed that the information provided *before* the implementation phase had a positive effect on employee meaning-making and adaptive behavior during implementation. Change information *during* the implementation phase positively affects adaptive attitudes one year later (after formal implementation efforts were finished). Meaning-making (during implementation) positively predicted employee change attitudes (adaptive attitudes) after the implementation was completed. In addition, meaning-making *before* and *during* change implementation positively predicted adaptive behavior. We found that meaning-making was the linking process in the relationship between pre-change information and post-implementation adaptive behavior, emphasizing the importance of employees' personal resourcefulness in terms of being open to reflect on the change and linking it to their own personal goals and values. How do these findings contribute to our knowledge on employee adaptation to change?

4.1. Theoretical contribution

One contribution of this study is that we gained insight on micro-level adapting processes of employees, by studying longitudinal relationships across the three phases of change implementation (unfreeze–transition–re-freeze; Lewin, 1947). The utilization of a three-wave study integrating measures prior, during, and after the implementation of organizational change, enabled us to do so. In that sense we have made an attempt to link a macro-level model to a micro-level perspective of studying employee perceptions and behavior during change.

In addition, we applied COR theory to explain the longitudinal effects that resources have on adjustment outcomes. COR theory states that employees strive to obtain, maintain and protect resources (Hobfoll, 1989). During organizational change,

adaptability or the presence of resources may ultimately help individual adaptation in terms of maintaining health, well-being and motivation (cf. Hobfoll, 1989; p. 516). Indeed, in line with COR theory, we found that resources facilitated adjustment to change over time, although the role of resources differed slightly depending on the phase in which they were studied. Change information and meaning-making *during* change helped employees to obtain an open attitude towards change and the ability to show adaptive behaviors. In light of COR theory, these resources may have helped employees to regain a sense of control over their environment which may have reduced uncertainty. In addition, over time, more adaptive attitudes and behavior will, in turn, help employees to gain other valued resources, such as support from peers and managers in handling the change (Hobfoll, 1989, 2001). Another contribution of this study is the knowledge on the role of meaning-making as an important facilitator for change adjustment. Meaning-making is mostly studied qualitatively in case studies or narrative studies, and has, as of yet, hardly been included in quantitative longitudinal settings. We found meaning-making to have a multiple role during change. Not only is it a direct predictor of adaptive behavior, it also helps to translate messages from management into adaptive behavior. This may point to a growing need in the study of organizational change to focus more attention on change recipients' proactive ability to self-regulate and craft meanings at work (Grant & Parker, 2009). Individual meaning-making may become increasingly important as the demands for employee and organizational flexibility, the pace of change and, with this, employee uncertainty, grow.

4.2. Unfreezing: pre-change to during-change

The relationships between employee adaptability (i.e. pre-change resources) and outcomes during change, correspond to the 'unfreezing' period. During unfreezing it is important to build adaptability in terms of change resources and positive change attitudes, in order for employee to be able to deal with the change when implemented. We found partial support for the beneficial effects of change information on adaptation outcomes. Pre-change information predicted employee adaptive behavior during the implementation phase. This finding emphasizes that it is worthwhile to provide employees with as much information regarding pending changes as possible (before implementation), even though not all details are finalized yet. For example, employees might have received information on the departmental merging and what this would have meant for working together or the work planning system.

Change information also had a positive effect on meaning-making during change. This is consistent with the proposed 'Meaning-making change adaptation model' (Sonenshein & Dholakia, 2012), which shows that managerial communication regarding the change can help employees to actively search for benefits in the changes. We extended this finding by showing that this relationship also holds over time. This indicates that the organization and its managers can trigger employees' meaning-making and reflection during change. T1 meaning-making also predicted T2 adaptive behavior. This indicates that employees' tendency to reflect on ambiguous or challenging events – even before the change – can help adjust to change. This emphasizes the role of meaning-making as a resource (Hobfoll, 2001; Van den Heuvel et al., 2009), in that regular use of reflection and experiencing meaning might build resilience to bounce back from potential threatening or uncertain situations. Unexpectedly, pre-change information did not positively influence adaptive attitudes *during* change (controlled for T1 adaptive attitudes scores). This may be explained by the fact that at T1, not all information may have been available as is often the case in dynamic change trajectories. In addition, given the one-year time lag, the information at T1 may not have been specific/useful enough to facilitate employee attitudes during the change (T2). Finally, there may be a dispositional element in adaptive attitudes (see Oreg, 2006), that may make it less malleable when controlling for T1 levels of adaptive attitudes. Future work may include other resources as predictors (e.g. change-efficacy), and use research designs that allow for closer inspection of the influence of the timing of information provision on employee change attitudes.

4.3. From change implementation towards "re-freezing"

The relationships between T2 – during the change and T3 – after formal change implementation, showed a slightly different pattern. Overall adaptability was more predictive of adaptive attitudes and adaptive behavior from T2 to T3 than from T1 to T2. This is in line with studies that show that resources that boost adaptability are particularly beneficial when needed most (i.e. under stressful or changing conditions) (Hobfoll, 2001). Adequate and timely change information provided during the most turbulent time (i.e. the actual implementation phase) had a positive effect on adaptive attitudes at T3 (unlike the T1–T2 relation). In line with previous studies (Jimmieson et al., 2004; Van Dam, Oreg, & Schyns, 2007; Wanberg & Banas, 2000) our study shows that information regarding the change is very important, in that it positively affects adaptive attitudes. At T3, although the formal implementation phase was completed, employees still needed to get used to the post-reorganization situation. The information received during the changes helped employees to be more positive and willing towards the change. While neither T1 meaning-making nor T1 change-information predicted T2 adaptive attitudes, from T2 to T3 these relationships were positive and significant for meaning-making. It seems that when employees have made the change on 'their own' (in terms of integrating it into their personal meaning system), they will then show more adaptive behavior during the re-freeze period, indicating that the change will 'stick'. So while organizations need to provide essential information regarding the change, employees themselves must also be triggered to reflect on the change and its impact for them personally. This is an important finding since making change a 'lasting change' is often difficult for organizations. In order to consolidate positive change attitudes, it is important to provide enough information during the change, as well as to stimulate individual meaning-making. As our study shows, these indicators of employee adaptability promote not only adaptive attitudes, but also adaptive behavior over time. An underlying

explanation may be that both resources may reduce uncertainty and increase a sense of control over the environment during change.

4.4. Limitations and future research

A number of limitations need to be mentioned. First, our study was set in a police organization, which may limit generalizability across other occupations and organizations. Future research should study these processes in different types of organizations as well. Also, ideally, we would have combined our self-report measure of adaptive behavior with other-ratings, for example ratings by supervisors or peers. With regards to common method bias, since we measured at three different measurement occasions, these concerns may be disregarded (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Further, the dropout analysis showed that the panel group received slightly more change information than the dropout group. It seems that employees who were kept informed on the changes were more likely to complete the survey than employees who were not. This could be related to the extent that people were confronted with the change, i.e. when change was more prominent for employees, they might have been more inclined to participate, since the survey was advertised as dealing with work engagement and organizational change. Similarly, the meaning of the constructs that we measured changed over time, which indicates that respondents answered differently across the three measurement occasions. This may be due to the changing circumstances in which employees completed the survey. The three-wave longitudinal design is a strength which leads us closer to process data on change, however, the design does not allow us to examine the events in between the three waves. Future studies should make an attempt to collect more precise, longitudinal data. Perhaps complemented by e.g. qualitative process data on how and when exactly employees are affected by the changes, as well as what specific meaning/ benefits they see in the change. Obviously, taking account of other aspects of adaptability, for example, contextual resources such as participation, transformational leadership but also different personal resources such as (change) self-efficacy and organization-based self-esteem, will further increase understanding of the adjustment process.

4.5. Practical implications

Our study emphasizes the importance for organizations to provide sufficient and high-quality information regarding the pending changes, not only before the implementation, but also during transitions. An important finding is that provision of information will trigger employees to 'digest' the information by reflecting on how the change will affect them and their (working) lives using meaning-making processes. This finding redefines the view of employees in the change process as passive change recipients. Traditional practitioner views would see employees as a source of resistance (Dent & Goldberg, 1999). Our study shows that it is important to challenge this view. Managers and change agents should aim to boost employee adaptability by facilitating self-regulating processes of meaning-making and benefit finding during change. Although we cannot infer it from this study, it may help change adjustment if communications include both practical information as well as information on how the change will help employees and the organization to reach their goals. The use of individual coaching may help on the individual level. On the team-level, focus groups could help to bring out both positive and negative perceptions regarding the change. This may assist managers to optimize (the planning of) the implementation process accordingly, and where possible address concerns. Early on in the change process, focus groups can also be used to allow employee participation in certain aspects of the content, timing and roll-out process of the changes; in as far as this is possible given budgets etc. Again, since employees are the ones who have to behaviorally support the change in order for it to be successful; no effort should be spared to learn from their experience and insights regarding the effectiveness of day-to-day operational processes. Managers may customize the type of information provided, based on specific needs of various departments, in order to help those departments to understand the change. Boosting employee adaptability by building resources *before* entering the change process, by involving employees as much as possible via information, communications and participation will help employee meaning-making and adjustment to change over time.

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