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Abstract: Increasingly, continuous organizational change is viewed as the new reality for organizations and their members. However, this model of organizational change, which is usually characterized by ongoing, cumulative, and substantive change from the bottom up, remains underexplored in the literature. Taking a multilevel approach, the authors develop a theoretical model to explain the mechanisms behind the amplification and accumulation of valuable, ongoing work-unit level changes over time, which then become substantial changes at the organizational level. Drawing on the concept of emergence, they first focus on the cognitive search mechanisms of work-unit members and managers to illustrate how work-unit level routine changes may be amplified to the organization through 2 unique processes: composition and compilation emergence. The authors then discuss the managers' role in creating a sense of coherence and meaning for the accumulation of these emergent changes over time. They conclude this research by discussing the theoretical implications of their model for the existing literature of organizational change. (PsycINFO Database Record (c) 2018 APA, all rights reserved)

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Attention to Change: A Multilevel Theory on the Process of Emergent Continuous Organizational Change

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Organizational change, defined as the alterations of existing work routines and strategies that affect the whole organization (Herold & Fedor, 2008), is a prominent topic of research interest in the social sciences (Ford & Ford, 1995; Pettigrew, Woodman, & Cameron, 2001; Van de Ven & Poole, 1995). Notably, a growing body of scholars emphasizes the importance of extending our knowledge of organizational change by explaining why and how continuous change occurs (e.g., Leanna & Barry, 2000; Pettigrew et al., 2001). Organizations today reside in an environment characterized by accelerating complexity (De Meuse, Dai, & Hallenbeck, 2010) and, as a result, they need to harness their members' day-to-day ongoing accommodations to allow for "everyday contingencies, breakdowns, exceptions, opportunities, and unintended consequences" (Orlikowski, 1996, p. 65) to remain competitive. Despite the theoretical and practical importance of continuous organizational change, a central research question remains unsolved: Why and how do small changes amplify and accumulate at the organizational level, over time, to become continuous change?

Current research suggests that continuous organizational change is likely to originate from the bottom up (i.e., work-units; Feldman, 2000; Orlikowski, 1996; Weick & Quinn, 1999). Research to date has not offered a clear theoretical explanation of how small continuous changes at the lower level may lead to substantial change at the organizational level (Grieves, 2010; Smets, Morris, & Greenwood, 2012). Although work-units engage in continuous change at the lower levels (Feldman, 2000), these changes often go unrecognized by the organization itself (Tsoukas & Chia, 2002). Therefore, especially if we are to shed light on this phenomenon of continuous change from the bottom up, it is beneficial to adopt a multilevel perspective to explicate the mechanisms in which continuous change from lower level units is transferred within and across levels of the organization.

Our purpose for this article is to develop a theoretical model of emergent continuous organizational change, defined as the dynamic, interactive, and bottom-up processes that involve both work-unit members and managers in the amplification and accumulation of valuable, ongoing work-unit level changes over time that become substantial changes at the organizational level. We make three important contributions to the organizational change literature through our model (see [Figure 1](#)).



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Figure 1. Multilevel process model of emergent continuous organizational change.

First, we develop a theoretical model to explain how routine changes at the work-unit level amplify and accumulate at the organizational level to constitute emergent continuous change. Because routines are generative in nature ([Becker, Lazaric, Nelson, & Winter, 2005](#); [Nelson & Winter, 1982](#)), we argue that routine changes at the work-unit level are a form of continuous change ([Feldman, 2000](#); [Feldman & Pentland, 2003](#)). We contribute to the limited literature on bottom-up processes, which hold much interest and potential in the organizational change literature ([Smets et al., 2012](#)). Second, we heed the call of a growing group of organizational change scholars to take a multilevel perspective on our theorizing (e.g., [Caldwell, Herold, & Fedor, 2004](#); [Pettigrew et al., 2001](#); [Whelan-Barry, Gordon, & Hinings, 2003](#)). We develop a theoretical narrative that connects meso (work-unit level) and macro (organizational level) levels of theory. We integrate the attention-based theory of search ([Li, Maggitti, Smith, Tesluk, & Katila, 2013](#); [Ocasio, 2011](#)) in a multilevel framework to illustrate how specific work-unit level routine change may be interpreted and adapted across the organization through the cognitive mechanisms of both managers and work unit members—either homogeneously (i.e., composition emergence: a similar change is shared across other work units), or heterogeneously (i.e., compilation emergence: a pattern of different changes across other work units; [Kozlowski & Klein, 2000](#)). Third, we integrate the sensemaking literature with temporal concepts to reflect the ongoing process of organizing ([Weick et al., 2005](#)). This integration is central to our understanding of how managers facilitate the accumulation of multiple streams of emergent changes in the organization. We propose that managers do so by considering the temporal arrangement of these emergent changes with respect not only to themselves, but also to ongoing streams of organizational activities and events ([Ballard, 2009](#); [Huy, 2001](#); [Plowman et al., 2007](#); [Smets et al., 2012](#)). Overall, our model provides a coherent explanation of why and how changes within work-units may amplify and accumulate over time to constitute emergent continuous organizational change.

Continuous Change at Work-Unit Level

The distinctive characteristic of emergent continuous organizational change lies in the way small continuous adjustments, created simultaneously across different units, amplify and accumulate to become substantial changes at the organizational level over time. The amplification aspect relates to the process in which a single lower-level change (i.e., work unit level) can emerge to the organizational level (e.g., [Ford, Ford, & D'Amelio, 2008](#); [Plowman et al., 2007](#)). The accumulation aspect relates to the process in which a series of emergent changes can be woven into a coherent thread of change at the organizational level (e.g., [Weick & Quinn, 1999](#)). Emergent continuous organizational change, unlike episodic organizational change, is not triggered by identifiable intentional major interruptions ([Weick & Quinn, 1999](#)), but instead, represents a model of organizational change that is driven by constituents within the organization. Our model of organizational change offers a unique proposition for organizations to enable a change that originates from within, instead of a change that is precipitated by unpredictable external events.

We start our model of emergent continuous organizational change at the work-unit level, where we define the *work-units* as a collection of individuals “who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems” (Cohen & Bailey, 1997, p. 241). Because the work-unit sits at the juncture of micro-origins (e.g., individual members) and contextual constraints (e.g., organizational level factors and constraints), it is an ideal target for the study of emergence (Kozlowski & Chao, 2012). Further, work-units execute critical task performance in organizations (Parmigiani & Howard-Grenville, 2011; Zellmer-Bruhn, 2003) and they provide opportunities for members to test, refine, and implement changes (Miron-Spektor, Erez, & Naveh, 2011).

The routine literature also regards routine change as one of the key origins of continuous change (Feldman, 2000; Feldman & Pentland, 2003; Pentland, Haerem, & Hillison, 2011). This argument is consistent with Weick and Quinn’s (1999) theorizing of continuous organizational change as “small continuous adjustments, created simultaneously across units, [which] can cumulate and create substantial change” (p. 375). *Routines* are “effortful accomplishments” (Pentland & Rueter, 1994, p. 488) performed by a group of individuals in the organization. In brief, routines are often enacted at the work-unit level.

There are two distinct aspects of routines: the *ostensive aspect*, which is the “abstract, generalized idea of the routine,” and the *performative aspect*, which consists of “specific actions, by specific people, in specific places and times” (Feldman & Pentland, 2003, p. 101). The ostensive aspect represents the abstract cognitive structure of the routines, whereas the performative aspect represents actual behaviors of the individuals who are performing the routines (Parmigiani & Howard-Grenville, 2011). This performative aspect of routine suggests that individuals are capable of adapting existing routines based on “ongoing changes and reflecting on the meaning of actions for future realities” (Feldman & Pentland, 2003, p. 95). In line with the agency view, routines are generative in nature (Becker et al., 2005; Nelson & Winter, 1982). Individuals often make adjustments to existing routines based on a new understanding of what they can achieve and the consequences of their actions (Feldman, 2000). Feldman theorized two specific kinds of work-unit level outcomes that have the potential to develop into continuous change: outcomes that fall short of ideals (*striving*) and outcomes that present new opportunities (*expanding*). Each of these two types of outcomes will elicit a change response from the work unit. For example, when the work unit’s actions provide outcomes with new opportunities (e.g., a new procedure to organize an existing color-filing system in a furniture design firm; Salvato, 2009), the unit may respond to this outcome by expanding the existing routine to incorporate this new change. On the other hand, when a work unit’s actions present a shortfall of ideas (e.g., failing to meet the standards of performance), the work unit may respond to this outcome by adjusting the existing routine to strive for a higher, difficult, but not impossible, standard. We argue that it is this ongoing adjustment process of routine changes at the work-unit level that eventually lead to continuous change at the organizational level from the bottom-up.

Proposition 1: A work unit creates ongoing routine changes that may amplify and accumulate over time to form emergent continuous organizational change.

Now that we have explained why work-unit level routine change is an important source of emergent continuous organizational change, we proceed to explain how the managers and work-unit members’ attention-based search mechanisms may facilitate the amplification of these work-unit level routine changes to the organizational level.

Attention-Based Search Mechanisms Driving the Emergence Processes

Attention is regarded as a cognitive process that involves the noticing, interpreting, and focusing of time and effort on the acquisition of knowledge and information (Kahneman, 1973). Relatedly, *search* is defined as the “controlled and proactive process of attending to, examining, and evaluating new knowledge” (Li et al., 2013, p. 893). As individuals engage in searching, they channel their attention to specific aspects of the environment while ignoring others. For instance, top management teams’ search and identification of new knowledge and information is central to new product introductions (Li et al., 2013). When a top management team is equipped with new knowledge and information, it makes better strategic decisions regarding innovation and firm growth (e.g., Cyert & March, 1963; Katila et al., 2012). Similarly, these search mechanisms determine the extent to which the routine change from a particular work unit will be noticed and evaluated.

To date, the attention literature has focused exclusively on managers rather than organizational constituents. This emphasis on the managers’ attention-based search processes is likely because of the strong theoretical and empirical connections between managerial search and firm innovation (e.g., Cyert & March, 1963; Katila et al., 2012; Thompson, 1967). However, growing research on employee proactivity (e.g., Griffin, Neal, & Parker, 2007) suggests that the search processes of nonmanagerial individuals should not be ignored in the discussion of continuous change. Likewise, work-unit members are involved in routine change within their respective work-units (e.g., Feldman, 2000). Therefore, we focus on both managers and work-unit members’ attention-based search mechanisms in our model.

There are two key attention-based search mechanisms (Li et al., 2013; Ocasio, 2011). First, *search selection* relates to individuals’ choice of the location to which they will direct their attention during an information search. Given individuals’ limited information-processing capacity (Ocasio, 2011), they are often unable to process all external stimuli simultaneously and they must determine the range of stimuli in the environment to focus on and which to filter out (Lavie, 1995). Search selection pinpoints “where” stakeholders look for new information and determines the scope and kind of information available to be noticed and focused on (Fiske & Taylor, 2008). Different stakeholders gravitate toward different information in the organization (Ocasio, 1997). Individuals with more power (e.g., managers) show greater flexibility in their attention by changing their focus of attention more readily, based on how relevant the information is to their motivations and goals (Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008; Guinote, 2007; Guinote, 2017). Because managers are expected to contribute to organizational innovation (Mollick, 2012), one of the managers’ goals is to select and promote novel ideas for further development and implementation (Burgelman, 1991; Kanter, 1982). In tandem with selective attention theory, novel, salient, and vivid information stand out against other stimuli in the environment (McArthur & Post, 1977). Novel information is more likely to enter the consciousness of the information searchers as well as affect their subsequent actions (Daft & Weick, 1984; Dutton, Ashford, O’Neill, & Lawrence, 2001; Sullivan, 2010). Thus, we expect managers’ search selection to be drawn toward distinctive work-unit level routine changes.

In contrast, work-unit members are attracted to information that is likely to suggest a solution to their own specific problems (problemistic search; Cyert & March, 1963). Individuals with less power (e.g., work-unit members) show less flexibility in their attention and tend to focus primarily on information that are relevant to them (Guinote, 2007; Guinote, 2017). Because work-unit members are expected to enact and perform their work-unit level routines effectively, they are more likely to pay attention to other work-units that are structurally similar to theirs to maximize the chances of finding a solution from known sources (Burt, 1987; Contractor & Eisenberg, 1990). In addition, work-unit members may search for information from both proximal and distal

work-units without a defined problem to resolve. They cast a wider search parameter by relying on a multitude of probes to identify potential sources of routine change from which to learn (Bresman, 2013). Thus, we expect work-unit members' search selection to be drawn toward work-unit level routine changes that are most relevant to their work-units.

Second, *search intensity* refers to the extent to which individuals allocate effort and persistence to the attention processes (Kahneman, 1973; Ocasio, 2011). It represents individuals' cognitive capacity to notice, interpret, and make sense of the information in the environment (Kahneman, 1973; Weick, 1995). Search intensity has a significant impact on organizational level outcomes. Individuals who are not persistent in their information gathering might end up endorsing a compromised alternative rather than exploring all promising alternatives in a more rigorous manner (Schwenk, 1984). In addition, individuals produce lower rates of idea adaption when their information gathering is less rigorous (Nutt, 1993). When managers use less effective and persistent search processes, they may also invest prematurely in a suboptimal change (Levitt & March, 1988).

Although the function of search intensity appears similar for either stakeholder, we argue that the motivational force behind each type of search intensity is largely distinct from each other. Managers' search intensity is influenced by attention structures, defined as social, economic, and cultural structures that influence the allocation of time, effort, and attentional focus of managers in the organization (March & Olsen, 1976). These structures determine how managerial attention is divided between internal and external environments and direct the extent to which communication and interaction patterns between work unit members and managers develop (Barnett, 2008; Ocasio & Joseph, 2005). One concrete example of attention structures is termed the *rules of the game*, defined as "formal and informal principles of action, interaction, and interpretation that guide and constrain decision-makers in accomplishing the firm's tasks and in obtaining social status, credits, and rewards in the process" (Ocasio, 1997, p. 196). Organizations with structures in place to consistently reward managers who devote their attention to novel changes from within the organization (e.g., from work-units) are more likely to inspire them to demonstrate a higher level of cognitive persistence and effort so as to notice and evaluate the quality of work-unit level routine changes (i.e., search intensity).

Although managers are expected to pay attention to innovation from their immediate environments (internal and external; Mollick, 2012), work-unit members are expected to enact work-unit level routines as part of their daily work. As Pentland and colleagues (2011) aptly summarized: "Each performance is an occasion for repetition, but it is also an occasion for improvisation or error; thus larger numbers of performance create more opportunity for change" (p. 1371). However, the opportunity for change does not automatically translate into action for change; instead, work-unit members have to manage the tension between the need to ensure consistency and the need to respond to change in their enactment of routines (Turner & Rindova, 2012). Because work-unit members' search mechanisms are not formal expectations from the management, we contend that members' search intensity is more likely to be influenced by proximal psychological processes within the work unit. For instance, identification with a group or unit is likely to motivate a group of individuals to engage in collective action to improve the current situation (Drury & Reicher, 2005). It follows that work-unit members who identify strongly with the unit are likely to increase their cognitive effort to evaluate the potential change that opportunities present in their interactions with other work units. Now that we have explained the different mechanisms behind work-unit members and managers' search intensity, we proceed to elaborate on how these search mechanisms illustrate the amplification aspect of our model.

Amplification Over Time: Emergence Processes

A complete discussion of how and why a phenomenon at the lower level may coalesce to form a higher level construct (i.e., emergence process; [Kozlowski & Klein, 2000](#)) should include specifying the what, *elemental content*, and the how, *interaction*. The elemental content represents the raw material for emergence, such as cognition, affect, and/or behavior. The interaction represents the nature of interpersonal exchanges critical to the transfer of the elemental content within and across the different levels of theory. For example, group mood (affect) represents emergent-group level properties with origins in the elemental content (e.g., individual mood) provided by the group members, and is created through the interaction process of communication and interaction among group members. We propose that work-unit level routine change represents the elemental content ([Kozlowski & Klein, 2000](#)), whereas the search mechanisms of key stakeholders represent the interaction process ([Kozlowski & Klein, 2000](#)) in our model.

Managers and work-unit members perceive and interpret work-unit level routine change according to their own cognitive lens ([Kozlowski & Chao, 2012](#)). These stakeholders interact, communicate, and exchange their perceptions of the routine change based on how each individual selectively chooses the type of information to pay attention to (i.e., search selection) and to what extent each individual possesses the cognitive capacity to process and evaluate the value of the information (i.e., search intensity). Different patterns of search mechanisms will influence the type of emergence processes we observe in the organization. The single routine change may be homogeneously interpreted and adapted across other work units (i.e., composition emergence) or the same routine change may be heterogeneously interpreted and adapted across other work units (i.e., compilation emergence). In sum, the search mechanisms explain the nature of interpersonal exchanges among work-unit members and managers that are critical to the transfer of work-unit level routine change (i.e., elemental content) within and across the levels of our phenomenon ([Kozlowski & Klein, 2000](#)).

Proposition 2: Work-unit members and managers' search selection and search intensity on a single work-unit level routine change constitute the amplification aspect of emergent continuous organizational change.

Composition Emergence Process

Composition emergence of emergent continuous organizational change occurs when the work-unit level routine change is shared across other work-units ([Kozlowski & Chao, 2012](#)). This type of emergence reflects homogeneity in the way the work-unit level routine change (i.e., elemental content) is interpreted and adapted across other work units. We clarify here that the example we highlight only shows a snapshot of one particular composition emergence in the organization; there might be other types of emergence processes (e.g., composition and/or compilation) occurring at the same time.

We illustrate composition emergence with an empirical example. When a particular work unit in a designer home-furnishing firm implemented a new method of organizing color for one of its projects, the managers paid attention to this routine change and ultimately elevated it to the organizational level ([Salvato, 2009](#)). Once the color routine change caught the attention of the senior managers, they introduced significant refinement and codification to scale up the routine change to the organizational level. The managers evaluated the potential contributions of the lower level routine change to the organization as a whole and then made the decision to create a shared interpretation and adaptation of the routine change across the organization. To achieve this, they initiated further research on the color organization, and they conducted training for other organizational constituents involved in the design procedure requiring the color organizing routine.

A key condition of composition emergence process is the strong embeddedness of the focal routine, which represents the extent to which the use of the routine overlaps with the enactment of other organizational structures (Howard-Grenville, 2005). The embeddedness of a routine will determine the flexibility of its enactment and the ongoing consequences of its flexible use. A strongly embedded routine means that any change in this particular routine should bring significant consequences to other organizational constituents. In our example of the color organizing routine, because it is a critical routine that involved the organization's design procedure, any potential change in the routine would induce considerable impact on other work-units. Although a strongly embedded routine should not deter work-unit members from improvising their own enactment of that particular routine, the nature of the routine's overlap with other organizational structures means that other work-units often are constrained in their interpretation and adaptation of the same routine change to their work-units (Howard-Grenville, 2005, p. 619). A strongly embedded routine signals a need to create shared interpretation and adaptation of the change across affected organizational constituents for the change to radiate beyond the focal work unit. Because the color organizing routine change was related to the design procedure in the organization, managers played a critical role in fostering a common or shared interpretation and adaptation of the change. Managers enable, rather than control, the outcomes of composition emergence by developing conditions that are conducive for bottom up changes (Marion & Uhl-Bien, 2001).

Because managers enable the creation of shared interpretation and adaptation of the strongly embedded routine change, the attention-based search mechanisms of the managers are central to our discussion of composition emergence. First, managers' search selection tends to lean toward novel, salient, and vivid information (Dutton, Ashford, O'Neill, & Lawrence, 2001). Managers' limited attentional capacities require them to select parts of their environment to attend to (e.g., Cyert & March, 1963). Novel information often provides raw material for organizational innovation (Katila, 2002). Strongly embedded routines are also likely to be more salient to managers because of how tightly coupled these routines are with ongoing organizational practices, including norms of appropriate behaviors that enable and constrain types and sequences of action (Pentland, 1995). Put together, managers are more likely to notice novel work-unit level routine changes that are strongly embedded. At the same time, it is also possible for other work-unit members to notice the strongly embedded routine change in the first place and bring the change to the managers' attention. For example, work-unit members may highlight a strongly embedded routine change that may bring significant consequences to other work-units. The basic idea in composition emergence is that managers need to be made aware of the strongly embedded routine change, whether it is through their own search or brought to their attention by work-unit members.

Second, managers with higher search intensity will increase their effort and persistence to attend to novel salient routine changes at the work-unit level. Effortful and persistent attention will lead to higher levels of cognitive capacity channeled to notice, interpret, and make sense of information and knowledge (Kahneman, 1973; Weick, 1995). In turn, this increased cognitive capacity enables managers to evaluate the scalability and value of the work-unit level routine change at the organizational level (e.g., Plowman et al., 2007; Smets et al., 2012). In the color organizing routine example, its success was due to the managers' attention to seeking out novel changes in the work environment and their effort to evaluate the impact of the observed routine change on the firm's design procedure.

Work-Unit Level Versus Organizational Level

It is crucial to highlight and explain the subtle yet important differences between continuous change at the work-unit level and continuous change at the organizational level. We contend that in composition emergence, work-unit level routine change and continuous organizational change are only partially isomorphic; both constructs remain conceptually distinct despite sharing some common features (Chan, 1998). Multilevel scholars assert that it is extremely rare for both higher and lower level constructs to be perfectly isomorphic (see Chan, 1998; Kozlowski & Klein, 2000). Bliese (2000) described the process through which partial isomorphism occurs as “fuzzy composition,” whereby “the main difference between a lower level and an aggregate level variable is that the aggregate variable contains higher level *contextual influences* that are not captured by the lower level construct” (pp. 369–370; italics added for emphasis). This means that the specific routine change that is interpreted and adapted at the organizational level is not completely identical to the original routine change instituted at the work-unit level because the managers seek to implement the change in a way that is relevant and useful to the rest of the organizational constituents. In other words, the managers’ effort in the process reflects the contextual influences that are not usually present in continuous change at the work-unit level.

Proposition 3: Composition emergence is more likely to occur when (1) the routine is strongly embedded, and (2) managers with high search intensity create a shared interpretation and adaptation of the routine change.

We turn now to a discussion of the compilation emergence process.

The Compilation Emergence Process

Compilation emergence of emergent continuous organizational change occurs when distinctly different work-unit level routine changes are integrated across the organization to form a pattern of change (Kozlowski & Klein, 2000). In compilation emergence, we expect to observe a heterogeneous pattern of work-unit level routine changes (i.e., elemental content) at the organizational level. This is a result of the pattern and nature of attention-based mechanisms among key stakeholders (i.e., interaction). Kozlowski and Chao (2012) noted that this form of emergence is analogous to the way “different puzzle pieces fit together to create a meaningful unit” (p. 44).

As an example of compilation emergence, we point to an empirical study examining how a change introduced by a group of church members led to a distinct pattern of change that was observed at the organizational level (Plowman et al., 2007). The members began by offering free hot breakfasts to the homeless on Sunday mornings. Interest from the church members and the homeless community began to grow, and other groups in the church began to find different ways of providing assistance to the homeless (e.g., medical consultation, dental hygiene clinic). Ultimately, the church’s pastors formalized their commitment to the recently initiated change and took the role of “giving meaning to the changes that were unfolding rather than creating and directing the changes” (Plowman et al., 2007, p. 538). Thus, different groups in the church contextualized change in a way that was qualitatively different from the concept developed by the initial group that came up with the idea to offer breakfast. What started out as an idea for breakfast as part of an outreach routine initiated by a small group of church members eventually developed into different interpretations as well as an adaptation of the initial outreach routine. Thus, one group of church members began to start a medical clinic, whereas another group initiated a dental clinic.

Unlike composition emergence, the key condition of the compilation emergence process is the weak embeddedness of the routine. A weakly embedded routine means that there is greater flexible in how a work unit interprets and adapts the routine change and the change itself should not bring significant consequences

to other organizational constituents. In our example of outreach routine, because the routine is volunteer-based and not entwined with the key function of the church, we expect that any change in the routine would induce minimal impact on the various groups in the church. At the work-unit level, members in the unit often make the internal decision about any routine change, provided that the proposed change does not have a significant impact beyond the focal work unit (Bresman, 2013; Feldman, 2000; Pentland et al., 2011). For weakly embedded routine change, the work-unit members have the discretion to interpret and adapt the specific routine change to suit their work-unit's requirement without the support of managers (Howard-Grenville, 2005). For these reasons, work-unit members' heterogeneous interpretation and adaptation of the weakly embedded routine change are central to our discussion of compilation emergence.

In terms of search selection, there are two different approaches for work-unit members. First, in accordance with the "problemistic" search approach (Cyert & March, 1963), work-unit members may seek routine change from units that are most likely to offer a viable solution to their own specific problems. Work-unit members pay attention to other work-units that are structurally similar to them to maximize the chances of finding a solution from known sources (Burt, 1987; Contractor & Eisenberg, 1990). Second, in contrast to "problemistic" search, work-unit members may also search for routine change from both proximal and distal work-units without a defined problem to resolve. Here, work-unit members cast a wider search parameter by relying on a multitude of probes to identify potential sources of routine change from which to learn. In sum, work-unit members' search selection is channeled toward routine changes that are beneficial to the work-unit's present or future performance. At the same time, it is possible for managers to notice the weakly embedded routine change in the first place and bring the change to work-unit members' attention. For example, a manager may highlight a routine change that is weakly embedded within the work-unit and encourage the members to adapt the change to their existing routines. The basic idea in compilation emergence is that work-unit members need to be made aware of the weakly embedded routine change, whether it is through their own search or is brought to their attention by the managers.

We expect members with high search intensity to (a) devote effort and persistence to notice, interpret, and make sense of the routine change from the focal work-unit (Kahneman, 1973; Weick, 1995), and (b) spend considerable cognitive resources to evaluate the benefits of the observed routine change to their own work-units (Li et al., 2013). Once members have determined that the observed routine change is relevant and useful to their own work-unit, their next step is to decide on the best strategy to adapt and contextualize the change (Bresman, 2013). In today's dynamic work environment (Scott & Davis, 2007), work-unit members often rely on different methods of change adaptation (Bresman, 2013). For example, work-unit members may adapt routine change to their own work-units, based on an underlying concept or principle, instead of the specific content: work-unit members "can combine aspects of various models that they have imitated into a constellation that differs substantially from the original models" (Bresman, 2013, p. 52). In the example of the outreach routine, the initial group came up with the idea to change the outreach routine by offering hot breakfasts to the homeless. Groups within the church observed the same outreach routine change, but in the end, some groups developed different interpretations and adaptations of this specific routine change. Group members with higher search intensity not only noticed the outreach routine change but also spent considerable effort to interpret and adapt the routine change in a way that made a significant contribution to outreach.

Proposition 4: Compilation emergence is more likely to occur when (a) the routine is weakly embedded and when (b) work-unit members with high search intensity create different interpretations and adaptations of the observed routine change that is beneficial to their work-units' performance.

Accumulation Over Time: Composition and Compilation Emergence

Now, we elaborate on how these emergent changes accumulate over time. Different types of emergence processes may occur simultaneously in the organization, across multiple stakeholders and across different work-units. For example, a routine change from work-unit A may lead to a shared homogenous interpretation and adaptation of that particular change across other work-units (i.e., composition emergence). Happening at about the same time, a routine change from work-unit B may lead to a highly heterogeneous interpretation and adaptation of that particular change across other work-units (i.e., compilation emergence). Emergent continuous organizational change, therefore, is an accumulation of the emergent changes that resulted from a series of composition and/or compilation emergence processes in a particular time period (e.g., from Time X to Time Y). This accumulation of change over time distinguishes continuous organizational change from episodic organizational change: continuous organizational change consists of a series of changes over time that may make it difficult for observers to identify their sources (e.g., routine changes from specific work units). Episodic organizational change usually consists of changes that can be identified by a specific major disruptive event as the source. We propose that emergent continuous organizational change is “carried out by multiple actors in multiple series of events” (Bartunek & Woodman, 2015, p. 170).

Existing research has pointed to contrasting conclusions regarding change frequency in organizations. On one hand, scholars contest that frequent change enables an organization to better align itself with constantly evolving contexts and thereby reap positive effects on firm performance (Amburgey, Kelley, & Barnett, 1993; Cohen & Bacdayan, 1994). On the other hand, scholars argue that frequent changes to established routines require organizational members to constantly identify new routines through search mechanisms (e.g., Hedberg, 1981) that consume organizational resources. Routines are important mechanisms to translate collective experience into organizational performance (Levinthal & March, 1993). Frequent changes place a greater demand on management's cognitive resources, elevating the potential risk of information overload (Huber, 1991) and ineffective decision-making (Hambrick, Finkelstein, & Mooney, 2005), which lead to negative effect on a firm's performance.

Because the very nature of continuous change necessitates a higher change frequency for the organization experiencing this model of change, we propose that managers in their roles as sensemakers (Weick & Quinn, 1999) facilitate the accumulation of emergent changes over time. Consistent with Weick's (1995) articulation, *sensemaking* refers to the manager's effort to create order and coherent understanding among organizational constituents so as to enable change in the organization. Sensemaking involves the construction and deconstruction of meaning (Gioia & Chittipeddi, 1991) by managers to create a coherent narrative for the emergent changes. Indeed, the accumulation of emergent changes over time at the organizational level requires synchronized activity cycles across the organization (Ballard, 2009). We clarify that our discussion of managers' roles as sensemakers does not contradict our overarching theme of bottom up changes. When faced with changes in the organization, managers are expected to facilitate organizational constituents' reframing of what the change entails (Bartunek, 1984; Isabella, 1990). Organizational constituents need to comprehend the intended organizational level change in a way that “fits into some revised interpretive scheme or system of meaning” (Gioia & Chittipeddi, 1991). The accumulation of emergent changes over time is likely to create some level of conflict within the organization.

Sensemaking is the effort by managers to create orderly and meaningful understanding of the emergent changes (Weick et al., 2005). In this regard, the manager's role is not about controlling or dictating how the

emergent changes should unfold in the organization. Rather, the manager's role is about reframing the series of emergent changes, which have already taken place at different parts of the organization, in a way that is meaningful for the rest of the organization.

Managers articulate new or different schemata that give meaning to the emergent changes through tools of language and symbols (Bartunek & Woodman, 2015), which then enable organizational constituents to think and act in agreement with the emerging changes (e.g., Elsbach, Barr, & Hargadon, 2005; Rerup & Feldman, 2011). Organizational schemata are frames of reference shared among members of an organization (Bartunek, 1984); people draw on these schemata to interpret, understand, and respond to change within their environment (Rerup & Feldman, 2011). Therefore, in the context of emergent continuous organizational change, managers "enact a more workable certainty—a negotiated understanding" (Lüscher & Lewis, 2008) to give meaning to the accumulation of emergent changes over time. Weick and colleagues (2005) aptly described the sensemaking process as "continued redrafting of an emerging story so that it becomes more comprehensive, incorporates more of the observed data, and is more resilient in the face of criticism" (p. 415).

Managers who facilitate the accumulation of emergent changes can develop "modification routines" (Nelson & Winter, 1982, p. 17) that are procedures for the organization to change or create new routines (Levitt & March, 1988). Modification routines increase the organization's capacity for future change. As Amburgey and colleagues argued, "the more an organization changes its operating routines, the more likely it is to develop the modification routines needed to make further, similar changes" (Amburgey et al., 1993, p. 54). This suggests that as managers become more successful in facilitating the accumulation of emergent changes at the organizational level, over time they will develop modification routines that lay out the blueprint for future continuous change in the organization.

Going further, we heed the call from organizational change scholars (e.g., Albert, 2013; Bartunek & Woodman, 2015; Huy, 2001; Pettigrew et al., 2001) to consider temporal concepts in developing organizational change theory. In particular, these temporal concepts will elevate our understanding of how managerial sensemaking can facilitate the accumulation of emergent changes over time. *Sequencing* refers to a temporal ordering of events, including recognizable steps and stages, or the order of events within a particular stage or phase (Bluedorn, 2002; Langley, 1999). Managers need to consider the sequencing of emergent changes in a manner that creates the most coherent meaning for organizational constituents. The assumption is that a certain order of how changes are introduced to the organization has consequences for the integrity of the phenomenon of change (Werner, Haggard, Altman, & Oxley, 1988) and also for the receptivity of organizational constituents. As an example, consider two emergent changes that are related to the recruitment procedure in the organization: the first emergent change is about refining the selection process (i.e., shortlist) and the second emergent change is about refining the interview process. In such a situation, managers can facilitate the accumulation of these two emergent changes at the organizational level by framing the changes in a way that reflects the recognizable steps and stages of how the recruitment procedure is usually enacted. The overall change is more coherent when the managers articulate the recognizable sequence from the changes with the sequencing of the recruitment procedure in mind, which means creating a narrative that highlights the change in selection process before the change in interview process.

Proposition 5a: Managers create coherent meaning for the accumulation of emergent changes when they articulate the recognizable sequence from these changes.

Timing represents the right time for change, an occasion where there is readiness for change (Albert, 2013; Armenakis et al., 1993; Tyre & Orlikowski, 1994). Huy (2001) aptly explains, “good timing captures windows of opportunity in which an intervention can benefit from better receptivity to change and more bountiful resources” (p. 613). A vital function of managerial sensemaking is to create meaning across multiple streams of actions and events occurring simultaneously within the organizations (e.g., Huy, 2001; Plowman et al., 2007; Smets et al., 2012). When organizational constituents are provided opportunities to acclimate to the changes, the level of change readiness for the organization will be significantly higher (Albert, 2013; Armenakis et al., 1993). One strategy is to frame the emergent changes as one single change. For example, train stations often synchronize change in train schedules at the same time with the daylight saving time adjustment (Landes, 1983). Similarly, managers can articulate a coherent meaning of the emergent changes by connecting these changes to a window of opportunity for change. In doing so, managers alleviate the pressure on organizational constituents to do multiple things at different times and thus increase their receptivity toward the emergent changes (Huy, 2001). Furthermore, managers are in a good position to articulate a coherent narrative of the emergent changes when these changes are tied closely to a window of opportunity. For example, when managers frame these emergent changes as part of the ongoing changes associated to the start of the fiscal year (a window of opportunity for change), they are able to offer a compelling narrative of why these change matter to the organizational constituents.

Proposition 5b: Managers create coherent meaning for the accumulation of emergent changes when they articulate the window of opportunity for these changes.

Pacing refers to the momentum of change (Ancona & Chong, 1996). Change itself can take on a different speed as it unfolds over time in an organization (Huy, 2001). This is an important factor to consider in the accumulation of emergent changes over time. Managers need to understand the characteristics of each emergent change and articulate the momentum necessary for the change to accumulate at the organizational level. For example, managers should articulate that novel emergent changes (e.g., composition emergence) require a faster pace of change in their sensemaking to the organizational members to convey a sense of urgency that keeps everyone driven to maintain the pace (Brown & Eisenhardt, 1997).

Proposition 5c. Managers create coherent meaning for the accumulation of emergent changes when they articulate the pace of change for these changes.

Finally, the rhythm of change refers to the timing of multiple changes in a given period (Klarner & Raisch, 2013). In the context of emergent continuous organizational change, the rhythm of change determines the pattern of variability in the intensity and frequency of organizational activities, which is often characterized by periods of accelerated activity and slowed activity (Huy, 2001). A regular rhythm suggests that changes are distributed somewhat equally over a given time period: changes are scheduled to “maximize the shortest time span between subsequent changes” (Klarner & Raisch, 2013, p. 163). In doing so, an organization with a regular rhythm of change reduces the risk of information overload, which often surfaces when multiple changes are initiated within a short time frame (Huber, 1991). A regular change rhythm also helps managers to retain and leverage modification routines from previous changes (Amburgey et al., 1993). On the other hand, an irregular rhythm suggests that periods of change and stability vary significantly in their duration: changes have a “longer maximum time span between subsequent changes than a regular change rhythm has” (Klarner & Raisch, 2013, p. 164). An organization with an irregular change rhythm increases the risk of information overload, which occurs when too many strategic decisions must be made in a short time frame (Huber, 1991). Such long periods of stability may create inertia that is too strong for the organization to incorporate subsequent changes (Hannan & Freeman, 1977; e.g., managers articulate a coherent meaningful narrative of

emergent changes when they are aware of the time span between organizational activities and make a concerted effort to create a sense of regular organizational rhythm for these emergent changes).

Proposition 5d: Managers create coherent meaning for the accumulation of emergent changes when they articulate a sense of regular organizational rhythm for these changes.

Discussion

Overall, we make several key theoretical contributions to the organizational change literature. First, we developed a theoretical model to explain how routine changes at the work-unit level amplify and accumulate at the organizational level to constitute emergent continuous organizational change. We center our focus squarely on emergent continuous organizational change because, while bottom-up processes hold much interest and potential, they have too often been ignored or neglected (Smets et al., 2012). Through our discussion of the complex pathways in which continuous change can emerge from the bottom up, we broaden our understanding of different change models. Surprisingly, the organizational change literature gravitates toward the model of episodic change, which is characterized by infrequent and disruptive events (e.g., technology change, shifts in markets; Greenwood & Hinings, 1996; Herscovitch & Meyer, 2002; Tushman & Romanelli, 1985) leading to top down, intentional change interventions (Weick & Quinn, 1999). Although the episodic model of change may account for some of the large-scale organizational changes at least every 4 to 5 years (Lewis, 1999), we are neglecting ongoing, cumulative, and substantive changes that are continuous in nature (Pettigrew et al., 2001). Our model enriches both scholars' and practitioners' understanding of emergent continuous organizational change by enabling them to predict, explain, and support this important model of change. Only with a strong grasp of the underlying mechanisms driving emergent continuous organizational change, are organizations empowered to produce the desired outcomes associated with continuous change, including learning and innovation (Brown & Eisenhardt, 1997; Orlikowski, 1996).

Second, we provide a multilevel foundation for organizational change scholars to extend our understanding of bottom up change. We heed the call from organizational change scholars (Caldwell et al., 2004; Pettigrew et al., 2001; Whelan-Barry et al., 2003) to adopt a multilevel perspective in our model. There are some promising headways in the multilevel theorizing of change in an organization (e.g., change readiness: Rafferty, Jimmieson, & Armenakis, 2013; routines and capabilities: Salvato & Rerup, 2011) and our process model contributes to this nascent development in the literature. In our model, we adhere to the key principles behind good multilevel theory, including specifying the phenomenon of interest at different levels of theory (e.g., work unit and organizational level) and addressing the key elements in our model (e.g., mechanisms driving emergence processes; e.g., House, Rousseau, & Thomas-Hunt, 1995; Klein, Dansereau, & Hall, 1994; Kozlowski & Klein, 2000). Our model answers the multilevel issues by explicating how a phenomenon at lower levels of the organization may influence an organizational level phenomenon (Hitt et al., 2007). Without addressing these multilevel issues relating to emergent continuous organizational change, the current literature is limited by potentially fallacious interpretations (e.g., assuming that the same theory is applicable across different levels; Kozlowski & Klein, 2000; Rousseau, 1985). Our theory also answers the call from multilevel theorists (Kozlowski & Klein, 2000) to study emergence processes beyond the micro and meso levels. We are encouraged that recent development in multilevel theory has witnessed the application of the emergence concept across different levels of the organization (e.g., emergence of unit-level human capital from individual's micro, meso, and macro levels: Ployhart & Moliterno, 2011; organizational learning at micro, meso, and macro levels: Kozlowski, Chao, & Jensen, 2010). The meso level of theory resides at the juncture of both micro origins and macro contextual constraints. Therefore, it is important to take advantage of its theoretical

uniqueness and extend the theoretical narrative beyond the individual-to-group relationship. Especially in the context of organizational change, where the phenomenon of interest is at the organizational level, the meso level of theory offers both important and novel insights into how interactions within and across unit levels may explain significant change at the organizational level.

In addition, we integrate the cognitive mechanisms of search selection and search intensity (Li et al., 2013; Ocasio, 2011) into our model to illuminate the critical emergence processes. In theorizing about an emergent phenomenon, it is essential for the theory to include a detailed account of the underlying mechanism driving the emergence of the lower level phenomenon. Because current research suggests that continuous organizational change is likely to originate from the lower level of the organization (i.e., work units; Grieves, 2010; Orlikowski, 1996; Smets et al., 2012; Weick & Quinn, 1999), we show how work-unit level routine change is transferred to the work-unit level and then amplified to the organizational level based on the interaction of work-unit members and managers' search mechanisms on the focal routine change. We highlight a key characteristic of the focal routine: the extent to which it is embedded within other organizational structures (Howard-Grenville, 2005) to explain the relative importance of each stakeholder's contribution to the emergence process. Our contribution to the organizational change literature stems from our explanation of the unique pathways for work-unit level routine changes to emerge from the bottom up (i.e., composition and compilation emergence). Relatedly, by providing a holistic discussion of emergent continuous organizational change through the search mechanisms of the work-unit members and managers, we also make a meaningful extension to the attention literature. The research spotlight has traditionally been cast on the managers' cognitive processes in the context of organizational change (e.g., Cyert & March, 1963; Katila et al., 2012; Thompson, 1967). Recognizing the employee proactivity literature in our model (e.g., Griffin et al., 2007), we take the important step of acknowledging the significance of employees' cognitive processes in emergent continuous organizational change.

Third, we highlight the significance of managerial sensemaking in supporting the accumulation of emergent changes over time. We integrate the sensemaking literature with temporal concepts to elevate our understanding of the complex relationship among multiple streams of emergent changes in the organization. Despite the consensus that sensemaking is an ongoing dynamic process of organizing (Weick et al., 2005) and that temporal dimensions are critical to our understanding of change involving human systems (Albert, 2013; Bartunek & Woodman, 2015), there has been limited theoretical progress to integrate sensemaking with temporal concepts. We shift the conversation away from managers who control and dictate how lower level changes are implemented at the organizational level; instead, we offer an alternative perspective of managers who seek to create orderly and coherent understandings of these ongoing emergent changes.

Future Research

Our model reveals exciting avenues for scholars of organizational change in the future. Pettigrew and colleagues (2001) projected that "the study of continuous change is difficult, time-consuming, and resource dependent" (p. 705). Having laid a foundation in our multilevel model, we encourage scholars to take up this empirical challenge armed with a better understanding of the mechanisms and processes behind emergent continuous organizational change. Recent developments in both multilevel theory and research methodology (Kozlowski, Chao, Grand, Braun, & Kuljanin, 2013) have paved new ways to test theory on the emergence processes through empirical studies. With regard to our theoretical model, we propose a mixed method design in the form of a two-phase exploratory sequential design (Greene, Caracelli, & Graham, 1989). First, given the dynamic nature of emergence processes, we suggest a qualitative approach to fully capture how stakeholders'

attention-based search mechanisms impact the emergence processes of work-unit level routine changes. This will involve tracking the trajectory of a series of single routine changes across time and capturing the different ways in which the stakeholders interact with these routine changes. Most routine researchers rely on qualitative research designs (e.g., [Howard-Grenville, 2005](#); [Pentland et al., 2011](#); [Turner & Rindova, 2012](#)) to provide rich accounts on the process mechanisms behind routine change in organizations. Second, we suggest a quantitative approach to triangulate the findings from the qualitative approach. For example, future researchers can rely on computational modeling ([Harrison, Lin, Carroll, & Carley, 2007](#); [Vancouver, Weinhardt, & Schmidt, 2010](#)) to capture the nuances of the stakeholders' attention-based search mechanisms over time.

In addition, future researchers could explore and test the antecedents of work-unit level routine change. Because work-unit level routine change is a key element in our model, our starting assumption is that continuous change is occurring at the work-unit level. Even though routine outcomes may present opportunities for change, work-unit members do not always participate in such endogenous change efforts. Organizational members often experience a strong challenge in picking up subtle signals for change, especially when they are faced with habitual routines ([Burke, Stagl, Salas, Pierce, & Kendall, 2006](#)). There is an ongoing call for more attention to the psychological processes behind the use of routines by organizational constituents (e.g., [Parmigiani & Howard-Grenville, 2011](#)). Relatedly, the collective action literature identifies social identity as a key mechanism explaining collective action among individuals ([van Zomeren, Postmes, & Spears, 2008](#)). Identification with a group (e.g., a disadvantaged social group) is more likely to motivate a group of individuals to participate in collective action to improve the current situation ([Drury & Reicher, 2005](#)). We encourage future researchers to explore different psychological processes that will explain work-unit members' motivation and effort to engage in routine change.

And finally, we acknowledge that the bottom-up perspective is not the only form of continuous organizational change. For example, continuous improvement is a top-down management approach to raise the efficiency of organizational processes and systems among organizational constituents ([Zangwell & Kantor, 1998](#)). Such improvements are derived through a series of management-intended methodologies and programs. Top-down, management-driven continuous organizational change is likely to be distinctly different from our model of emergent continuous organizational change. We encourage future researchers to embark on this important endeavor to pinpoint the differing mechanisms behind top-down continuous organizational change.

We began this article by highlighting the significance of continuous organizational change in today's complex environment. Unfortunately, the current literature tends not only to neglect the pervasiveness of continuous change in organizations, but also lacks a holistic theoretical explanation of the mechanisms behind emergent continuous organizational change. By focusing on the more minute, moment-to-moment change from the bottom up, we embark on an ambitious journey to explain emergent continuous organizational change. We integrate various pieces of critical literature, including key ideas from routine attention-based search and sensemaking in developing a multilevel theoretical model. It is our hope that our theoretical model will stimulate innovation in future thinking and research on the important yet theoretically elusive phenomenon of continuous organizational change.

Footnotes

¹ To further differentiate our discussion of emergent continuous organizational change from similar literature, we contend that our proposed model departs from the literature on collective action/social movements. This literature examines why and how collective individuals are galvanized to bring about higher level changes (e.g.,

social change, institutional change; see [Rao, Morrill, & Zald, 2000](#)). Instead of focusing on definitive significant injustices and disadvantages faced by employees in the workplace (social movements; see [Yzerbyt, Dumont, Wigboldus, & Gordijn, 2003](#)) or disruptive cultural or economical imperatives (collective actions; see [Rao et al., 2000](#)), our model focuses on day-to-day valuable changes that are initiated by members within the organization.

² We thank an anonymous reviewer for bringing up this point.

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