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Organizational Resilience: Towards a Theory and Research Agenda

Timothy J. Vogus and Kathleen M. Sutcliffe

***Abstract* —** In this paper we outline the contours of a theory of organizational resilience as well as a research agenda. First, we identify how the notion of resilience has become increasingly important to all organizations and argue that organization theory currently does not reflect its importance. Second we reconcile varying definitions of resilience to create a definition of organizational resilience. Third, we identify the affective, cognitive, relational, and structural mechanisms constitutive of organizational resilience. Fourth, we develop research questions regarding the antecedents and mechanisms of resilience.

I. Introduction

WHY are some organizations and institutions capable of maintaining function and structure in the face of environmental jolts and other large disruptions? Why do some organizations crumble in the face of high levels of ongoing strain while others thrive and grow more resourceful and poised to tackle future challenges? We argue that answering these questions is increasingly important given that organizations exist in an increasingly tightly coupled and interactively complex world where the unexpected is omnipresent and the speed with which unexpected events can amplify into disaster is ever increasing (Weick and Sutcliffe, 2001). We further posit that existing organization theory research inadequately answers these questions and that a theory of *organizational resilience* needs to be developed to adequately do so (Sutcliffe and Vogus, 2003). Such a theory of organizational resilience would provide insight into *how* organizations and the individuals and units of which they are comprised continue to achieve desirable outcomes amidst adversity, strain, and significant barriers to adaptation or development. A resilience perspective would also promote a new way of seeing by arguing that organizations are more efficacious than some deterministic perspectives in organization theory (e.g., threat-rigidity, Staw, Sandelands, and Dutton, 1981) allow. In this brief commentary we map the contours of a theory of organizational resilience through defining resilience, elaborating the mechanisms of resilience, and outlining a potential research agenda.

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II. Resilience Defined

We define resilience as the maintenance of positive adjustment under challenging conditions such that the organization emerges from those conditions strengthened and more resourceful. By "challenging conditions" we include discrete errors, scandals, crises, and shocks, and disruptions of routines as well as ongoing risks (e.g., competition), stresses, and strain. We include both the sets of conditions (exogenous shocks and ongoing strain) because research has shown that the accumulation of small interruptions can compromise the safety of a system just as readily as a larger event (Rudolph and Repenning, 2002).

Adjusting in the face of challenging conditions is thought to strengthen the current entity as well as the future entity by creating "a hierarchical integration of behavioral systems whereby earlier structures are incorporated into later structures in increasingly complex forms" (Egeland, Carlson, & Sroufe, 1993: 518). In other words, resiling from ongoing strain and discrete jolts implies the presence of latent resources that can be activated, combined and recombined in new situations as challenges arise. As such, resilience implies more than a specific adaptation. This doesn't mean that competence in one period wholly predicts later competence in a linear deterministic way; rather competence in one period increases the probability of competence in the next. To be resilient is to be vitally prepared for adversity which requires "improvement in overall capability, i.e., a generalized capacity to investigate, to learn, and to act, without knowing in advance what one will be called to act upon" (Wildavsky, 1991: 70). In this way resilience relies upon past learning and fosters future learning, but exists independently of learning activities in that resilience represents a broader store of capabilities.

Our definition of resilience largely coincides with the emerging literature on resilience engineering (e.g., Woods, 2006). However, our approach does differ in one notable way. From the resilience engineering perspective, resilience relies upon anticipating unexpected events. We agree that anticipation is valuable for organizational performance in dynamic

environments. However, we believe it is useful to maintain analytical separation between an anticipatory approach that attempts to avoid error by design and a resilience approach that recognizes the inherent fallibility of any organizational system and instead attempts to monitor how closely the system is operating relative to its performance limits and to manage any deviations as quickly as possible once they emerge. To the extent that resilient organizations attempt to anticipate events, they are more likely to take the form of ongoing monitoring of their environment and/or simulating possible unexpected events. Both the monitoring and simulating are done to improve an organization's ability to detect unexpected events sooner when they are more easily corrected and to build capabilities for recovering from unexpected events rather than as a means of eliminating errors and unexpected events (Weick and Sutcliffe, 2001).

III. The Mechanisms of Resilience

Resilience results from processes and dynamics that create or retain resources (cognitive, emotional, relational, or structural) in a form sufficiently flexible, storable, convertible, and malleable that enables organizations to successfully cope with and learn from the unexpected (Sutcliffe and Vogus, 2003). As such, resilience inheres in beliefs as well as affective, behavioral, and cognitive processes. In this section we review literatures of relevance to organizational resilience with the intent of more precisely mapping the contours of the beliefs and practices, processes, and structures that give rise to resilience. Although they are grounded in prior research, the assertions made throughout this section should be treated as suggestive until they are directly examined empirically. We discuss directions that we find especially interesting and promising in Section IV.

Two specific beliefs seem to anchor resilient organizations. First, these organizations treat success lightly and are leery of the potential for the unexpected (Weick and Sutcliffe, 2001). In other words, resilient organizations assume their model of risks is in need of regular updating, their countermeasures are incomplete, and their grasp on safe operations is fragile.

In contrast, in brittle organizations the absence of failure is taken as an indication that hazards are not present or that countermeasures are adequate to handle potential anomalies. Brittle organizations are both readily overwhelmed by discrete shocks or the accumulation of minor interruptions and deviations from standard operating procedures (Rudolph and Repenning, 2002). Brittleness partially results from the belief that the absence of failure is confirmation of the absence of hazards or the effectiveness of designed countermeasures. In other words, a brittle organization treats deviations as requiring a burden of proof to be considered (i.e., "convince me it is an issue"). For example, in an analysis of the recent Columbia shuttle disaster, Woods (2005) describes how the imprecise picture of the foam strike that eventually led to the shuttle's disintegration upon re-entering the Earth's atmosphere was not seen as presenting a clear enough threat to safety.

A resilient organization treats such deviations as information on the overall health of the system. As such, the prevailing belief is more likely to be one of needing to be convinced of the safety or an action or that a deviation is not worthy of additional attention. Resilient organizations act like high reliability organizations (HROs) that operate in extremely trying conditions but experience few to no errors, by possessing an "intelligent wariness" (Reason, 1997) and a "preoccupation with failure" (Weick and Sutcliffe, 2001). As a result, resilient organizations often proactively seek out evidence to test their assumptions about risk and the overall health of the system (Weick and Sutcliffe, 2001). Consistent with welcoming news regarding the health of the organizational system and avoiding stale and narrow representations, resilient organizations encourage people to speak up regarding errors or conditions leading to errors. But resilient organizations take this one step further by recognizing speaking up as valuable even when the result is that production is stopped unnecessarily to prevent a potential error (Woods, 2006).

Second, resilient organizations also hold onto the belief that they can readily cope with a wide array of anomalies and are constantly striving to grow their capabilities to do so. In other words resilient organizations operate under the belief that they are imperfect but can become more perfect over time through learning from events and near events.

Resilience also relies upon processes, structures, and practices that promote competence, restore efficacy, and encourage growth endow organizations with capabilities to mediate jolts and increased strain (Vogus and Sutcliffe, 2003). These capabilities facilitate responses that meet the challenges of discrete jolts and ongoing strain by enlarging informational inputs, loosening control, and reconfiguring resources. Successfully resiling from one challenge also initiates a positive feedback loop to an organization's capabilities such that they are strengthened and further resilience in the face of novel events. The recurrent interplay between resilience and its constitutive capabilities also suggests that organizations can continuously bolster and refine their capabilities in a manner that allows them to

see more, remain flexible, and avoid the inertial tendencies that traditionally accrue with success. We would also argue that mechanisms of resilience described above both enable and result from a different way of seeing. Resilient organizations are better able to make sense of weak signals by maintaining and constantly updating their picture of ongoing operations and making it ever more nuanced and refined. In a sense resilient organizations notice relevant weak signals more quickly because these organizations have developed more capabilities for responding to a broader array of events.

Organizational resilience also counteracts tendencies toward threat-rigidity by treating disruptive events and persistent strain as opportunities rather than threats (Barnett and Pratt, 2000; Jackson and Dutton, 1988) as a result of better information processing systems and consistently managing small discrepancies as they emerge. For example, HROs (Weick and Sutcliffe, 2001) use "near misses" as information about the underlying health of the system and a source of learning.

Resilient organizations promote competence, restore efficacy, and encourage growth through the behavioral processes of mindful organizing enacted by front-line employees (Weick, Sutcliffe, and Obstfeld, 1999). Mindful organizing entails frontline care providers continuously developing, refining, and updating a shared understanding of the situation they face, the problems defining it, and what capabilities exist to ensure safe performance. It results from five ongoing interrelated behavioral processes that include - engaging in proactive and preemptive analysis of possible vulnerabilities (preoccupation with failure), questioning assumptions and received wisdom to create a more complete picture (reluctance to simplify interpretations), discussing the human and organizational capabilities that enable safe performance (sensitivity to operations), attempting to collectively learn from errors that have occurred (commitment to resilience), migrating decisions to the person or people with the greatest expertise with the problem at hand regardless of rank (deference to expertise). These behaviors enable frontline care providers to better detect and correct emerging and manifest errors in a timely manner that minimizes adverse outcomes.

The emotional/affective underpinnings of organizational resilience have not been systematically examined. Scholars of individual-level resilience have argued that a resilient system is an optimistic system laden with positive emotion (e.g., Bonanno, 2004). In contrast, Landau and Chisholm (1995) have argued that optimism is dangerous because it creates blind spots and resilient organizations do all they can to drive out arrogance, hubris, and bullheadedness (Schulman, 1993). However, it is wrong to consider organizations capable of resilience pessimistic systems. A more accurate rendering is that the underlying beliefs described above – i.e., simultaneous belief in the inherent fallibility of their systems and the efficacy of proactive and preemptive discussion and analysis is a *hopeful* approach. A resilient organization is a hopeful system because hope is a confidence grounded in a realistic appraisal of the challenges in one's environment and one's capabilities for navigating around them (Groopman, 2004). Hope helps insulate from the vagaries of unexpected events by instilling a belief in the value of constantly updating and refining one's appraisal of the environment and in the organization's ability to use this knowledge effectively in the face of unexpected events.

Emotion also seems to be at the center of how and why resilient organizations are able to detect weak signals when they are still emerging (Klein, 2002). Benner and colleagues (1996) describe expert nurses as having a well-developed "emotional attunement" with their patients and attuned nurses have a capacity to read a situation in a patient and to grasp its emotional tone: to know when something is 'off' when it looks OK on the surface, or to sense that it's actually OK despite appearances to the contrary. That is, emotional attunement to one's particular context helps to mobilize appropriate action in the face of deteriorating conditions and militate against a strong response to every weak signal that would overwhelm the system (Rudolph and Repenning, 2002).

IV. Toward a Research Agenda

Given the dearth of empirical work exploring resilience in organization theory, many (if not all) avenues are open for future research in resilience. One possible explanation for organizational resilience is that resilience is a result of high levels of slack resources (e.g., conceptual slack, Schulman, 1993). Slack resources are fundamental to our definition of resilience. Woods (2006) similarly discusses the importance of maintaining an up-to-date understanding and sensitivity to where an organization is operating with respect to its limits (i.e., how much margin exists). The idea of margin is essential to resilience because maintaining adequate margin is necessary for responding to unexpected events and operating beyond a comfortable margin for too long invites disaster. If that is the case, do resilient organizations merely possess higher levels of slack resources? Gittell, Cameron, Lim, and Rivas's (2006) research on the airline industry after the terrorist attacks on the United

States on September 11, 2001 finds that the airlines that had accumulated the greatest financial reserves and avoided high levels of debt (e.g., Southwest Airlines) were able to return to and surpass previous levels of performance without engaging in layoffs. This suggests that financial resources (i.e., slack) are an important enabler of organizational resilience. Financial resources also increase the capability to be resilient in the face of crisis by allowing relational resources to be retained. However Gittell and colleagues' (2006) work also suggests that financial resources in and of themselves are not sufficient. Firms with high levels of cash on hand (i.e., large stores of financial resources) engaging in layoffs as a response to September 11th compromised their relational resources and were less able to regain profitability. The organizations that laid off employees also compromised their ability to effectively respond to subsequent disruptions. All this suggests that the levels of various resources (financial, relational, etc.) play a crucial role in fostering resilience.

We would add that it is not merely the stocks of resources that determine resilience, but also the deployment of the resources that exist. It seems that resilient organizations deploy more of their financial, cognitive, and relational resources in response to emerging and manifest threats. That is, resilient organizations seem to turn traditional organization theory on its head by deploying rather than restricting the deployment of resources as posited by the threat rigidity perspective (Staw, et al., 1981). This may occur because resilient organizations maintain a nuanced picture of ongoing operations such that they are able to parlay that understanding into more targeted and timely investments in tools or actions that can defuse emerging vulnerabilities and risks before harm results. Another possibility is that the freer flow of resources is a function of inter-organizational differences in interpretations. Do organizations characterized as resilient label a wider swath of unexpected events "opportunities" to preserve their willingness and ability to respond flexibly? If this is the case, how do these organizations reconcile such interpretations with the "preoccupation with failure" that has been identified as a key component of organizational resilience and highly reliable performance? Moreover, we have asserted that resilience results from many processes that also characterize high reliability organizations. However, resilience and reliability are not identical constructs. Future work should more clearly compare and contrast reliability and resilience and the mechanisms by which they are achieved.

We've argued learning is both an input and an outcome of organizational resilience. Resilient organizations seem to employ a superior brand of learning, but more research is needed to understand the character of this learning and what specific resources give rise to it. Other avenues worthy of further exploration include the triggers for learning as well as the corresponding processes. Do resilient organizations attempt to learn from a wider array of experiences (success as well as failure, errors as well as close calls, direct experience as well as vicarious learning)? For example, using after-event reviews to analyze failures occurring in projects that were successful overall, has been shown to trigger learning that enhances capabilities for resilience. Do resilient organizations have especially well developed capabilities for simulation of near misses or structured processes for drawing lessons learned from the experiences of other organizations? On a related note, we also argued that bouncing back from an unexpected event increases an organization's resilience (i.e., the organization emerges strengthened). But future research will need to examine the extent to which the future event needs to be similar to the prior (or past) event(s) in order to have this effect.

Related to the effective learning strategies employed by resilient organizations manage it is equally important to understand how these organizations manage to avoid pathological learning cycles (e.g., competency traps that create a myopic focus and induce blind spots)? As a result, it seems essential for resilient organizations to avoid simplified interpretations and to work to continuously refine and update their understanding of the status of ongoing operations and the environment they face. Resilient organizations are less likely to engage in "distancing through differencing" whereby prior experiences that could serve as sources of learning are dismissed as idiosyncratic (Cook and Woods, 1994). Resilient organizations are also less likely to utilize technical analyses to merely confirm pre-existing expectations and more likely to use these analyses to test tentative hypotheses. It is also possible that resilience results from bringing diverse perspectives to bear on both unexpected events and audits of ongoing operations. This can result from adding new people to decision processes, providing mechanisms and channels for interaction across diverse groups as well as cross-checking. Potential structural mechanisms for generating resilience merit further investigation.

Although resilience has been treated as a largely unmitigated good in our paper, there are certainly boundary conditions surrounding the resilience construct. For example, certain types of organizational environments may render resilience a more (e.g., stable) or less (hypercompetitive) costly strategy than anticipation and optimizing fit to a specific environment. Similarly, under what conditions do making sacrifices to production goals as a result of

uncertain warning signs (i.e., weak signals of impending problems) become untenable to an organization's multifaceted stakeholders? Answering these questions and others will be essential to developing and appropriately bounding a theory of organizational resilience.

V. CONCLUSION

Understanding how organizations positively adjust under conditions of adversity and emerge more resourceful (i.e., resilient) will help answer the most pressing questions facing today's organizations and organization theorists.

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