

PROCESS STUDIES OF CHANGE IN ORGANIZATION AND MANAGEMENT: UNVEILING TEMPORALITY, ACTIVITY, AND FLOW

ANN LANGLEY
HEC Montréal

CLIVE SMALLMAN
University of Western Sydney

HARIDIMOS TSOUKAS
University of Cyprus and University of Warwick

ANDREW H. VAN DE VEN
University of Minnesota

Process studies focus attention on how and why things emerge, develop, grow, or terminate over time. We identify various ontological assumptions underlying process research, explore its methods and challenges, and draw out some of its substantive contributions revealed in this Special Research Forum on Process Studies of Change in Organization and Management. Process studies take time seriously, illuminate the role of tensions and contradictions in driving patterns of change, and show how interactions across levels contribute to change. They may also reveal the dynamic activity underlying the maintenance and reproduction of stability.

This Special Research Forum on Process Studies of Change in Organization and Management invites readers to plunge into the world of process and examine questions about how managerial and organizational phenomena emerge, change, and unfold over time. Our initial premise in proposing this venture was that understanding process questions is important and valuable for advancing management knowledge. Moreover, a growing number of management scholars have been researching process questions. However, process studies have historically been underrepresented in premier management journals.

Our call for contributions was clearly timely. We received over 100 submissions, out of which 13 articles appear in this issue. Table 1 provides a summary of the research questions, methods, and contributions represented in this collection. The articles address a wide range of topics and draw on

diverse conceptual and epistemological roots to empirically examine organization and management processes. In this editorial, we draw inspiration from the contributions in this forum to (1) focus attention on ontological and epistemological issues concerning the nature of process research, (2) illustrate effective methodological strategies for undertaking empirical process studies, and (3) reveal some of the distinctive forms of insight that process research may offer. We discuss each of these themes in turn, drawing on the work in the issue to enrich and illustrate our discussion. We conclude by reflecting on the future of process studies.

THE NATURE OF PROCESS RESEARCH

Process Questions: The Centrality of Time

As indicated in our initial call for papers, process studies address questions about how and why things emerge, develop, grow, or terminate over time, as distinct from variance questions dealing with covariation among dependent and independent variables (Langley, Smallman, Tsoukas, & Van de Ven, 2009; Mohr, 1982). Process research, thus, focuses empirically on evolving phenomena, and it draws on theorizing that explicitly incorporates temporal progressions of activities as elements of explanation and understanding. For example, in

We thank the authors of the articles included in this special research forum as well as all those who submitted papers for their interest in and engagement with the topic. We are deeply grateful to the large number of reviewers who helped us out in the selection process. Note that the ordering of authors on this editorial is alphabetical, reflecting equal involvement in editing the papers in this collection.

TABLE 1
Research Questions, Methods, and Contributions of the Studies in the Special Research Forum on Process Studies of Change in Organization and Management

Authors' Last Names and Article's Title	Research Question(s)	Methods	Findings and Contribution
Bingham & Kahl The process of schema emergence: Assimilation, deconstruction, unitization, and the plurality of analogies	How does a new collective schema emerge over time?	Archival study of 399 articles and books from 1945 through 1975 showing insurance industry groups' evolving schemas for computers.	Schemas emerge through three processes: (1) assimilation of familiar analogy, (2) deconstruction of an assimilated schema to create a differentiated new one, and (3) unitization to create a distinct stand-alone cognitive unit.
Bresman Changing routines: A process model of vicarious group learning in pharmaceutical R&D	How do groups change their routines via vicarious learning?	Two-year real-time study of 8 drug development teams in two sites, involving interviews, observations of meetings, hallway conversations, organizational records, and site visit notes.	Vicarious learning follows a process of identification, translation, adoption, and continuation. Identification involves anticipatory search. Translation involves the transmission capacities of the source as much as the recipient. Adoption is not just copying, but also adaptation to local context. Continuation is based not only on recipients' outcomes but also those of others.
Bruns Working alone together: Coordination changes expertpractice in cross-domain collaboration	How does coordination occur in collaboration across expert domains? How do scientists apply specialized knowledge and make it compatible with that from another discipline?	18-month ethnographic field study of systems biology by 12 cancer research projects in two U.S. universities.	A model of coordination in cross-domain collaboration consisting of cycles of collaborative shared assessment and consultation followed by expert coordination through counterprojection and alignment within disciplines. The model includes both teleological and dialectical forces.
Gehman, Trevino, & Garud Values work: A process study of the emergence and performance of organizational values practices	How do moral values that are situated in practice emerge, and how are they performed over time?	Longitudinal study of archival documents, stakeholder interviews, and real-time participant observations of the development of an honor code at a university business school.	Values appear to be enduring and stable, yet they change all the time through interactions and relationships among many people expressing concerns and taking emergent actions. Values work is a distributed, relational, interactive and ongoing process.
Howard-Grenville, Metzger, & Meyer Rekindling the flame: Processes of identity resurrection	How do actors resurrect a collective identity that has atrophied or become dormant?	Longitudinal study of Eugene, Oregon's, dormant "Track Town U.S.A." identity, combining primary data from interviews and participant observations with archival data	A process model of identity resurrection consisting of recurrent cycles of orchestrated experiences and authentications that are produced by leveraging tangible and intangible resources and experiences by leaders and members.
Jay Navigating paradox as a mechanism of change and innovation in hybrid organizations	How do change processes unfold in hybrid organizations?	Longitudinal two-year ethnographic study of the Cambridge Energy Alliance, drawing on management meetings, interviews, and archival data.	Innovative organizational changes emerge through sensemaking and synthesis of different logics. Multiple logics create latent performance paradoxes that require navigation. Unaware of a paradox, people get stuck; aware of it, they find creative routes.
Klarner & Raisch Move to the beat: Rhythms of change and firm performance	How do regular and irregular (focused, punctuated, and temporally switching) change rhythms influence firm performance?	Quantitative analysis of corporate reports of 67 European insurance companies between 1995 and 2004 using multiple sequence alignment.	Corporate strategic changes occur in four distinct rhythms: focused, punctuated, temporarily switching, and regular. Companies that change regularly outperform those that change irregularly according to any of the other rhythms.

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Authors' Last Names and Article's Title	Research Question(s)	Methods	Findings and Contribution
Lok & de Rond On the plasticity of institutions: Containing and restoring practice breakdowns at the Cambridge University Boat Club	How do microprocesses maintain institutional breakdowns?	Longitudinal ethnographic (participant observation) study of the 2007 Cambridge University Boat Club season.	Small breakdowns are contained (by ignoring, tolerating, and reinforcing). Crisis-like breakdowns involve restoration (excepting and coopting, reversing, self-correcting, and formal disciplining), depending on the degree of institutional threat.
MacKay & Chia Choice, chance, and unintended consequences in strategic change: A process understanding of the rise and fall of Northco Automotive	How do strategic choice, environmental pressure and random chance contribute to organizational change?	Longitudinal inductive case study of large automotive company, 2005–09, drawing on interviews, participant observation, and archival data.	Decisions have unintended consequences to which managers are blind but that may not be random. Events are negotiated outcomes of unowned processes constituted by many interdependent activities that no single actor controls.
Maguire & Hardy Organizing processes and the construction of risk: A discursive approach	How do products become risky or safe?	Comparative longitudinal discourse analysis of risk assessments for two chemical products based on archival data.	Meaning is socially constructed through negotiation and conflict resolution. Two bundles of practices (normalizing and problematizing) order the discursive work of actors, leading to different outcomes.
Monin, Noorderhaven, Vaara, & Kroon Giving sense to and making sense of justice in postmerger integration	How does the sensemaking process of fairness and justice unfold during postmerger integration?	Longitudinal study of the postmerger integration of two large European firms by a transnational team using multiple waves of interviews.	The focus of sensegiving and sensemaking moves from equality to equity, and the role of fairness declines over time. Dialectical tensions between sociopolitical and value creation concerns as well as dialogical interaction between levels drive this process.
Van Oorschot, Akkermans, Sengupta, & van Wassenhove Anatomy of a decision trap in complex new product development projects	How do decision traps unfold over time?	Systems dynamics analysis of real-time data following events in a product development process for 61 weeks.	A decision trap of stretching current project stages at the expense of future stages unfolds when chronic problems (staffing, time, and budget) encounter information filters: the "mixed signals," "waterbed," and "understaffing" filters.
Wright & Zammuto Wielding the willow: Processes of institutional change in English county cricket	How does the process of change unfold across vertical and horizontal levels of mature institutions?	Longitudinal archival study of First-Class Cricket in England.	Theory of institutional change in which society-level change creates organization-level resource pressures. Deviation from field values by peripheral actors triggers work by midstatus actors to bring societal, field, and organizational levels into alignment.

their article in this issue, Bingham and Kahl (2013) explain the emergence and development of a new schema for "the business computer" as unfolding in three distinct processes whose temporal order is central to the explanation. Similarly, Gehman, Treviño, and Garud (2013) show how integrated values practices build from the "knotting together" of more localized earlier ones over time.

Indeed, all the articles in this issue focus on temporally evolving phenomena, whether they be the transformation, reproduction, and emergence of institutions (Lok and De Rond; Wright and Zammuto), organizational practices (Gehman, Treviño, and Garud) or identities (Howard-Grenville, Metzger and Meyer; Jay), the social construction of cognitive schemas and norms (Bingham and Kahl;

Maguire and Hardy; Monin, Noorderhaven, Vaara, and Kroon), changing interactions between organizations and their environments (Klärner and Raisch; MacKay and Chia), or the project-level dynamics of innovation and learning (Bresman; Bruns; Van Oorschot, Akkermans, Sengupta, and van Wassenhove).

Given the critical importance and inescapability of time and timing in human affairs in general and in the lives of organizations in particular, it is ironic that a large part of management scholarship in the field's journals tends to exclude time. By recognizing the centrality of time, process conceptualizations offer an essential contribution to organization and management knowledge that is not available from most variance-based generalizations. This is because the latter tend to ignore time, reduce it to a lag effect, compress it into variables (e.g., describing decision making as fast or slow, or environments as dynamic or stable), or reduce its role to what Pettigrew, Woodman, and Cameron (2001: 697) called "comparative statics" (reevaluating variance-based relationships at successive times).

By removing time from theoretical accounts, variance theorizing abstracts away from the temporal flow of much of organizational life. The temporal structure of social practices and the uncertainty and urgencies that are inherently involved in them are passed over in the search for empirical regularities and contingency models of explanation. The particulars that make knowledge actionable—what to do, at what point in time, in what context—are not included in the timeless propositional statements typically generated in variance theorizing (Sandberg & Tsoukas, 2011: 342).

Yet as many of the studies in this issue reveal, temporality hugely matters in organizational life. For example, time is central to Van Oorschot, Akkermans, Sengupta, and van Wassenhove's (2013) theory of a "decision trap" in which managers stretch current temporal activities at the expense of reducing and eliminating the time available for future activities. MacKay and Chia (2013) show how decisions that looked good at one time turn catastrophic at another as other events intervene. Finally, Monin, Noorderhaven, Vaara, and Kroon (2013) show how in the context of a merger, the balance between political and economic concerns shifts over time, evoking entirely different management strategies.

Indeed, as these examples suggest, process questions are clearly not just of academic interest. Following continuing calls for "evidence-based" management (Pfeffer & Sutton, 2006; Rousseau, 2006), it is interesting to note that most of the evidence

presented in the literature as sufficiently robust to warrant transfer to practice is exclusively of the variance kind; specifically, it concerns knowledge of "what works," usually based on comparisons of performance in large samples or on controlled lab experiments. However, when considered more carefully, it is clear that something important is missing, yet needed to make this kind of knowledge truly actionable: knowledge about *how* to produce the changes that the evidence suggests are desirable. As Langley and Tsoukas (2010) pointed out, knowing that organizational practice B is generally more effective than organizational practice A reveals almost nothing about how to move over time from A to B. Moreover, depending on the nature of the practices concerned and the context of their application, it could be that the very process of moving between A and B itself engages resources, political dynamics, and organizational upheaval that could place the original evidence supporting the need for change in an entirely different light.

For example, we know that larger firms tend to be more profitable than smaller ones both because of scale economies and market power. However, this knowledge provides little of practical use to the managers of firms who are trying to work out the sequence of moves required to capture the benefits of increased size following a merger. Achieving this without destroying the social bonds that hold members of the participating organizations together or irrevocably alienating the people on whom success depends is exactly the dilemma revealed in Monin et al.'s (2013) study here. In sum, if variance theorizing generates *know-that* type of knowledge, process theorizing produces *know-how* knowledge.

Process Ontology: Change and Becoming

Although process and temporality are central to all the studies in this issue, they can be viewed from different ontologies of the social world: one a world made of things in which processes represent change in things (grounded in a substantive metaphysics) and the other a world of processes, in which things are reifications of processes (Tsoukas & Chia, 2002) (grounded in process metaphysics). Rescher (1996) traced this distinction back in antiquity to the differing philosophies of Democritus and Heraclitus. Democritus pictured all of nature as composed of stable material substances that changed only in their positioning in space and time. From this view, substances exist independently of other substances, and their underlying

nature does not change although their qualities may change. As Mesle (2008: 44) noted, the substance-cum-quality view of reality and the subject-predicate structure of language are closely connected. When one says, for example, "3M Corporation is an innovative firm" (Garud, Gehman, & Kumaraswamy, 2011), "3M Corporation" is the subject and "innovative" is the quality or predicate. Even if qualities do change, the subject may remain unchanged—for example, 3M may cease to be "innovative," but it will not stop being "3M." In contrast, Heraclitus viewed reality, not as a constellation of *things* but as one of *processes*. He argued that substantializing nature into enduring things (substances) is a fallacy because these are constituted by varied and fluctuating activities: "Process is fundamental: The river is not an object but an ever-changing flow; the sun is not a thing, but a flaming fire. Everything in nature is a matter of process, of activity, of change" (Rescher, 1996: 10).

Different studies in this issue exemplify these different ontological views. For example, Klarner and Raisch (2013) examine the relative performance of different temporal patterns of organizational change, reflecting a substantive metaphysics wherein change patterns are seen as something that *happens to* organizations viewed as fixed identifiable entities. Similarly, Bingham and Kahl (2013) track schemas for understanding computers by focusing on shifts in the language surrounding "the computer," assumed to refer to the same basic entity over time. Such a perspective lies at the foundation of much of the previous literature on organizational change and has indeed given rise to many important insights. The focus of this type of research is on how and why such changes occur, whereby change is seen as a succession of movements of a recognizable entity over time.

In contrast, other studies presented here attempt to reach explicitly or implicitly toward a *process ontology* based in process metaphysics (Whitehead, 1929) in which the world itself is viewed fundamentally as made up of processes rather than things. In this view, entities (such as organizations and structures) are no more than temporary instantiations of ongoing processes, continually in a state of becoming (Tsoukas & Chia, 2002). Changing in this view is not something that *happens to* things, but the way in which reality is brought into being in every instant. Such a perspective underlies, for example, Maguire and Hardy's treatment of risk not as an objective attribute but as constituted over time through social practices: "Objects 'become' risky or safe in different ways as a result of the practices to which they are subjected" (2013: 232). Similarly, Gehman et al. (2013) reach beyond the

previous literature on organizational values, by considering them not as cognitive or cultural entities that may shift from (say) value set A to value set B between two fixed points in time, but as a form of practice continually constituted and adapted through ongoing "values work" enacted by organization members. MacKay and Chia (2013) attempt to push a process ontology still further by "problematizing" the boundaries separating organizational actors from their context and insisting on the all-encompassing "unowned" nature of processes. In such a view, context is not something that is held constant and outside the changes being analyzed but is itself continually reconstituted within and by processes of interaction over time (see also Meyer, Gaba, & Colwell, 2005), generating unexpected and largely uncontrollable chains of activity and events in which actors, environments, and organizations are all in constant and mutually interacting flux.

From this perspective, the world is composed of events and experiences rather than substantial entities. Each event arises out of, and is constituted through, its relations to other events. Each event can be further analyzed in terms of smaller events (Cobb, 2007: 572). Thus, organizational meetings such as those described by Gehman et al. (2013) and incidents of breakdown during the preparations for the annual University Boat Race studied by Lok and de Rond (2013) are examples of events. These events become subject to further analysis in terms of smaller events; researchers may carry out such analysis by, for example, focusing on particular individuals over particular periods of time and studying how their focal experiences grow out of earlier experiences, interactions, and anticipations. From a process ontological perspective, an organization is a dynamic bundle of qualities. Some qualities persist more than others, but there is no substance that endures unchanged. Moreover, this is the point at which "process" meets "practice," since how the past is drawn upon and made relevant to the present is not an atomistic or random exercise but crucially depends on the social practices in which actors are embedded (Feldman & Orlikowski, 2011; Sandberg & Tsoukas, 2011). For example, Gehman et al. (2013) describe how a professionally trained accountant, immersed in the particular social practices of the accounting profession, had become through these practices sensitive enough to issues of integrity that she wanted to see it as a key part of the value set of an MBA graduate.

As the articles in this issue illustrate, processes can be studied in a variety of ways, depending on the particular process ontology one espouses: change may be modeled on motion and, thus, viewed as change in the qualities of substantive

things over time, or as enacted through a matrix of interwoven processes. Thus, research questions focusing on how the qualities of an entity (e.g., an individual, group, organization, institution) change over time may be studied from the perspective of a substantive metaphysics in which processes represent changes in things. Other research questions that focus on how processes themselves ("sense-making," decision making, performing, identifying, etc.) emerge, develop, grow, and decline are compatible with a process metaphysics in which the focus is on how processes (rather than things) unfold over time.

Empirical studies of changes in processes versus in things may be more challenging to operationalize. The language humans use to talk about our everyday world is naturally dominated by nouns, with verbs associated with action and change taking a secondary role. This may be one reason why so many process studies retain, to some degree, the language and ontology of substance even as they explore activity, event sequences, the unfolding of practices, enactment, and the dynamics of change. The undifferentiated fluidity brought to the foreground by the idea of a world in a perpetual state of becoming renders phenomena hard to capture and pin down for systematic analysis. This brings us to the second major theme: process research methods.

PROCESS RESEARCH METHODS

Process Data: Longitudinal, Rich, and Varied

Some works in this issue rely on quantitative and others on qualitative methods of analysis, yet all feature longitudinal data. Longitudinal data (whether obtained with archival, historical, or real-time field observations) are necessary to observe how processes unfold over time. Archival data, the main source for several studies here (Bingham and Kahl; Klarner and Raisch; Maguire and Hardy; Wright and Zammuto), are particularly suitable for tracing event chronologies, meanings, and discourses over long or very long periods of time. Mixed methods combining interviews, archival data, and observations underlie several studies that examine contemporary processes in depth (Bresman; Gehman et al.; Howard-Grenville et al.; MacKay and Chia; Monin et al.; Van Oorschot et al.), and three studies rely on real-time ethnographic data (Bruns; Jay; Lok and De Rond). Such qualitative research methods correspond well to a perspective emphasizing process questions and an ontology where processes rather than things are the primary focus of attention (Rasche & Chia, 2009).

To study people, subject matter, and their context in meaningful ways, Collins (2004) argues, researchers need to acquire "interactional expertise," the kind of knowledge required for one to communicate about a domain without necessarily being able to practice in that domain (see also Collins & Evans, 2007). Researchers who have honed their interactional expertise know how to relate to specialists (be they scientists, rowers, or risk analysts) in ways that engage them in sharing what they know, its technical content, and what is going on in the setting. This involvement provides researchers not only access to, but also an appreciation of, specialists' views, activities, and interests. Bruns (2013) provides a nice example of developing interactional expertise in her work: She studied cancer biology lab practices for 6 months before starting her 18-month ethnographic field study of 12 cancer research projects, pointing out that direct work exposure is important for understanding how scientists apply specialized knowledge from other disciplines.

Indeed, many of the studies in this issue illustrate prolonged involvement of researchers in the processes studied, enabling them to build interactional expertise and providing close access to events and practices (Jay, Bruns; Gehman et al.; Howard-Grenville et al.; Lok and de Rond). Jay (2013) emphasizes the importance of reflexivity in managing such deep and ongoing interactions with a research context. In some cases, the involvement of both insider and outsider authors offers a means to balance differing perspectives, combining intimacy with local settings and the potential for distancing (e.g., Gehman et al., Howard-Grenville et al., Lok & de Rond). Research capable of developing fine-grained understanding of processes at the micro level requires this kind of prolonged and deep engagement, combined with attention to reflexivity, analytical rigor, and peer review, to ensure credibility and trustworthiness (Gioia, Corley, & Hamilton, 2013; Lincoln & Guba, 1985).

With their building on varied sources of longitudinal data, it is not surprising that many of the articles in this special research forum recount rich and interesting stories: we readers learn how the sport of cricket evolved over time from a conceptualization as an artistic activity to a much more business-like orientation (Wright & Zammuto, 2013); we trace the struggles, ups, and downs of a newly formed public-private-third sector energy alliance (Jay, 2013); and we follow the Cambridge University Boat Club team as it prepares for its annual race with Oxford (Lok & de Rond, 2013). However, it is important to note that the authors

represented in this issue are not just telling idiosyncratic tales; their stories carry important theoretical messages. In addition, their research designs, though sometimes deceptively simple, are constructed in ways that add depth and weight to their theoretical ideas. How is this done?

Process Comparisons: Cross-Case Replication

Knowledge advances with the comparative method across cases, time, and models. For several studies in this special forum, the authors examine not just one process story, but several, allowing theoretical ideas to be tested and deepened in different settings. For example, in their quantitative study, Klarner and Raisch (2013) obtain their data from annual corporate reports of 67 European insurance companies between 1995 and 2004. They code these data into six different temporal patterns of change using an innovative multiple sequence alignment method derived from the biological sciences and then show how regularity in ongoing organizational changes is associated with performance using statistical methods. Although Klarner and Raisch had a large enough sample of cases to use statistical methods of comparison, various forms of analytical replication can also be embedded in qualitative research designs and analyses.

For example, Bresman (2013) uses an interesting embedded multiple case design, focusing on two units in a pharmaceutical company, and examining learning transferred among four successive projects occurring in each unit (for a total of eight units of analysis). His inductively derived four-phase process model of vicarious learning is replicated across all his cases. This design reflects Eisenhardt's (1989), Eisenhardt and Graebner's (2007), and Yin's (2009) recommendations for building theory from case studies. Similarly, Bruns (2013) replicates her model of collaborative research in two different settings involving multiple groups. Maguire and Hardy (2013) also compare two different cases of risk assessment processes, showing how both incorporated similar bundles of normalizing and problematizing practices, but how the differential ordering of these practices led to different consequences for the construction of risk.

Process Decomposition: Longitudinal Replication

Comparing distinct cases is not however the only way to achieve replication. It is a common misconception that longitudinal case studies represent "samples of one." However, it is important to note

that the sample size for a process study is *not* the number of cases, but the number of *temporal observations*. Depending on how researchers structure their analysis, the number of temporal observations in a longitudinal study can be substantial. For example, van Oorschot et al. (2013) focus on 344 individually coded events in their case history of a failing project to develop an explanatory model that explains their observations. In their archival study, Bingham and Kahl (2013) observed 399 articles and books from 1945–75 showing development of a business computer schema in the insurance industry.

Commonly however, qualitative process researchers rely on more integrative forms of "temporal bracketing" or decomposition (Langley, 1999) to identify comparative units of analysis within a stream of longitudinal data. These temporal brackets (which generally unfold sequentially over time) are constructed as progressions of events and activities separated by identifiable discontinuities in the temporal flow. They enable researchers to examine the recurrence and accumulation of progressions. This permits replicating theoretical ideas in successive time periods and also to analyzing how the changing context from previous periods impacts subsequent events in current periods. Thus for example, Jay (2013) considers three successive time periods in the life of the energy alliance he studied that were punctuated by changing definitions of success. Monin et al. (2013) examine the dynamics of sensemaking and sensegiving about norms of justice in three periods involving eight different issues associated with a major merger. Lok and de Rond (2013) examine and compare five successive incidents in which institutional rules were violated and repaired, and Wright and Zammuto (2013) compare two successive incidences of rule change in the game of cricket.

Note that although analyses based on temporal bracketing may lead to propositions about patterns of progression over time in the form of well-defined phases or stages (as in the articles by Monin et al., Bingham and Kahl, and Gehman et al.), this is not always the case. The power of temporal bracketing actually lies principally in its capacity to enable the identification of specific theoretical mechanisms recurring over time (Tsoukas, 1989; Van de Ven, 1992). Thus, for example, Howard-Grenville et al. (2013) use temporal bracketing over three periods to show how identity reproduction and resurrection depend on an interactive process of resource mobilization and authentications of experience.

Process Representations: Rethinking Boxes and Arrows

A notable feature of many of the articles in this issue is also how the authors draw on visual maps or diagrams to represent processes and their iterative dynamics. The conventional boxes and arrows of variance studies (representing concepts and causal linkages respectively) return in new forms, wherein boxes tend to represent states and arrows relations of precedence or distinctive processual elements or flows. It is also common for researchers to represent processes as “strange loops” (Hofstadter, 2008)—that is, processes that depart ever further from their origin, but wind up, curiously, exactly where they started out, as paradoxical level-crossing feedback loops. The interacting causal loop diagrams of Von Oorschot et al. (2013) are illustrative of this approach, which draws on the well-known process modeling algorithm of systems dynamics (see also Azoulay, Repenning, & Zuckerman, 2010), but diagrams of some kind are omnipresent analytical and communicational tools in the work in this issue.

For example, Gehman et al. (2013) provide a visual map of the emergence and practice of organizational values practices. The map offers a rich picture of events, with events synopsized in boxes, linked by unlabeled directional arrows demonstrating the passage of time and categorized in broad themes. Wright and Zammuto (2013) present us with an elegant depiction of the process of institutional change in county cricket. The model shows states of society, the field of cricket, and organizations (placed in boxes) transformed by various processes represented by labeled arrows. Lok and de Rond (2013) present a model in which strange loops link institutional practices, but they make some progress in resolving the vexed issue of setting complex processes in the context of time. In analyzing complex processes of change in an organization, MacKay and Chia (2013) employ a creative juxtaposition of condescended organizational states (in boxes) transformed by processes of managerial coping and adaptation (labeled arrows). The passage of time is well-represented. Similarly, Howard-Grenville et al. (2013) use diagrams to represent the iterative nature of identity dynamics over time.

The art of representing process diagrammatically still lacks the conventions of variance studies and clearly presents researchers with challenges and trade-offs. The convenience of unlabeled arrows and feedback loops may sometimes obscure the causal complexity that process theorizations are intended to explain. Yet at-

tempts to faithfully capture the complexities of process can result in diagrams that are busy and equally opaque. As the papers in this issue moved through the stages of review to their final versions, we often saw authors struggling to creatively but accurately project the dynamics of living processes onto the static two-dimensional page. These diagrammatic representations are nevertheless often crucial in describing and communicating dynamic process theorizations.

Process Generalization: Abstracting from the Particular

Many of the articles in this issue show how rich narratives that enable the representation of nuance and ambiguity can be combined with more structured analytical approaches that favor the articulation and replication of more abstract theoretical ideas. At least two forms of inference from the particular to the general can be seen in the research designs represented in this forum. They provide a useful heuristic for extending research on processes of change beyond idiosyncratic stories.

First, the authors identify and make analytical generalizations to the general case of which their study is an instance. This is perhaps the most critical move in theory building—to climb the ladder of abstraction by inferring the general theoretical phenomenon of which the observed particular is a part (Van de Ven, 2007). This move is nicely illustrated by van Oorschot et al. (2013), who generalize their specific study of new product terminations to the more general and abstract problem of how decision traps unfold.

Yet making this inference to an insightful general case requires concrete and penetrating understanding of the particular. Tsoukas (2009) noted that the value of small-N studies is profoundly embedded in the ability to capture situated specificity—to answer the question “What is going on here?” while building on this to answer the broader question, “What is this a case of?” (Tsoukas, 2009: 298). As Merton emphasized, a first step in science is “establishing the phenomenon,” because “oftentimes in science as in everyday life, explanations are provided of matters that are not and never were” (Merton, 1987: 21). Maguire and Hardy (2013) exemplify the importance of grounding research problems. They ground the concept of risk in normal everyday use as being “objective” and “calculable.” Their act of insight comes with the process description of how the risk of two chemical products comes to be socially constructed and forever changing through normalizing and problematizing processes. We would add that providing access to

the rich details of particular stories, as many of the authors in this special research forum do despite space constraints, is a prerequisite for reader judgments concerning the potential transferability of their theoretical ideas (Lincoln & Guba, 1985)

As one moves from concrete surface observations to more abstract process theory, one moves from description to explanation. Explanation requires a *generic story*, and such stories can be understood as process theories (Pentland, 1999). Hence, a second way to generalize from the findings of a process study is to create such a process story. In narrative theory, the story is an abstract conceptual model; it identifies the plot or generative mechanism at work. At a minimum, this story must describe a progression or sequence of events. In narrative theory, however, the "story" includes a great deal more than just an event sequence. Pentland (1999) argued that a process theory should include five features in the story: (1) a clear sequence of beginning, middle, and end in time, (2) focal actors who may play the protagonists or antagonists, (3) an identifiable voice reflecting some actor's viewpoint, (4) an evaluative frame of reference of what is right or wrong, appropriate or inappropriate, and (5) other indicators of context over time and place. The theoretical narratives of the articles in this special forum may not fit this model exactly, but each has a strong underlying plot. The next section reviews some of the substantive process patterns emerging from these studies.

SUBSTANTIVE ADVANCES TO PROCESS THEORIES

The Prevalence of Paradox and Dialectics

In a review of the literature on process conceptualizations of organizational change and development, Van de Ven (1992) noted that most representations of organizational processes (e.g., processes of decision making, change, or organizational growth and development over time) seem to draw on either life cycle metaphors predicting linear progressions or on teleological models establishing normative step-by-step guides. He critiqued this literature for its atheoretical character and its limited rigor and urged consideration of a broader set of process theories, including dialectical and evolutionary process models. The articles in this special research forum clearly reflect more sophisticated process conceptualizations than much of this earlier work.

In particular, the central role of tension, contradiction, paradox, and dialectics in driving patterns of change emerges strongly throughout these stud-

ies. Paradox is a central concern in Jay's (2013) study of a hybrid organization as it struggled to define a viable mission among competing forces. Dialectic tensions are implicit in several other articles as well. For example, Klarter and Raisch's (2013) study focuses on the dialectic tension between change and stability—both of which are need to achieve effective organizational adaptation. They ask which patterns of oscillation between these phenomena are likely to be most productive and theorize that regular rhythms are likely to be more effective. Similarly, Monin et al. (2013) show how the progression of norms of justice in mergers is constituted through a dialectic process in which economic and sociopolitical concerns evolve in dynamic tension.

Emergence and Evolution through Multilevel Interaction

Process research questions that focus on how things unfold and change over time tend to associate with a dynamic social constructivist view. In this view, ongoing interactions among different individuals, between individuals and organizations, and between multiple levels across organizations and contexts permeate and orient change processes. For example, patterns of identity reproduction are seen to depend on interactions between leaders and identity custodians (Howard-Grenville et al., 2013); interactions among different organizations in an organizational field contribute in different ways to institutional change (Wright & Zamuto, 2013); and the dialogical interaction between managerial sensegiving and member sensemaking constitutes enacted norms in the context of merger (Monin et al., 2013). The articles by Bresman and Bruns also show how interaction among people may take unexpected forms that can be crucial for moving processes forward effectively. For example, Bresman's (2013) study shows that vicarious learning among project participants is not simply the result of individuals noticing specific needs, but is also anticipatory and encouraged by active participation of knowledge sources as well as learners. Similarly, Bruns (2013) shows how people collaborating across disciplinary boundaries engage in activities productive of mutual learning separately as well as together.

The studies also reveal interesting theoretical dynamics surrounding emergence, in which local and separate forms of interaction gradually become connected to create more integrated and institutionalized forms. This dynamic underlies Bingham and Kahl's (2013) study of how conceptualizations of computers became increasingly integrated, re-

efined, and institutionalized over time. A conceptually similar dynamic underlies Gehman et al.'s (2013) interpretation of how local and disconnected efforts at introducing values practices gradually coalesced to generate knotted action networks and more integrated organizational practices.

The Processual Dynamics of Stability

A final important theme emerging from several forum articles is that seemingly enduring and objective managerial concepts and structures are underpinned by dynamic activity and processes. These concepts and structures are able to endure over time only through ongoing repair and reconstruction. Much more active *work* is required to maintain practices, organizations, and institutions than most management scholars would admit. Gehman et al.'s (2013) study of the emergence of values practices in a university does not end with a clear outcome in which practices had been established once and for all. There is no clearly defined endpoint. Practices are continually questioned and reinterpreted, even as they are performed. Similarly, Lok and de Rond (2013) show how the 175-year-old institution of the University Boat Race has to be continually sustained and repaired as rules or principles are violated. Indeed, each incident of rule violation brings these rules and principles to conscious awareness and provides opportunities to reaffirm them: in a very real sense, exceptions confirm the rule. These articles, as well as that by Howard-Grenville et al. (2013) on community identity, illustrate how dynamic processes underlie stability as well as change, much as a river is constituted by an ever-changing flow (Rescher, 1996).

This kind of process conceptualization leads us to question the overwhelming emphasis that most management research tends to place on the importance of outcomes. Certain processes, of course, do have final stopping points where distinct outcomes can be traced to particular processes (e.g., in the case of the catastrophic project outcome described in Van Oorschot et al.'s study). However, a process perspective would generally view outcomes such as organizational performance measured at particular points in time as ephemeral way stations in the ongoing flow of activity. Indeed, from a process perspective, outcomes are probably better understood as *inputs* that are made sense of in determining further activity (as in Jay's study, for example), rather than as static termination points. This does not mean that performance is not important (indeed, it is reflected in several of the studies), but

it does lead to a less simplistic, less static, and less linear understanding of what performance implies.

LOOKING AHEAD

As the response to our call for papers and the published contributions in this issue show, a growing community of scholars is studying process questions of how things and processes change over time. Process questions take a researcher into a conceptual terrain of events, episodes, activity, temporal ordering, fluidity, and change. We see that process conceptualizations offer ways to understand emergence and change as well as stability, and they incorporate understandings of causality as constituted through chains of events rather than through abstract correlations. They also admit that time and process flow on beyond an arbitrary stopping of the clock to assess the state of the world at any particular time. Process research enables researchers to address important questions that lie at the heart of management and organizational life. Doing process research does, however, have its challenges, and there is ample room for substantive, methodological, and theoretical development.

These special forum articles cover a broad range of methodologies and theories and address issues at the group level, organization level, institutional level, and indeed very often at multiple levels simultaneously. However, although individuals certainly play a crucial role as key actors in many of the studies, none of the articles takes as its central focus the individual level of analysis, and indeed very few such studies were submitted to the forum. This is both unfortunate and somewhat puzzling. We believe that there are important opportunities to address management and organizational concerns at the individual level of analysis and would encourage such research that might deal with such temporally evolving issues as careers, work-family balance, identity, work practices, and socialization from a process perspective.

Methodologically, there are also opportunities. A good deal of process research adopts qualitative or ethnographic methodologies to capture the nuances of processes in and around organizations, and this will no doubt continue. However, there is room for further development and application of quantitative methods for event and sequence analysis in elaborating process understandings. Klarner and Raisch (2013) illustrate one such method, and Bingham and Kahl (2013) draw on textual linguistics to trace in detail shifts in meanings within textual representations over time. Yet these are quite rare examples. Although methodologists have

described quantitative analytical methods applicable to sequence analysis (Abbott, 1990; Poole, Van de Ven, Dooley, & Holmes, 2000), their uptake in management studies seems so far to have been limited and could be further developed.

In parallel with this, those adopting a more constructivist perspective and a process ontology are likely to require different kinds of tools. Process thinking of this kind requires researchers to ask themselves what activities and doings are implicated in the maintenance and disruption of everyday organizing (Gehman et al., 2013; Howard-Grenville et al., 2013; Lok & de Rond, 2013), to think in terms of verbs rather than nouns (Maguire & Hardy, 2013; Weick, 1979), and to problematize the boundaries separating organization from context (MacKay & Chia, 2013). The challenges here are to unravel processes as they happen so as to develop an understanding of their underlying logic while providing a theoretical interpretation that reaches beyond description and can speak to other situations. This is a skill that is hard to program systematically. It is largely a process of “abduction” (Locke, Golden-Biddle, & Feldman, 2008; Peirce, 1958) in which empirical observations and surprises are connected to extant theoretical ideas to generate novel conceptual insight and distinctions. Klag and Langley (2013) argued that to achieve this requires researchers to bridge a series of dialectic tensions inherent to the research process: between deliberation and serendipity; between engagement with data and detachment from it; between knowing and not knowing (Locke et al., 2008); and between social connection and self-expression. Nevertheless, though the means by which insight emerges always remain mysterious, exemplars and methodological sources that can provide some guidance are increasing (Gioia et al., 2012; Pratt, 2009).

In closing, we note that this Special Research Forum on Process Studies of Change in Organization and Management represents a way station of its own in the development of a thriving community of scholars interested in and knowledgeable about process research. Through activities such as the Academy of Management’s professional development workshops on process research (information at processresearchmethods.org) and the annual Symposium on Process Organization Studies (www.process-symposium.com), researchers have been encouraged to hone their skills and ideas with a view to generating more rigorous and more insightful contributions on the processes of change in organization and management, worthy of publication in the field’s premier journals. We hope that this collection of articles will serve as inspiration for others.

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Ann Langley (ann.langley@hec.ca) is professor of management and Canada Research Chair in Strategic Management in Pluralistic Settings at HEC Montréal. She received her Ph.D. from HEC Montréal. Her research focuses on strategic change, leadership, identity, inter-professional collaboration, and the use of management tools in complex organizations, with an emphasis on qualitative and process research methods.

Clive Smallman (c.smallman@uws.edu.au) is professor of management and dean, School of Business, University of Western Sydney, Australia. He received his Ph.D. from Bradford University School of Management. His research interests include the representation of managerial and organizational processes, organizational learning, agent-based modeling of organizational and managerial processes, decision making for sustainable new product development, operational risk management, and decision making in tourism management.

Haridimos Tsoukas (htsoukas@ucy.ac.cy) holds the Columbia Ship Management Chair in Strategic Management at the Department of Public and Business Administration, University of Cyprus, and is a professor of organization studies at the Warwick Business School, University of Warwick. He received his Ph.D. from the Manchester Business School. His research interests include knowledge-based perspectives on organizations, organizational becoming, processes of organizing and sensemaking, practical reason in management, and philosophical issues in organizational and management research.

Andrew H. Van de Ven (avandev@umn.edu) is Vernon H. Heath Professor of Organizational Innovation and Change in the Carlson School of the University of Minnesota. He received his Ph.D. from the University of Wisconsin at Madison. His books and journal articles over the years have dealt with Nominal Group brainstorming, organization theory, innovation and change, and engaged scholarship.



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