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Creative Projects: A Less Routine Approach Toward Getting New Things Done

David Obstfeld
Mihaylo College of Business and Economics, California State University, Fullerton, California 92834,
dobstfeld@fullerton.edu

This paper presents a framework for action that accounts for both how organizations get routine things done and how they pursue markedly new things through "creative projects." Based on this framework, organizational routines and creative projects are viewed as two types of action trajectories differing with respect to their repetitiveness. An ethnographic case study of an automotive prototype-purchasing process and two initiatives to redesign that process is used to compare an organizational routine with creative projects occurring within the same organizational setting and to further explicate the framework. Case analysis reveals how projection and planning, as well as combinatorial action, knowledge articulation, and contingency management, unfold differentially in organizational routines and creative projects. This paper contributes to our understanding of different forms of organizational change and innovation. It also provides a framework to examine the role of nonroutine organizing at several levels of organizational analysis and its relationship to more routine forms of organizing.

Key words: organizational routines; innovation; creative projects
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Introduction

How do organizations get new things done? Recent work identifies how routines may accommodate substantial change and agency (Becker 2004, Cohen 2007b, Feldman and Pentland 2003, Howard-Grenville 2005, Levinthal and Rerup 2006, Weick and Sutcliffe 2006), in contrast to a traditional organizational routines literature that emphasizes their stability and nearly automatic repetition. Taken together, these two streams suggest that an expanded theory of routines might provide an integrated theoretical account for a broad range of organizational action. I argue, however, that the routines construct, no matter how stretched or redefined, cannot adequately address how certain, more distinctively new action emerges within organizations. To address this shortfall, this paper identifies and examines an alternative form of action related to the organizational routine—the "creative project"—defined as an emergent trajectory of interdependent action initiated and orchestrated by multiple actors to introduce change into a social context. Such change might involve entirely new technologies, organizational restructuring, or other significant departures from preexisting patterns of action. If organizational routines are viewed as trajectories of interdependent action through which organizations generally get things done, then creative projects are the means by which they get new things started. These creative projects offer new insight around the multiple paths by which organizational change and innovation might be accomplished.

The organizational literature has long recognized that some things get done through nonroutine or less routine action—that is, action outside the organization's normal routines, even those routines that display substantial adaptiveness. Early on, for example, Simon (1945) argued that organizing needed to be understood in terms of routines and decision making (Cohen 2007a), whereas Weick (1995) argues for routines and sensemaking. A substantial literature has grappled with less routine and nonroutine forms of action where repetition is not a guide on what to do next. This literature has considered different conceptualizations of nonroutine work, including unprogrammed tasks (March and Simon 1958), organic (versus mechanistic) organizing (Burns and Stalker 1961), nonroutine technology (Perrow 1967), garbage-can organizing (Cohen et al. 1972), ill-structured problems (Simon 1973), unstructured decision processes (Mintzberg et al. 1976), nonlinear work systems (Pava 1986), and nonroutine processes (Lillrank 2003). More recently, scholars have explored how innovation involves the coexistence of routine and less routine forms of action (Brown and Eisenhardt 1997; Burgelman 1991, 1994; Jelinek and Schoonhoven 1993; Miner et al. 2001). New research explores temporary, project-based organizations such as film production, engineering, and construction firms (Baker and Faulkner 1991; Bechky 2006; Gann and Salter 2000; Grabher 2002; Hobday 2000; Lundin and Soderholm 1995; Prencipe and Tell 2001; Turner and Keegan 1999, 2001), but this research generally attends to such distinctions at the firm level, as opposed to the microsocial level. This line of less routine and nonroutine literature is important because it makes clear that routines are a necessary, but not sufficient, construct for establishing a complete picture of organizing. The many accounts of nonroutine action are also conceptually unparsimonious and in some sense ad hoc, being added onto—rather than integrated with—the foundational routines literature.

To bring the literatures on routine and nonroutine activity together under one umbrella—and to remedy the absence of a conceptually integrated account of how organizations not only get things done, but how they start and achieve markedly distinct new things—I introduce the creative project. This concept views routine and nonroutine action as a difference in degree, not in "kind" (Adler and Obstfeld 2007). Although organizational routines and creative projects are functionally different (serving the functions of continuity and markedly distinct change, respectively), I argue that they can be modeled to share the same representational space, and they can therefore be examined comparatively within the same conceptual and theoretical framework, along a continuum of repetitive and nonrepetitive action. This approach enriches the organizing literature by bridging the conceptual gap between routine and nonroutine action—making it possible to examine and compare action at both ends of the spectrum.

A thought-provoking example of a creative project is suggested by Winter's (2006, p. 130) imaginary popsicle factory vignette:

> [T]he president says to the director of research that "I've just been reading about the great strides that have been made recently in cryogenic technology. Why don't you look into that and see if there is anything that will give us a cheaper way of making popsicles." This directive … set[s] in motion a chain of organizational events which may ultimately lead to a new set of production processes. It differs [from more incremental adjustments to routines] in that the timing, magnitude, and character of its impact on the way the firm operates is very hard to predict.

In this case, the president launches a course of action, or trajectory (Strauss 1993), to achieve his projected outcome—a never-before-seen, cryogenic-based popsicle production process—that represents a form of change markedly distinct from the stability or iterative change associated with routines. As with this example, creative projects involve the attempt to introduce change through an evolving vision or projection of a new end state and the pursuit of that projected end state through emergent action. Phenomenological and sociological theory identifies the project (or *entwurf*) as a unique reflexive act establishing "in-order-to" or future-oriented motives (as opposed to "because" or past-oriented motives) to act (Schutz 1967). The novel action trajectory the president launches, with its multiple actors and contingencies, contrasts with the incremental innovations that are more closely associated with routines. However, despite extensive references to nonroutine work, the organizational literature still struggles for an explanatory construct that addresses the president's action, the *projective* alternative to the *iterative* organizational routine. The creative project fills that gap, offering a construct that accounts for an important source of organizational change and change in routines.

After first tracing the theoretical underpinnings by which organizational change originates from both routine and nonroutine action, this paper compares how routines and creative projects unfold in the same organizational setting through an ethnographic case study of an automobile manufacturer's prototype parts-purchasing (PPP) routine and two creative projects undertaken to redesign it.

Theoretical Background

Organizational Routines and Creative Projects: Two Related Forms of Interdependent Action

The central role of repetitiveness in routines (Becker 2004, Cohen and Bacdayan 1994, Gersick and Hackman 1990, Pentland and Rueter 1994) is reflected in Feldman and Pentland's (2003, p. 95) definition of routines as "repetitive, recognizable patterns of interdependent actions, carried out by multiple actors." In addition to their repetitive nature (Nelson and Winter 1982, Feldman and Pentland 2003), there is general agreement that routines are accomplished by multiple actors via some form of cooperative relationship (Cohen and Bacdayan 1994, Feldman and Pentland 2003); have defined ends and means (Pentland 2004) insofar as the existence of a routine implies relatively predictable inputs, intermediate steps, and outputs (Gersick and Hackman 1990); and involve more tacit (Nelson and Winter 1982, Polanyi 1958), unarticulated, or procedural (Cohen and Bacdayan 1994) knowing.

A "stability" perspective is well developed in the foundational work on organizational routines (Simon 1945, March and Simon 1958, Cyert and March 1963), and an extensive line of subsequent work has explored the difficulty of changing routines (Edmondson et al. 2001, Gersick and Hackman 1990, Gilbert 2005, Levitt and March 1988, Nelson and Winter 1982, Orlikowski 2000). Even though this earlier literature noted that routines were adaptable and modifiable, only recently has the "adaptive" capacity of routines received focused attention (Feldman 2000, Feldman and Pentland 2003, Pentland and Rueter 1994, Weick et al. 1999). This more recent conceptualization emphasizes the discretion to consciously and incrementally alter unfolding, repetitive forms of action to accomplish a routine performed many times in the past. Feldman (2000), for example, found such plasticity and adaptability in university dormitory hiring and training routines, as have Miner (Miner and

Estler 1985, Miner 1991) and Howard-Grenville (2005) in other contexts.

Feldman and Pentland's (2003) recent influential reconceptualization of routines suggests that routines are not only a source of stability and inertia but also of flexibility and considerable change originating from within the routine itself. They argue that change and flexibility can be explained in terms of the interplay between a routine's ostensive structure for action and its actual performance—the actions, people, and location in time and space that bring a routine to life. Using this distinction, they explain that variation in the performative aspect feeds back on the ostensive aspect, providing multiple opportunities for variation, selection, and retention of new practices and action patterns. As Emirbayer and Mische (1998, pp. 983–984) point out, "[H]uman actors do not merely repeat past routines; they are also the inventors of new possibilities for thought and action." They further argue that all agency can be decomposed into a blend of three temporal elements: (1) iterational (oriented toward the past), (2) projective (oriented toward the future), and (3) practical-evaluative (oriented toward the present). Stable organizational routines can be seen as situated on the repetitive end of a continuum, oriented toward the past, whereas creative projects occur on the opposite end, oriented toward the future, with a range of adaptive routines lying in between.

As noted earlier, no matter how the construct of the routine is stretched or redefined, it cannot adequately address how markedly distinct new things get started in organizations. Feldman and Pentland's (2003) approach may come closest to accounting for such change, as exemplified by their imaginary vignette concerning an academic hiring routine. In that example, a promising candidate is unable to visit a campus for an interview because of a big snowstorm. Because the visit cannot be delayed or rescheduled, a "virtual" videoconference visit is conducted. This variation in performance broadens the organization's performance repertoire and may ultimately alter the ostensive aspect of the organizational routine. However, this "solution" to the immediate problem at hand still preserves the routine's overall architecture. In fact, what might seem disruptive on the surface (i.e., setting up a videoconference in place of the expected on-campus interview) may serve to preserve the organization's deeper underlying structure (i.e., the department's routine for choosing among primarily in-person interviewees). In contrast, a local project to minimize the "human element" by dropping campus visits altogether and automating a substantial part of the selection process would represent a markedly distinct change in the routine—a creative project. It is difficult to imagine how the vision of an automated academic hiring process could emerge simply from the ostensive–performative interplay. The relationship between the example of iterative change (the videoconference) and a more extreme break from the existing routine (automation and no campus visit at all) begins to suggest the contrast between organizational routines and creative projects, as well as their shared representational space.

Creative Projects and Project Management

A well-developed literature on "project management" makes a distinction between ongoing, repetitive operations and projects. The project is defined by one textbook as "a temporary endeavor undertaken to create a unique product or service" (Duncan 1996, p. 4). Although they might be temporary and unique in status, some projects, in practice, display the repetitiveness of routines. As one example, each product an organization develops typically constitutes a project based on its temporary and unique nature, and yet such product development efforts often involve many repetitive, recognizable (i.e., routine-like) behaviors. A given product development effort—despite being widely labeled as a "project"—might be pursued very similarly to the product development efforts that preceded it and would therefore be categorized as more akin to a routine. The adjective "creative" is used herein to denote an alternative, less repetitive project form.

To illustrate the difference between projects that are more routine and creative projects as used here, consider the example of a computer manufacturing firm. Product development specialists in this firm might research options, gather data, and design new products in ways that display a repetitive pattern of interdependent action. Yet there was a time when this same firm designed its first computer, and there are other times when it fundamentally changes the computer's design, alters the process by which its computers are designed or built (Henderson and Clark 1990, Kidder 1981), or enters into new product lines. These major breaks from otherwise ongoing operations can be classified as creative projects.

The routine's hallmarks of repetitiveness and recognizability (Feldman and Pentland 2003) can be used to distinguish between organizational routines and creative projects. The central questions of organizing posed by Weick et al. (2005)—"What's going on here?" and "What do I do next?"—can be understood as questions of recognizability and repetitiveness, respectively. That is, routines and creative projects can be distinguished by the extent to which the answers to these questions are well in hand as action unfolds. Creative projects' reduced repetitiveness, for example, results in less easily identifiable interdependent action, participation, and outcomes. Creative projects are conducted de novo, "as if for the first time."[1] This is consistent with Amabile's (1996) characterization of heuristic, as opposed to algorithmic, tasks. Amabile (1996, p. 35) indicates that whereas for algorithmic tasks "the path to the solution is clear and straightforward," for heuristic tasks there is no “clear and readily identifiable path to solution.” The objective and the means by which that objective is pursued, though not whether it is ultimately realized, identify a project as “creative.”

Organizational Routines and Creative Projects as Action Trajectories

Earlier, I indicated that a conceptually integrated account of how organizations get things done addresses a gap that exists between the routine and nonroutine literatures. There are suggestions that the “trajectory” concept is a good way to connect these two literatures by allowing the comparison of their respective units of analysis. Such an integrated perspective presents important new opportunities to clarify the mechanics of nonroutine action and consider the sources of, and distinctions between, different forms of organizational stability, change, and innovation.

Throughout this paper I reference Feldman and Pentland’s (2003) definition of routines as “repetitive, recognizable patterns of interdependent actions, carried out by multiple actors.” I propose that an organizational routine be viewed as a trajectory along with the creative project. A trajectory, according to Strauss (1993, p. 53), refers to “a course of action, but also embraces the interaction of multiple actors and contingencies that may be unanticipated and not entirely manageable.” I define a *trajectory* as a sequence of interdependent actions involving multiple actors. As early as 1926, Schumpeter saw routines as paths of action or trajectories (Becker et al. 2006).

Because the trajectory concept accommodates both the more stable and the more adaptive forms of routines, as well as the creative project’s emergent interdependent action, it serves as a unit of analysis for observing and comparing a range of action responsible for stability, as well as both more routine and less routine forms of innovation and entrepreneurship. Strauss et al. (1985, p. 11) allowed for trajectories to range from “quite routine to highly problematic.” This range of flexibility essentially mirrors the continuum of stable routine to creative project and repetitive to nonrepetitive action. For example, in the absence of a snowstorm, the campus-hiring routine described by Feldman and Pentland (2003) would be enacted with comparatively little variation; the snowstorm forces an adaptation, the videoconference, which can be seen as a somewhat “problematic” trajectory but still one that resembles the prior performances of the routine—an adaptive routine. In contrast, the idea of completely scrapping the interviews and automating the hiring process involves a more salient break from the routine—one that might result in a creative project.

In addition to his basic definition of the trajectory, Strauss (1988, 1993) provides a useful taxonomy of trajectory-related ideas. Based on Strauss (1993), this paper defines a *trajectory projection* as a vision of an expected or desired outcome and an associated course of interaction, a *trajectory scheme* as a plan to realize that vision, and *trajectory management* as the action employed to shape the trajectory through all of its phases by the carrying out the trajectory scheme. These

Table 1 Organizational Action Framework: Routine and Creative Project Trajectories

Action trajectories	Organizational routines	Creative projects
Ostensive trajectory		
Trajectory projection: vision of an expected or desired outcome and an associated course of interaction to achieve it.	Established, based on past repetition	Envisioned, based on a possible future
Trajectory scheme: the plan designed to guide interactions consistent with the trajectory projection.	More tacit	Conscious, explicit
	Action following an established routine	Action pursuing an envisioned outcome
Performative trajectory		
(*Trajectory management*)		
Knowledge articulation: making knowledge explicit, usable, or relevant to the situation at hand	More implicit; increase in articulation to address contingencies in order to get work back on track	More explicit to adapt and pursue trajectory projection and scheme in response to the situation at hand
Combinatorial action: activity connecting people and organizational units though new introductions or facilitation between previously connected actors	Ongoing coordination of preestablished combinations	Unfolding coordination through novel combinations
Contingency management: responses to exceptions or uncertainty	Getting (or keeping) work on track in the face of minor exceptions and adjustments in existing routine	Directing an unfolding action path by anticipating or responding to emergent means and ends

concepts can be used to highlight similarities and differences between routines and creative projects.

Taken together, the trajectory projection and scheme can be conceptualized as the ostensive aspect of a trajectory, whereas trajectory management, consisting of knowledge articulation, combinatorial action, and contingency management (all of which are described further below) comprise the trajectory's performative aspect (see Table 1). Consistent with Nelson and Winter's (1982) conceptualization of the organizational routine as truce, the ostensive aspect of a routine represents that which is generally settled, such as the academic hiring example, whereas the ostensive aspect of creative projects is unsettled, such as the prospects for cryogenic popsicle production. As demonstrated here, the trajectories of creative projects and routines can be shown to have comparable elements, and the implications of their ostensive–performative interplay can be explored within the same representational space.

In sum, this paper introduces the creative project as a form of interdependent action, conceptually distinct from, but closely related to, both stable and more adaptive depictions of routines. Creative projects are exploratory ventures that offer one means by which organizations and their routines change. By addressing the relationship between these two constructs, this paper expands our understanding of how organizations change and innovate while identifying the role of agents in directing more routine or less routine action trajectories. Change and innovation may occur through existing routines or by challenging a routine's underlying structure by setting a nonroutine action trajectory in motion. These nonroutine trajectories consist of substantially new projections of alternative future outcomes and undetermined, emerging combinations of ideas, people, and resources in efforts to achieve those outcomes. To more fully explore these two interdependent forms of action, as well as the microsocial processes by which organizational routines and creative projects unfold, I conducted a two-year ethnographic study at a major automotive manufacturer.

Methods

Research Setting and Data Collection

The data presented are drawn from ethnographic field observations of automotive design and production that are used to compare and contrast an organizational routine and two creative projects related to that routine. The fieldwork took place at AllCar (all names are pseudonyms), a major automotive manufacturer with several divisions. I spent the majority of time in NewCar, a division of AllCar with 1,000 employees, about 400 of whom were dedicated to the design of a new vehicle, the G5. Over time I gained access to and spent considerable additional time in a second AllCar division, GreatCar, located in the same building. Both the NewCar and GreatCar divisions, as well as a cross-divisional collaboration led by engineers from these two divisions, figure into the two PPP-related creative projects described below.

My initial objective was to study the social processes associated with innovation and change. I collected data over a two-year period, averaging four days of field observation a week for nine months, with site visits for the remainder averaging about one day a week. Approximately 14 months after my initial entry into AllCar, I administered a large-sample survey to further examine relationships uncovered through my ethnographic fieldwork.

In total, I spent approximately 1,000 hours in field observation, participation, and conversation. Ethnographic data presented here are derived from field notes, interviews, and a variety of organizational documents. Each day of observation yielded 5–50 pages of handwritten field notes, written up within 24 to 48 hours after leaving the field. Field notes were supplemented with 222 informal and 126 formal interviews, of which approximately 100 were taped and transcribed. I also attended approximately 220 meetings during the research period. As part of the data-gathering effort, I routinely collected documents such as memos, meeting minutes, prints of computer-based (CAD/CAM) designs, and informal sketches.

Of particular importance were observations of AllCar's PPP routine and two initiatives to remake that routine, which I refer to as the AllCar and G5 creative projects. I studied the PPP routine through extensive interviews with key participants, direct observation of prototype builds and prototype part purchasing in progress, and observation of meetings where the implications of prototype test results and subsequent build strategies were discussed. This data collection was supplemented by direct observation of and interviews with engineers who were designing, revising, and ordering automotive parts as part of the ongoing G5 prototype builds.

An introduction by the G5 program manager, Dan, provided me with the opportunity to meet the cross-divisional AllCar creative project group and directly observe much of its effort to change the existing routine. Over a five-month period, I attended 12 of the group's meetings, over a dozen more informal gatherings, and a corporate-wide three-day retreat convened to evaluate changing the PPP routine that occurred in the third month of the group's efforts. In the second month, the group agreed to allow me to tape all of its meetings, and I was placed on its e-mail distribution list. (The audiotapes were subsequently transcribed.) I maintained continuous, informal contact with several of the group members throughout the observation period. This was also a source of extensive information about the existing PPP routine that the creative project group sought to transform.

At about the same time as I was observing the AllCar creative project, Dan determined that he would pursue the more immediate creation of a G5 PPP unit. I refer to this effort as the G5 creative project. Over a five-month period, I conducted 10 formal interviews with Dan (all of which were taped and transcribed), along with interviews of several other people associated with the initiative. I also observed a series of informal meetings through which Dan successfully created a new PPP team devoted to managing the G5's prototype builds. For both the PPP routine and the two creative project trajectories, I wrote narratives that pulled together the information gained from field observations, meetings, interviews, and project-related documents.

A recent draft of this paper was provided to Dan several years after I left the field to determine the accuracy of my descriptions of AllCar, the PPP routine, and the two initiatives to change that routine. Dan provided strong support for the account provided in the paper but offered important clarifications about the nature and extent of the PPP-related tensions between the engineering and operations groups, which were incorporated in subsequent revisions to the manuscript.

Data Analysis

In analyzing the data, I used an inductive, theory-generating approach (Eisenhardt 1989, Locke 1996) that also incorporated insights gained from the quantitative survey study noted above. This triangulation (Jick 1979) or mixed strategy (Miles and Huberman 1994) began with an analysis of field data to identify several antecedents to innovation and change, followed by establishing and testing several quantitative measures of those antecedents through the survey study and ultimately applying the findings generated by the quantitative study to further qualitative analysis of the issues concerning organizational routines and creative projects.

My initial step was to identify patterns and themes in relation to innovation and change. I used an iterative approach to data analysis, moving back and forth among my field data, relevant literature, and emergent theory (Dougherty 2002, Eisenhardt 1989, Glaser and Strauss 1967), to identify themes and analytical categories that were continually developed to reflect new, incoming data. I wrote analytic memos (Emerson et al. 1995) on a regular basis to reflect on and synthesize different themes in the data and the relationship of different categories to one another. I made repeated observations about, and explored in several analytic memos, the interplay between more routine and less routine action. I also came to recognize different forms of coordinative and communicative practices that people employed in pursuit of innovation at NewCar.

Through this iterative process, I identified two core themes, *combinatorial action* and *knowledge articulation* (described in detail below), as critical practices related to organizational change at AllCar. The initial large-sample survey verified the validity of the inductively derived constructs of combinatorial action and knowledge articulation and their positive correlation with innovation involvement. However, the role these two practices played in the less routine, less systematic pursuit of innovation (i.e., changes to product or process), although suggested by the quantitative work, remained unexamined. To further explore this question, I returned to the analytic memos exploring the relationship between routine and less routine forms of action.

Within-case analysis (Miles and Huberman 1994) of the PPP routine and the two PPP-related creative projects allowed me to employ the quantitatively validated categories of combinatorial action and knowledge articulation as an initial means of distinguishing between the comparatively stable PPP routine and the two creative projects. Further analysis and iteration between data and theory revealed the importance of Strauss's (Strauss et al. 1985, Strauss 1993) concept of the trajectory as an umbrella concept that could accommodate organizational routines and creative projects as two related forms of interdependent action. Ongoing iteration between Strauss's theory of action and my field data revealed two overriding dimensions: a dimension of imaginative work involving trajectory projections and trajectory schemes (Strauss 1993) that guided interdependent action and a second dimension concerning trajectory management, the actual interdependent action displayed in an organizational routine or creative project. Subsequent analysis revealed that the imaginative dimension corresponded quite closely with what Feldman and Pentland (2003) referred to as the ostensive aspect of routines, and trajectory management corresponded with what the authors referred to as the performative aspect of routines.

Integrating the perspectives of Strauss (Strauss et al. 1985, Strauss 1993) and Feldman and Pentland (2003) provided a framework that discriminated between organizational routines and creative projects. The first dimension of the model, what I refer to as the ostensive trajectory (corresponding with Feldman and Pentland's ostensive aspect), encompasses the trajectory projection that initiates or guides new or ongoing interdependent action and the trajectory scheme, the plan for achieving the trajectory projection (Strauss 1993). The second dimension of the model, the performative trajectory (corresponding with Feldman and Pentland's performative aspect), is built on the quantitative and qualitative analysis described above and contains the following three coding categories.

1. *Combinatorial action*: The importance of individuals who connect people or coordinate action within their social networks first became evident from field observations. This analysis revealed the importance of linking activity (Hargadon 2002, 2003), or a *tertius iungens* strategic orientation (Obstfeld 2005), to organizational

change efforts. Obstfeld (2005, p. 100) defines *tertius iungens* as "a strategic, behavioral orientation toward connecting people in one's social network by either introducing disconnected individuals or facilitating new coordination between connected individuals."

2. *Knowledge articulation*: The importance of knowledge articulation (Obstfeld 2011, Polanyi 1958, Suchman 1987, Tsoukas 2009, Winter 1987, Zollo and Winter 2002) emerged from observation and analysis of communicative practices that accompanied a broad range of product development efforts. Of particular note were a series of communicative practices that brought specific knowledge to bear on a given problem or situation. These communication-related practices involved the surfacing of social knowledge and efforts to enlist stakeholders through skillful representations of problem-solving plans. Subsequent qualitative analysis of more than 50 episodes taken from field observations and interviews suggested differences according to articulation devices such as analogies, metaphors, stories, slogans, informal sketches, and written documents, as well as physical objects (e.g., mock-ups, models, and actual automotive parts). I came to define knowledge articulation as the social process by which knowledge is made more explicit, usable, or relevant to the situation at hand (Obstfeld 2011, Weick et al. 2005).

3. *Contingency management*: Neither of the above coding categories addressed the improvisational action I observed periodically with respect to the PPP organizational routine and more frequently with the two PPP-related creative projects. The coding category "contingency management" was introduced to address both those situations where contingencies were managed through anticipation, as well as surprises that had to be addressed after they presented themselves. This final coding category addressed both the improvisation found within the PPP routine and how the two creative project initiatives addressed uncertainties with respect to participation, executive support, legitimacy, and what to do next over time.

Results

To examine the issue of how trajectory action differentially unfolds, this case study compares an organizational routine and two creative projects related to that routine. I first describe the PPP routine and then turn to two emergent efforts to substantially change the routine.

The Prototype Parts Purchasing Routine

The PPP routine was a well-defined, easily recognized process for the procurement of prototype parts for assembly into successive generations of prototype vehicles that led ultimately to a high-volume production vehicle for retail sale. The PPP routine, according to Dan, the NewCar G5 program manager, involved "getting the right parts, to the right [prototype] vehicle, at the right time." Because all design engineers made periodic changes to their parts, the PPP routine could be characterized as a routine for managing modest, relatively predictable part changes.

The core PPP routine involved an engineering request for a part or part change, the solicitation of one or more supplier quotes, the generation of a purchase requisition for prototype parts on a one-time or ongoing basis, approval of the requisition by engineering and finance, the generation of a supplier purchase order, receipt of parts, and supplier payment. The engineering design and testing process yielded a succession of part changes, often anticipated by the purchase requisition. The PPP routine spanned four communities: the part design engineers, the suppliers who manufactured those parts, the purchasing and operations staff, and the prototype build units.

The PPP routine also bridged two other NewCar routines: engineering design and prototype building. The engineering design routine engaged hundreds of engineers whose part designs drove the need to procure parts for a series of prototype builds. (This is the point at which the PPP routine came into play.) In the prototype build routine, prototype vehicles were assembled to provide multiple rounds of feedback on overall performance as well as on how prototype parts fit together and would be assembled in the final manufacturing stage. Each engineering division had a dedicated purchasing unit. Design engineers worked directly with part suppliers to generate minor part revisions but were expected to work through the purchasing units to get approval for purchase orders and major departures from established purchase orders, and to coordinate the delivery of updated prototype parts. Engineers were ultimately under pressure to deliver the best possible part in time for a given prototype build, whereas the purchasing unit attempted to manage supplier costs and adhere to a predictable schedule. The attention design engineers and their managers paid to costs, timing, and PPP procedures varied widely by division.

One unique approach to these arrangements was a PPP unit run by manager Craig that focused exclusively on the production of sheet metal and parts related to the automobile's steel outer body. Craig's unit maintained relationships with approximately 105 suppliers and actively controlled the engineers' latitude to go directly to those suppliers, as well as suppliers' attempts to work outside of preestablished purchase orders. Craig's capacity to coordinate between the engineers and the part suppliers was legendary. With four filing cabinets, five pages of supplier phone numbers taped to his desk, five support staff, and no computer, Craig managed the acquisition of body prototype parts for a half-dozen vehicles a year across multiple engineering divisions. Craig achieved this feat because his decades of experience enabled him to locate the right vendors, detect when either design engineers or suppliers were making unauthorized changes, and enforce compliance from both.

The PPP Routine's Ostensive Trajectory

Trajectory Projection. I define a trajectory projection as a vision of an expected or desired outcome and an associated course of interaction to achieve it. The trajectory projection identifies a trajectory outcome that is consistent with past iterations or that guides and motivates markedly new action. The trajectory projection for the PPP routine typically involved an expectation of a simple progression of handoffs that began with an engineer's request for a part or part change and concluded with the receipt of the part and supplier payment. The expected course of action was framed around previous repetitions of the established routine. Dan observed, "[D]oes a [PPP] process exist? Are there clearly defined, clearly institutionalized steps: 1–2–3–4–5–6–7, zigzag left, right, up, down?…Yes. …" Extensive discussions in a three-day retreat convened to chart, diagnose, and consider redesigning the PPP routine corroborated the existence of a broadly shared ostensive grasp of the routine as a preestablished and predictable progression of steps. This shared grasp was reflected in a high-level process chart developed during the retreat (see Figure 1). Retreat discussions surfaced a tacitly held routine that featured a well-defined beginning, middle, and end; stable participants with clearly identified areas of responsibility; and a repetition that the periodic revision of parts that the prototype build process demanded. In any given iteration of the PPP routine, the end goal—a part arriving on time for installation on a given prototype vehicle—resembled the end goal associated with previous iterations of the routine. This predictable progression and outcome provided the ostensive aspect that all subsequent executions of the PPP routine referenced.

Trajectory Scheme. The PPP's trajectory scheme—the plan designed to guide interactions consistent with the trajectory projection—is more tactical than the trajectory projection. In this case it involved a relatively predictable progression of tasks for executing prototype part design and redesign. Extensive planning and budgeting plotted out the G5 prototype build schedule. Downstream, those responsible for prototype vehicle production executed elaborate spreadsheets to ensure that prototype parts were available for assembly into the required number and mix of prototype vehicles at the appropriate time. Once such planning was completed, comparatively less conscious attention to process was required to achieve the intended outcome. Results from the tests of these prototype vehicles provided feedback for engineers to revise their part designs as necessary. Despite Craig's coordinative talent, for example, he ultimately adhered to a relatively predictable line of action. According to one prototype build manager,

> [Craig] sees things coming, and he's able to predict with a lot of certainty and much confidence what's happening because of the nature that usually body engineering designs things pretty much the same way.…On the small hinges, tapping plates, reinforcements…those are pretty much the same size and pretty much a standard part in the AllCar releasing system.

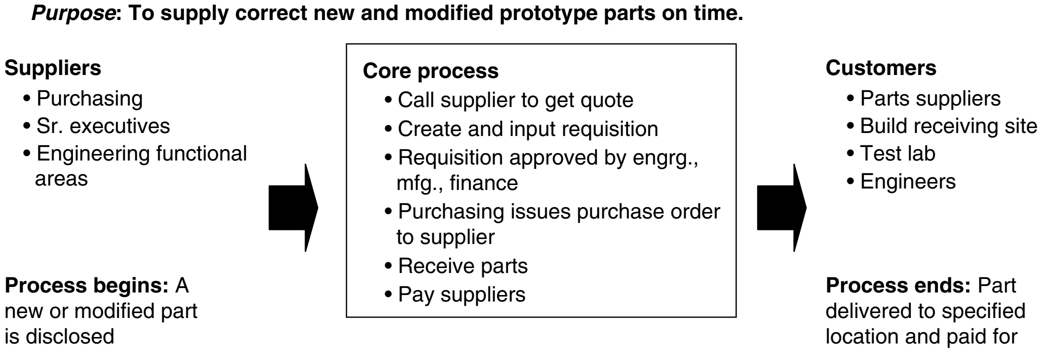
Craig's attention was focused on the imperative of perfecting specific parts and coordinating their design with neighboring parts. As a result, the PPP projection and scheme converged on one another and often receded from conscious attention. Put differently, the ostensive aspect of the PPP routine served both as a projection of an expected outcome and as a representation that guided action within the routine (Feldman and Pentland 2003).

The PPP Routine's Performative Trajectory

Observations of design engineers requesting parts and the PPP group's ordering of parts suggested, in many cases, the relatively straightforward progression implicit in the widely held ostensive view of the PPP routine.

Knowledge Articulation. I define knowledge articulation (Obstfeld 2011, Polanyi 1958, Tsoukas 2009, Winter 1987, Zollo and Winter 2002) as the social process by which knowledge is made more explicit, usable,

Figure 1 **Prototype Parts Procurement**


***Purpose*: To supply correct new and modified prototype parts on time.**
Suppliers
• Purchasing
• Sr. executives
• Engineering functional areas
Process begins: A new or modified part is disclosed
Core process
• Call supplier to get quote
• Create and input requisition
• Requisition approved by engrg., mfg., finance
• Purchasing issues purchase order to supplier
• Receive parts
• Pay suppliers
Customers
• Parts suppliers
• Build receiving site
• Test lab
• Engineers
Process ends: Part delivered to specified location and paid for

Note. This chart is an adaptation of an exhibit from the PPP retreat's final report.

or relevant to the situation at hand (Obstfeld 2011, Weick et al. 2005). As noted, AllCar work involved continual communication, but the discussion that took place within the PPP routine was about the execution of the routine and dealing with minor contingencies rather than in-depth reflection *about* the process or how a more substantial change might be achieved. Craig described the exchange that might accompany a typical part change:

> [An engineer will] send me . . . a letter . . . I'll evaluate the cost and . . . [i]f it looks reasonable, I'll sign off on it and send it back to him to go ahead and proceed. If it's a large amount of money and a time issue, we may have to run it through management. Do you want to have this part one week late with this change? Or do you want to spend $50,000 more now or do you want to wait a few weeks and do it later?

About the persistence of engineers requesting part changes, Craig indicated, "They'll always come back with one more [saying], 'Honest. This is the last change. Honest. You just get this for me.' " Prototype build manager Tom provided a similar depiction of the relatively minimal level of deliberation involved with supplier quotes:

> [. . . The supplier] . . . sends Craig an official quotation saying . . . $65,000 for the die and $110 per part. Now Craig has to take a look at it and say, . . . "Boy, that's a lot of money. . . . I don't know if that's going to fly. Resubmit a new number." The guy resubmits a new number. Craig sends him a [purchase order].

Craig's work was occasionally contentious—he indicated that he had broken many phones in screaming fits with suppliers—but such displays concerned his enforcement of AllCar's process standards and generally involved minimal articulation of the knowledge associated with a given process. Observation of dozens of design engineers whose part orders were coordinated by Craig's unit and other PPP units also suggested that the knowledge articulation associated with minor changes involved comparatively limited discussion of the routine's underlying structure or purpose.

The PPP routine always exhibited a modest level of knowledge articulation inherent in the coordination among engineers, purchasing, and suppliers. As such, the PPP routine involved constant talk concerned with keeping and getting work back on track. In summary, the PPP routine rarely involved reflection on the process itself, how it was supposed to operate, and how it might be improved, but rather it involved the practical need to push work forward toward the production phase of a new car.

Combinatorial Action. Combinatorial action refers to activity connecting people and organizational units though new introductions or facilitation between previously connected actors. Although the PPP routine involved extensive coordination, the typical performative trajectory was more recognizable, showing little evidence of connecting people in new combinations. Craig indicated that the suppliers he used for the different build programs he managed were "almost all the same people." The stable network of supplier relationships with which Craig worked was reflected in the supplier list. As Craig put it, "I've been doing this for . . . 17, 18 years and . . . I've been working with [some suppliers] 17 or 18 years, [so they] are used to me." Although Craig mentioned "babysitting" the occasional new supplier, the relationships he established with them conformed to an established pattern. Craig and his unit facilitated engineers' part requests (periodically identifying a suitable supplier), tracked the delivery of parts, and authorized the payment to suppliers. The close ties Craig had established with suppliers were captured in Tom's account of a hypothetical Craig supplier interaction:

> Those relationships are built up. Craig can call up . . . XYZ supplier [and say], "Hey Fred. I've got a part coming over. I want you to look at it. It will be [on the computer] at 2 o'clock tomorrow. Pull it up . . . and give me a call back and tell me what you think."

In this manner, Craig would periodically convene a supplier and engineer, but the novelty associated with such coordinative action was nominal, and the need for such coordination was only evident in the early stages of the larger product development process.

In sum, the PPP routine provided little evidence of novel combination but rather multiple examples of repetitive coordination along established lines of action. Although there were occasional new actors, their engagement was tightly controlled and confined to well-established interaction patterns.

Contingency Management. Contingency management refers to the responses to exceptions or uncertainty occurring in the unfolding action trajectory. There was substantial evidence of a "range of interfering and upsetting contingencies" (Strauss et al. 1985, p. 19) in the PPP routine's execution that led to divergence from the routine. The extent of these contingencies was consistent with the conception of adaptive routines described by Feldman and Pentland (2003): they generally stemmed from an inherent tension between the engineering group, which constantly strove to improve the design of specific parts as well as the overall vehicle, and the PPP unit's imperative to get or keep work on track in the face of minor exceptions. Dan, NewCar's G5 program manager, described the propensity of engineers to continually perfect their part designs:

> [W]ith regard to the prototype procurement process, it was a good process, it was an institutionalized process,

> people understood the process, and for all intents and purposes people wanted to follow it. The problem is the tension against following it was … all too great. … It was the only time you were really able to prove out the design and development and part process concept before you went to hard tools. If you talk about the order of magnitude, prototype tools may cost $20, $30, $50 million; production tools cost $1 billion. You had to get this s–t right and you had to get it right in a really short period of time with the whole world watching.

To get parts right, engineers initiated many part changes both within and outside preestablished purchasing arrangements.

Although many engineering-initiated changes were minor, Dan indicated that some were more significant and could be driven by outside forces:

> It was not unusual at all, for I'd say easily 30% of the parts in the car needing to change significantly over the prototype build phase not driven by the engineers' need to change s–t, but driven by part failure at the proving grounds, driven by … problems in the early stages of build process development, driven by changes in the market where a senior manager saw something at the Geneva Auto Show and said, "That s–t looks cool! Let's do that on our car!"

As this experienced manager noted, the forces driving the PPP routine's performative trajectory to deviate from its ostensive aspect were considerable: "The whole f—ing world was against that process." For all these reasons, according to Dan, purchasing and operations managers held a negative view of engineers, whom they described as "wayward": "[The engineers'] basic tendency was waywardness and 'you need to keep them sons of bitches under control.' " He indicated that he had seen this perspective expressed by senior nonengineering executives at AllCar's highest levels.

With respect to body parts for the NewCar and GreatCar divisions, the responsibility for controlling the PPP routine fell to the PPP manager, Craig. Craig's pursuit of control was based on his ability to predict the path of the PPP routine as a result of its repetitiveness. Craig indicated in reference to an engineering order in front of him:

> I … go back to my historical data and figure out based on [the type] of part, how many times did it change design during a program and how much more money do I think I need. So in [this] case, … since [engineering didn't] put enough money in [their purchase order], I need about 150% more than what they think they need to start with … another $216,000.

Reflecting the repetitiveness of the routine, Craig indicated that his group prepared a regular report on "every single part on every car. [On any given day] … we can go through and tell [engineering] exactly when we're going to have the part … [and] when we're going to deliver stuff. … Truck, [SUV, car,] tank, and whatever else we're going to build."

The PPP routine was subject to frequent minor contingencies produced by wayward engineers who often presented part changes, sometimes on a last-minute basis and, more seriously, engineers and suppliers who flouted procurement guidelines by making changes without the PPP unit's approval. Such contingencies might involve changes to automotive parts such as hinges, fenders, or hoods, or sudden increases in the preestablished number of prototype vehicles needed for a given prototype build. Craig described design engineers' attempts to order extra parts off schedule:

> You're trying to control [engineers] to keep the changes within reason … . [An engineer's] job is to make this one bracket. He wants this bracket perfect, so he'll have it, he'll tweak it and tweak it and keep sending the supplier more and more data. … "I want this done and this done." It gets the costs out of hand. … Everybody does this. …

These pressures required the PPP manager to actively manage the number and seriousness of the contingencies in an attempt to achieve an on-time, on-budget prototype build.

The routine's relative predictability provided a frame of reference for Craig's considerable efforts to corral wayward engineers through close controls on both the engineers and their suppliers. Craig imposed supplier requirements, rigorous reporting, and training—with punishments for noncompliance—to ensure that everyone conformed to the established routine. In one hour-long interview, Craig referred to his work as a "controlling function" three times, referring also to the need to "control" in reference to costs, engineers, suppliers, and part changes. It was not unusual to hear Craig shouting at suppliers or engineers, informing suppliers that they would not get paid because of their failure to follow his procedures, or telling engineers that they needed to document their part requests or risk not getting the parts they needed for an impending prototype build.

Craig described several ways he managed such contingencies to get work back "on track." One way involved "slapping" suppliers who failed to follow AllCar procedures by responding directly to engineering part change requests without first getting official clearance:

> The suppliers are told by us … , "You do not do changes until you are authorized." [An engineer] will run in with "I got to have this." [The suppliers] do it and unless it's covered [under an existing purchase order], they may not get paid. It usually takes some little thing like giving them a token slap and [them not getting] paid for something to make them realize we're trying to control things. [One engineer] didn't come to me. He actually went to the supplier. So … the supplier came to me this morning [and said,] "[The engineer] needed this [part change]." I said [to the supplier,] "I don't care. I'm not going to pay

> you for [those parts] now.... And [you better not delay the upcoming] part delivery."

Another approach, in response to excessive engineering changes, involved contacting the engineers' managers to ask them to rein in their engineering staff:

> I just tell [the engineers], "No. We're not going to do it. No." ... You meet with ... the senior supervisors to go through [the part changes] their kids wanted to do.... What we can and can't do.... [A request] may come through [to] throw all the tools away and start over again. I'm not going to do that unless we really have a real problem.

Negotiations with senior engineering management signaled a more salient departure from the PPP routine, a less frequent major contingency that needed to be dealt with more proactively.

The PPP routine typically followed a relatively predictable trajectory consistent with the widely held ostensive view of the process, but its ongoing execution still generated numerous occasions for managing contingency. Part of the process concerned Craig's efforts to anticipate and suppress those contingencies, whereas another part involved managing various contingencies once they arose. The PPP routine's parameters represented a truce (Nelson and Winter 1982) between the engineering and purchasing communities. The terms of the truce dictated a variety of ad hoc arrangements and an understanding whereby major disruptions were elevated to higher levels of management and more extensive negotiation between the two communities to determine whether they would be allowed.

Overall, the PPP routine exhibited more knowledge articulation than suggested by traditional views of routines that emphasize their tacitness (Birnholtz et al. 2007). Minor contingencies, in particular, presented occasions for more knowledge articulation and combinatorial action in order to move work forward.

The AllCar and G5 Creative Projects

The PPP-related creative projects concern two interrelated initiatives: first, how a small but diverse group of middle managers from several divisions at AllCar combined efforts to pursue a major change in the corporate-wide PPP routine that it believed was costly and inefficient; and second, how the G5 program manager, Dan, simultaneously created a new prototype procurement unit to manage the G5 prototype build process. Although the AllCar initiative ultimately ended in failure, the G5 effort succeeded.

In both cases, the initiators' pooled experience with the underlying PPP routine and their shared end goal framed their efforts in the absence of formal senior management sponsorship. This absence of executive support was counterbalanced by the initiators' familiarity with the NewCar division's culture, which had embraced innovation and risk taking in the past. The NewCar vice president described the "cowboy spirit" that made his employees "willing to take risks":

> [We're] not really overly restrained by the policies and the procedures and the bureaucracy. The people, in many cases anyway, tend to want to find a way to get it done.

When asked about cowboy skills, this executive indicated,

> Resourcefulness ... finding a way, even including unconventional means, to solve a problem.... That's what cowboys do, right? ... They didn't go out there with warehouses full of tools and parts. They had a rope and a gun and built the country.

The managers spearheading the initiatives—long familiar with the now-fading cowboy tradition—believed their efforts to transform a major corporate process had a plausible chance for success. Several members of the two creative project initiatives had mentioned that both the NewCar vice president and a high-ranking executive, Ted, had NewCar roots and might respond favorably to their efforts.

The AllCar creative project group's efforts progressed in three stages, beginning with the mobilization of a core group of colleagues who wanted to redesign the routine, the orchestration of a three-day retreat to generate credibility for the group's collective goal, and a subsequent presentation to Ted and other corporate sponsors. Despite his guardedly positive response, Ted left AllCar two weeks later for a major competitor, after which the AllCar creative project ground to a halt. In contrast, the G5 program manager's successful creative project involved recruitment and mobilization both within and outside of the NewCar division. While enlisting senior management support within NewCar, he actively negotiated with units outside of the division for individuals to staff his new unit in exchange for operational support of other prototype builds once the G5's development was completed.

The AllCar and G5 Creative Projects' Ostensive Trajectories

Both PPP-related creative projects were spurred by a vision of how prototype part purchasing at AllCar might be remade, as well as an accompanying scheme regarding how such a redesign might be accomplished.

Trajectory Projection. Brian, a frontline operations manager from AllCar's GreatCar division who had spent considerable time over the years with the NewCar cowboy contingent that occupied the same building, mobilized the initial AllCar creative project group. When I first spoke with Brian, he was ready to orchestrate a cross-division initiative to redesign the company's entire PPP process. Regarding his goals, Brian indicated,

> AllCar does a poor job of running the [prototype] business. [It has a] $1 billion budget but is run worse than a mom-and-pop grocery store.... I feel like a voice in the wilderness.... Each division does it its own way.... [The] downstream production systems...don't talk to each other. Across NewCar and GreatCar [we need to] develop a new system that will make up for shortcomings.... Create a system, drag some people along.

In brief, Brian was convinced that the current PPP routine was deeply flawed and that redesigning it could save the organization tens and possibly hundreds of millions of dollars. Brian's initial trajectory projection involved a high-level account of a substantially remade PPP routine that addressed a critical, largely ignored set of problems with the existing process.

Brian's expression of these problems and exploration of the opportunity for fashioning an innovative solution attracted a core group of individuals of diverse ranks, responsibilities, and interests. In addition to Brian, the initial AllCar creative project group consisted of Carl, a frontline manager from NewCar who had successfully introduced a number of major innovations in other areas; Bob, a high-ranking manager over the prototype build area at headquarters; Alan, a middle-level purchasing manager for GreatCar; Jason, a middle-level finance manager for both NewCar and GreatCar; George, a frontline employee who worked for Brian; Betty, a frontline purchasing manager from a third automotive division; and Mel, a program management employee from a fourth AllCar automotive division.

Buying into Brian's general vision, the group agreed that the existing process was slow, involved excessive paperwork and outdated information systems, and lacked the essential capability for managing suppliers and costs. During meetings over the first two months, the group evaluated the PPP routine, its problems, and the potential of remaking the routine, developing a shared vision of a redesigned process built around cross-functional staff with cutting-edge technology serving multiple engineering divisions.

The G5 creative project was born from a similar sense of urgency felt by Dan, the G5 program manager, with whom Brian was in constant conversation. Dan's desire to create a new unit to handle the G5 PPP routine reflected his sense of the same problems identified by the AllCar group: "A prototype tooling program...for the entire car can be $30 million. ...[Several years ago] an early build prototype development phase got out of hand. ...They ended up $400 million in the hole." The immediate impetus for his efforts involved the adversity he had encountered in a recent NewCar executive meeting:

> We had a five-minute item on the [executive meeting] agenda...forty minutes later, [the prototype build manager] and I left the room with tufts of hair out of the side of our head where the execs had kicked us in it. They came out loaded for bear, [telling us] "you son-of-a-bitches keep telling us that we are late...[with our part releases] and we keep telling you that our part schedules are changing...so you need to just change your plan and stop coming in every week telling us that we are late to your plan." ...I came out of there and I told [my boss]...there's no understanding on how we got off-track and no commensurate process to get us back on track.... [My boss] gives me the Toyota heavyweight manager lecture about I own the car, I own everything, all these other people are resources to me...I said, "Okay." I'm going to call him on that.... I'm basically putting together a little team of people...I'm going to take over the whole f—ing build plan. ...I'm going to take it over, with or without [vehicle build management's support].

Dan's account indicates the close connection between Dan's projection of a new end state (i.e., a new prototype procurement team) and a provisional plan for achieving it, the trajectory scheme.

Trajectory Scheme. The AllCar creative project group's trajectory scheme envisioned a series of mobilizing actions that the group members believed would generate support and ultimately lead to an official three-day, human resources-sponsored cross-divisional retreat to assess the PPP routine. The group believed that the retreat could be parlayed into senior management authorization to redesign the PPP routine. This scheme evolved continually, alternating among ongoing consideration of multiple advocacy paths and assessment of the group's efforts as they unfolded.

This retreat-based scheme represented one of several possible approaches the group considered. The range of alternatives was made clear in a response to my question, put to the group after the retreat, of whether it would have been possible to forgo the substantial effort involved in gaining support for and then holding the retreat as a means of getting an audience with senior management. Carl responded,

> I don't know [the senior executive] well enough to know if he believes in this [reengineering] stuff or not.... I mean, if we would have gone to him with the same piece and say, "We've got a group formed of Brian and myself and Bob, Alan, Jason, and George and we want to sit down and meet with you to talk to you about this thing we've got, probably not. Now if we talked to [Vice President 2] in advance and we talked to [Vice President 1] in advance and I got buy-in from engineering and Jason got buy-in for [Finance] and all that...then we'd have a meeting with all three of [the key vice presidents] together to put on a presentation. And if they all bought in, then we'd ask [the senior executive] or ask [Vice President 1] to put us on [the senior executive's] calendar. There's other roads to take, other options. But [a human resources-sponsored retreat] is the easiest because for us to be able to [schedule Vice President 1] or [Vice President 2] assumes that we have the validity to do that.

Carl's comment reflects the way in which the group continually discussed and evaluated alternative schemes—an aspect of the knowledge articulation found in the AllCar creative project described below. Brian repeatedly emphasized, as part of the initial scheme, the opportunity to access sponsors and resources by opportunistically linking the AllCar creative project to a corporate-wide initiative to reform product development called the AllCar Development Process (ADP). This led to the conscious choice to copy the ADP group on memos and to invite the ADP vice president to kick off the three-day retreat.

As noted earlier, Dan also had a rough scheme with respect to how he wanted to pursue the creation of a G5-specific PPP team within a much shorter time frame than that envisioned by the AllCar creative project group. A week after his contentious meeting with NewCar executives, Dan's trajectory projection had crystallized, apparently after a meeting he had with Brian and Carl:

> Carl and Brian met in my office.... It was a conversation of moles... I want to manage getting the right parts to the right car at the right time. ... I'm in negotiations right now with [my boss] to pull a [prototype] parts group together. I've named them. I'm not sure if [the current build manager] is going to allow it, but I will have to work that out. ... I am going to want to pick up the pace with this G5 gang.

Dan's remarks indicate some of the raw parameters of his scheme: his ultimate objective, the need to stay underground, the need to secure his boss' support, a preliminary list of staff he would have to individually recruit, and the need to anticipate the existing build manager's potential opposition to his effort. This, along with Dan's earlier remark, indicates how the trajectory projection, trajectory scheme, and ensuing action were more entwined given the shorter time frame envisioned for his project.

The AllCar creative project core group's trajectory projection and scheme traced an imagined line of action that was distinct from the ongoing conduct of the PPP routine. Brian's initial projection, elaborated by the creative project core group, envisioned an outcome and a means of pursuing it that necessitated emergent, interdependent action directed toward a specific goal. While the trajectory scheme evolved improvisationally over time, the overall trajectory was initiated and pursued in direct relation to a projection of a redesigned process and an idea of how the PPP routine could be transformed, coupled with a consideration of the various ways and means of achieving that vision. Dan's G5 creative project also displayed a trajectory projection and trajectory scheme. Because of his sense of urgency, however, aspects of both the trajectory projection and scheme were frequently expressed in the same statements and led more immediately to subsequent trajectory action. Where the trajectory projection and scheme receded from conscious attention in the PPP routine, the projection and scheme were continually referenced and updated throughout the two creative projects.

The Creative Projects' Performative Trajectories

The performative trajectory refers to the actions taken within the two creative project initiatives to remake the PPP routine. The trajectory action displayed in both creative projects can be understood in terms of the three categories: knowledge articulation, combinatorial action, and contingency management, although these occurred in different sequences than with the PPP routine. Where the PPP routine's occasional contingencies precipitated increased knowledge articulation and sporadic combinatorial action, the creative project groups' continual articulation of goals and schemes initiated episodes of combinatorial action that, in turn, often led to a need for contingency management.

Knowledge Articulation. The coordinative activities involved throughout AllCar's business operations demanded continual communication, but the work associated with the two creative projects involved a particular type of communication that involved reflection on the PPP and its problems, how it could be transformed, as well as how to enlist others to help in the effort. Given the definition of knowledge articulation as making knowledge explicit, usable, or relevant to the situation at hand, I observed three variants of knowledge articulation that corresponded with whether a given situation involved diagnosis and problem solving, what I refer to as "fixing"; developing and adjusting plans to guide unfolding action including how to enlist key stakeholders, or "scheming"; or presenting knowledge about the PPP routine's flaws and potential solutions to key stakeholders for the purpose of enlisting them, or "pitching."

AllCar fixing: Fixing refers to knowledge articulation focused on diagnosis and problem solving. The creative project core group's initial meetings involved a series of discussions to articulate its tacit knowledge of the PPP routine. These discussions involved exploration around a whiteboard as the group tried to pin down the elusive details of the routine, its problems, and potential solutions. Group members used these initial discussions to frame and focus the problem(s) they wanted to address and to better understand the routine, unpacking its often automatic or tacit nature. The team's second meeting considered the PPP process in some depth; the memo that followed featured a "systems map" that included the process name ("prototype parts purchasing"), its "purpose" ("to supply correct prototype parts on time"), and other categories such as "suppliers/customers," "inputs," "core processes," and "outputs." The memo concluded with the group's preliminary indications of the process problems or "performance gaps," which included "budget overruns," "no defined roles/responsibilities," "lack of conformity across platforms," and "excess time spent chasing supplier parts/payments." The summary memo indicated that the next meeting would further "define examples of current system waste" and suggested, "Please come prepared to discuss actual illustrations from your specific areas." About the meeting, Brian commented, "With the process map, we know where we want to get to. I have to do it slowly enough and subtly enough. It's like you're pulling a wagon with a weak cord."

AllCar scheming: Scheming refers to knowledge articulation focused on developing and adjusting plans to guide unfolding action. After diagnosing the process, the group engaged in an extended discussion of participation—which executives might sponsor an official sponsored retreat and who else needed to be recruited to build broad support for and during the retreat. One discussion on how to secure executive sponsorship for the retreat focused on four vice presidents they might recruit. Another extensive discussion focused on orchestrating retreat attendance. The group pooled its social knowledge to determine the right mix of supportive invitees. One such exchange went as follows:

Alan: We need engineers; we have none yet.
Brian: I can get you all kinds of engineers.
George: Forward-thinking people like [name].
Brian: Forward-thinking body guys in NewCar or GreatCar.
Jason: We need more engineering types from [corporate headquarters too].
Brian: I walked into Bob, [and asked whether there were] guys "like us" at corporate and he just shook his head [no].

Over time, the group compiled a list of approximately 25 employees thought to be supportive of the initiative and whose collective attendance would provide legitimacy for any solution the group identified. In this manner, the AllCar group's scheming frequently served to adjust initial plans contained in the trajectory scheme. Where scheming may involve articulation of social knowledge regarding who to enlist and how that might be accomplished, combinatorial work (described below) refers to the actual social activity associated with the forging and facilitating of connections.

AllCar pitching: In its early search for solutions, the AllCar creative project group made repeated references to Craig's PPP unit. The group spent substantial time articulating the nature of Craig's unique role. He emerged as a metaphor for the coordinative capability that a centralized PPP unit could provide, which the group came to see as a key solution to the problems with the existing process. In the second meeting I observed, Brian remarked, "We have a hell of a database with Craig." Alan responded, "He's doing all the right things, but not doing them for all divisions." In a critical meeting with a skeptical high-ranking manager whose support was essential, Brian quickly embellished his rationale for a redesigned, centralized purchasing unit by adding, "Like Craig does for sheet metal," a comment that appeared to allay the manager's concerns. The group increasingly relied on a simple reference to Craig both to efficiently articulate the type of coordinative work the group wanted to see a centralized unit handle and to persuade key stakeholders as to the legitimacy of their approach. Where pitching served to enlist support, combinatorial work refers to the activity associated with introducing parties, creating meetings, and inviting collaborators in order to move a project forward.

G5 knowledge articulation: As the program manager for the G5 automobile, a high-visibility design effort rapidly approaching the prototype phase, Dan had little time or patience to engage in prolonged discussions on how best to outfit a new G5 PPP team. As a result, he spent substantially less time diagnosing the process (i.e., "fixing") and far more time scheming (with Brian and select NewCar executives) and pitching. Dan's pitch rapidly converged on the purpose of the team as getting "the right parts in the right cars at the right time." Expanding on this theme, he once explained, "Right parts are defined as parts that the engineering community wants on the individual vehicles.... The right time is defined as the time the parts need to be there so as not to hold up a build or disrupt." In his first meeting with the initial manager of the new G5 PPP team, for example, Dan indicated, "Your job, in a nutshell, is to make sure that the right parts are at the right cars at the right time." This succinct statement anchored most of his appeals for support at different levels of the organization.

In both creative projects, knowledge articulation was not only used to make tacit knowledge more explicit but also to make that knowledge persuasive in order to enlist support for the effort at hand, a clear distinction with the knowledge articulation found in the PPP routine. The AllCar group was continually reflecting on "what was going on" with respect to their ongoing redesign effort and "what to do next" in order to move the initiative forward. It was through knowledge articulation that the initial trajectory projection and scheme were first developed, and through continued knowledge articulation activities that the group adapted its approach in response to its unfolding interactions. Pitching activity in both creative projects converged on a particular tagline that over time proved to succinctly establish a creative case with various stakeholders. For the AllCar team, the pitch revolved around "like Craig," whereas for the G5 effort, Dan increasingly resorted to versions of "the right part, to the right car, at the right time." Because knowledge articulation frequently served an advocacy and enlisting function, it often was closely related to the combinatorial work described below.

Combinatorial Action. The AllCar and G5 creative projects, in contrast to the PPP routine, provide many examples of the mobilization of support through the initiation of new combinations of people. Such combinatorial work is fundamentally triadic in the sense that one entity coordinates, links, or mobilizes two other actors, groups, or divisions. What is characterized here as triadic linking also applies to many larger gatherings orchestrated by the AllCar creative project group as well (Simmel 1950). Knowledge articulation and combinatorial action often interacted, with scheming and pitching serving as the means by which novel combinations were conceived or facilitated. Knowledge articulation ultimately involves communication related to but distinct from the actual social action associated with facilitating new linkages or incorporating new collaborators. Long Lingo and O'Mahony (2010) include both in a more general category that they label "nexus work."

AllCar combination 1: As noted above, Brian formed a core group of individuals of diverse rank, responsibilities, and interests. Regarding Brian's nonroutine combinatorial work, Dan indicated,

> Brian is a mole. He's a gopher. He's an underground player.... He's partnering. He's out there [burrowing] around. He's out there talking to the Bob Johnsons of the world.... Bob Johnson is [a high-ranking manager in engineering operations.] So he is the man.... Well, Brian is underground with Johnson. He's underground with Carl. He's underground with Brad of GreatCar.

Brian's effective mobilization of interest and support around his vision constituted the inception of the trajectory. The creative project core group's collaboration constituted a novel combination, because it was discrete from any familiar, repetitive forms of interdependent action within the organization. At the same time, the novelty of this effort was moderated by the fact that several of the core group members already knew each other and had collaborated in the past, if only sporadically, in the pursuit of changing some aspect of the company's operating processes. According to Carl, "We've been talking about it to each other in different changing networks for five, six years now."

AllCar combination 2: At an early stage, Brian determined that he lacked the critical support from the purchasing department, the nominal "owner" of the PPP routine. A supportive purchasing manager would generate credibility for the fledgling effort and help gain access to higher-ranking purchasing managers whose support would be critical downstream. To address this omission, Brian enlisted Alan, the GreatCar purchasing manager, by informally educating him and building his trust. Brian did this by assigning George, a new employee experienced in the prototyping process, to support Alan on several projects. Of this triadic linking action, Brian indicated, "I took George in to meet Alan. [Alan] had been in the job a couple of months at most. What helped a lot is I put George at his disposal. Alan is a one-man band. It gave me credibility." In a series of meetings with Bob and Brian several months later, according to Brian, Alan proposed redesigning the PPP:

> Brian: During those series of meetings we raised a bunch of issues on how we buy stuff. A little light went off and [Alan] just said, "Well, maybe we need to do a process redesign on this."
> I: ...Had you already had the idea at that point?
> Brian: Sure. But you've got to have somebody in purchasing think of it.

When I later asked Alan about how he began his involvement in the AllCar creative project, he indicated, "It just sort of evolved from Brian and Jason; kind of Brian, Jason, and myself." After earning Alan's trust, Brian introduced him to the core group. Alan would later play a key role in the PPP retreat.

G5 combinatorial action: As with Brian's effort, Dan's initial recruitment activity was "underground": "There isn't any one that's been vocally against it because most people don't know that we're putting this sort of thing together." Dan indicated that there were two executive engineers, in particular, to whom he did divulge his plans:

> The execs have to be enlisted. I've had a couple off-line conversations with my two advocates... you know, just... sort of sneaking around with them. I can talk to them about these sorts of infantile things in private and then they can give thoughts [that are] not fully hatched, early in their development, embryonic diagramming, you know. I just bounce things around [with] them.

The latter executives were part of an informal core of supporters who Dan quietly assembled in different combinations to help him move forward. Dan assembled three triads of support: himself and the two senior NewCar executives referenced above; himself, his boss, and Carl from the AllCar creative project group; and himself, Carl, and Brian. These triads served to consolidate Dan's support and explore how to organize and create the G5-specific PPP team. Dan's final combinatorial action involved his successful assembly of a six-person PPP team along with a team leader.

Dan did not pursue all possible combinations, and not all combinations he pursued were consummated. In the former case, because he was uncertain of his potential support, Dan consciously chose to leave one executive engineer uninformed about his efforts. In the latter case, Dan's efforts to link up with his counterpart in GreatCar failed:

> [We] said, "What we're doing on G5 is taking Carl [to write software], getting a G5 build manager, starting that process, ...and you, [the GreatCar program manager] should sort of link up with us; learn from us and then from what our team does, you leapfrog to the next level." He basically said, "Bulls–t, I don't want to be linked to you guys."

The unfolding, and therefore less recognizable, combinatorial efforts described here contrast with the ongoing coordination that characterizes the conduct of the PPP routine. The creative project trajectories can perhaps best be understood as involving the mobilization of support through sequences of novel combinatorial action, with one combinatorial effort often serving as a basis upon which subsequent combinatorial work could proceed. The AllCar creative project group displayed both informal and more structured combinatorial action in the way the initial core group was mobilized by Brian, the provisional alignments the group orchestrated through formal meetings or memos authored by the group on behalf of different stakeholders, and, sometimes, simply through ad hoc or "underground" meetings arranged to address stakeholder concerns.

Finally, the creative project trajectories were ultimately defined by a series of successfully created combinations, but both also involved many proposed combinations that were never pursued, as well as successful combinations of people that the group initiated that did not advance its efforts toward reaching its shared trajectory projection. Dan's failure to join forces with his counterpart in another division, for example, suggests the many forms of contingencies the two initiatives confronted.

By definition, the actions in trajectories are interdependent. The data here identify a kind of activity not found as much in organizational routines, where the combinations of actors are more repetitive. Because the combination of people in these creative projects is more novel, the participants cannot predict all the interdependencies, compatibilities, and outcomes in advance. Means–ends relationships in such novel combinations are more uncertain. This uncertainty, where much of the coordinative function attributed to routines (Stene 1940) is not worked out in advance, implies a more active engagement of contingency management, which I next explore in greater detail.

Contingency Management. Managing contingencies within the two creative projects concerned directing an unfolding action path by anticipating or responding to emergent means and ends that reflected the uncertainty the performative trajectory continually encountered (Strauss 1993). Although the trajectory scheme provided an action plan for achieving the vision suggested by the trajectory projection, the creative project's trajectory is shaped by activities in anticipation of contingency (*anticipatory contingency management*) and in response to events that could fundamentally reshape both means and ends (*reactive contingency management*). Where anticipatory contingency management involves efforts to forestall surprises and direct trajectory action toward favorable circumstances supportive of the trajectory projection, reactive contingency management involves surprises that demand adaptive responses from the project group in order to move action forward in the generally intended direction.

AllCar contingency 1: The AllCar group managed an anticipatory contingency that concerned the need to orchestrate the appearance of a multifunctional consensus from the retreat. As noted above, prior to the gathering, the group spent several hours identifying a multifunctional list of retreat invitees that they judged would be receptive to their initiative. Toward the end of the retreat's second day, Alan (the purchasing manager Brian had recruited) introduced a seemingly impromptu solution—a centralized purchasing unit to coordinate prototype builds—the solution the AllCar creative project core group had already developed. Brian, who was sitting next to me at the time, leaned over and wrote on a pad, "Not bad for someone who could not spell prototype [four months ago]." Well-placed AllCar creative project core group members immediately assented to the idea, and the seemingly grassroots idea of a centralized purchasing unit gained the larger group's quick acceptance. The last day of the retreat was devoted to fleshing out the details of the new centralized group.

AllCar contingency 2: Roughly a month after the PPP retreat and three months after the group's initial work, the group realized its goal of presenting a proposal to senior management, an occasion that called for reactive contingency management. If Ted bought into the unsolicited proposal, the group would be authorized to move forward in redesigning the process. However, high-ranking executives at the meeting raised critical issues that the core group had not anticipated, including a caveat that any potential reengineering proposal should not assume the availability of new staff and would need to redeploy existing staff from other units. Although Ted was engaged, he proposed a follow-up meeting in several weeks where the AllCar creative project group would provide more details about its proposal. In the following days, the group set about adapting its proposed solutions to accommodate the new constraints raised in the meeting, such as the "no new headcount" stipulation. As it revised its plans, the group abandoned many of its original assumptions about access to substantial new resources.

Two weeks after the AllCar creative project group's successful executive presentation, and one week before the follow-up meeting, word came that Ted had accepted a position with another major automotive manufacturer. The project that had steadily gained momentum over several months was derailed. Despite Brian's initial shock, he indicated that the effort was "full speed ahead" and indicated several alternative schemes for moving forward. The group continued to meet, but the frequency of meetings trailed off as new high-level executive support failed to materialize. Eight months later, however, Brian brought to my attention a memo from Bob that invited 17 people, including three AllCar creative project group members, to a workshop to review "part procurement and logistics." The failed AllCar creative project was apparently regenerating into yet another form.

G5 contingency management: In his pursuit of a G5 PPP team, Dan also had to overcome the constraints posed by a recent company-wide hiring freeze. Illustrative of anticipatory contingency management, Dan was in continual negotiation with several managers to "borrow" staff, sometimes in exchange for a promise to provide PPP services in the future. The contingency management surrounding these efforts is reflected in Dan's description of his negotiations with Bob (the high-ranking operations manager from the AllCar creative project) to arrange the transfer of an experienced prototype build manager, Kurt, to lead his new team:

> Each position is a glove, and it just sits there and the gloves are authorized by the organizations.... The individual person is the hand that slips into the glove... I have identified a hand. It's called Kurt, but I don't have [a] glove to slip him in. So I'm running around trying to find a glove. What Bob is willing to give me is [his employee] Kurt, which is the hand. But he cannot give me the glove because he needs the glove. If I find a position, if I'm able to get a glove to stick Kurt in, then what that does is, Kurt slips out of Bob's glove and comes to work for me. Bob now has a glove. He would use that glove to convert Will [a contract engineer]... into a hand. And then he would go and slip into that glove.

Two and a half weeks later, Dan indicated to Brian that he was abandoning the above approach and had decided to hire Will to manage his emerging group:

> Will is officially going to be my [manager.] I can't wait for plan A anymore. Bob can't give up Kurt, and I don't have a means of helping Bob.... So we're going to plan B. And we basically have convinced [Manager 1] and [his executive engineer] to give us Will as long as we can backfill. You know, so I've got to verify that we can break Dave free out of Jansen's shop and have him do Will's job.

Despite these remarks, Dan ultimately was able to hire Kurt as his PPP team manager. Throughout the period that Dan was assembling the G5 team, he continually orchestrated both anticipatory and reactive contingency management.

By definition, the various actions that comprise a trajectory are interdependent. However, because the combination of actions is repetitive in routines and novel in creative projects, the latter's participants are less able to predict all the interdependencies in advance. Furthermore, means–ends relationships are uncertain for the actors, especially when collaborating in novel combinations. The contingency management examples indicate that the AllCar group's responses involved efforts to anticipate and avoid potential obstacles (example 1), as well as respond to surprises they had not foreseen (example 2). The actors forged trajectory paths through the management of contingencies, the outcome of which determined subsequent trajectory action. This contrasts with the PPP routine where contingency management—with both more frequent minor issues and less frequent major ones—ultimately served the function of keeping or getting work back on track, rather than changing the underlying routine.

In these creative projects, managing contingency often involved subterfuge. Both efforts initially pursued combinatorial action "underground," or hidden from senior management. In addition, the AllCar group concealed its true motives for scheduling the PPP retreat from the human resources facilitators. Group members created a list of invitees that they secretly expected would support their redesign objectives and that would also build legitimacy by creating the perception of multifunctional support. They approached the retreat with the redesign solution up their collective sleeve. The underground theme is also found in Dan's G5 efforts to confidentially negotiate arrangements for a team manager and staff and to orchestrate senior executive support.

Discussion

This paper explores organizational change and innovation accomplished through nonroutine work. The construct of the creative project anchors a disparate literature on nonroutine action while fitting that literature within a broader framework that explicitly ties nonroutine to more routine forms of organizing. The inductively derived analytical framework presented here provides for both the stability and adaptive change found in organizational routines and the markedly distinct change found in creative projects. Taken together, the framework and findings extend our current understanding of how organizations get new things done and how creative projects and routines differentially unfold through unique forms of trajectory projection and schemes, as well as interdependent action comprising knowledge articulation, combinatorial action, and contingency management.

Previous scholarship has recognized, and sometimes endeavored to reconcile, the coexistence of more and less routine forms of organizing in the form of paired constructs of organic and mechanistic organizing (Burns and Stalker 1961) or exploration and exploitation (March 1991), or alternatively, employed umbrella constructs that reconcile similar dimensions at a higher level such as semistructures (Brown and Eisenhardt 1997), quasi-formal structures (Jelinek and Schoonhoven 1993), or ambidexterity (Tushman and O'Reilly 1996, Gibson and Birkanshaw 2004). Others (Perrow 1967, Strauss 1988) have presented unifying frameworks that connect routine and nonroutine action, but the literature has lacked an empirically based, action-oriented framework that addresses the rising importance of nonroutine work at a microsocial level.

By differentiating action within the firm using the trajectory framework, newly emerging and ongoing forms of innovation and change are illuminated. Creative projects, for example, may be causally linked to, but remain distinct from, the routines they seek to change or spawn. Both the AllCar and G5 creative projects pursued the development and implementation of new routines entirely distinct from the trajectories that pursued the envisioned change. Whereas the AllCar group's objectives never materialized, Dan was successful in creating a G5 PPP unit that developed a new set of routines. In other cases, creative projects might evolve toward routines, in the sense that initially emergent interdependent action may display more repetitiveness over time (Emirbayer and Mische 1998, Adler and Obstfeld 2007).

Choice, Search, and Combination

The results presented here can be viewed in terms of the Cohen et al. (1972) garbage can model of organizing, a perspective that suggests a way to more systematically compare different forms of nonroutine action. In this model, organizational anarchies are characterized by "choices looking for problems, issues and feelings, looking for decision situations in which they might be aired, solutions looking for issues to which they might answer, and decision makers looking for work" (Cohen et al. 1972, p. 1). Up to this point, the analysis has emphasized the combination of people along a trajectory of action. The garbage can theory, however, suggests we expand the universe of combinatorial elements to include problems, solutions, and choices (Cohen et al. 1972), as well as resources (Baker and Nelson 2005). Furthermore, given the results of this study, one could extend the garbage can model's view of choice (or decision) to distinguish among formal "occasions of choice" (Cohen et al. 1972, p. 3) and more frequent informal choices about what to do next in a given action trajectory. Examination of these informal choices suggests fundamental differences between the search associated with an organizational routine and a creative project. Specifically, in an early definition of an organizational routine, March and Simon (1958) indicate,

> We will regard a set of activities as routinized, then, to the degree that choice has been simplified by the development of a fixed response to defined stimuli. If search has been eliminated, but a choice remains in the form of clearly defined and systematic computing routine, we will say that the activities are routinized. (p. 163)

In this view, removing the search for what to do next in response to a given situation defines a routine. This is consistent with the theoretical perspective that routines require less conscious thought and deliberation (Simon 1945, Cyert and March 1963) and suggests an extension of theorizing about interdependent action that includes organizational routines and creative projects while remaining faithful to the Carnegie School's reason for why routines exist: to economize on cognitive effort.

The data here illustrate the more constrained search associated with organizational routines. Specifically, the range of possible PPP routine trajectory action is constrained by precedent as well as the imperative to create prototype parts on time, at the right cost, and compatible with neighboring parts. Although minor contingencies demonstrate the potential for choice, the PPP routine still was characterized by a fairly constrained response to relatively defined stimuli. The two creative projects, on the other hand, highlight a different kind of search that takes place outside of a routine—searching for the right story (knowledge articulation), searching for the right people (combinatorial action), and searching for the right trajectory (trajectory projection and schemes, and contingency management). NewCar's cowboy culture also fostered a broader set of choices through which creative projects were pursued. The conceptually expanded role of choice considered here reframes decision making from a single, cross-sectional event to an ongoing series of decisions that guide unfolding action trajectories.

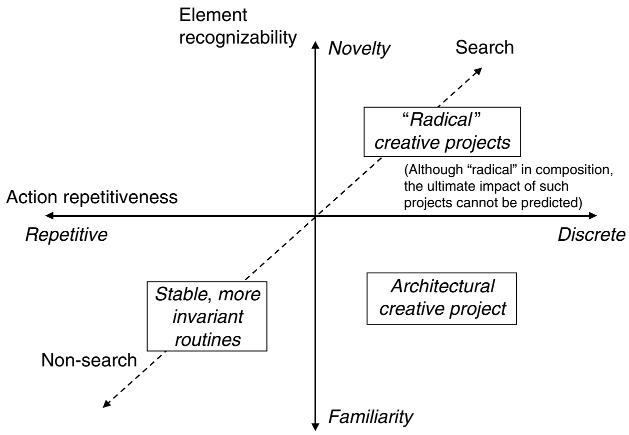
Furthermore, the view offered here employs the garbage can model's combinatorial elements but with more emphasis on agency as opposed to the "apparent tendency for people, problems, solutions, and choices to be joined by the relatively arbitrary accidents of their simultaneity rather than by their prima facie relevance to each other" (March 1978, p. 592). From this perspective, the "search" associated with problem solving is not only about the sorting of alternatives but may also involve an ongoing deliberation about how to combine various people, problems, solutions, choices, and resources, punctuated by the provisional linking of these elements in new combinations in order to move creative project trajectories forward (Baker and Faulkner 1991). This expanded consideration of combinatorial elements underscores the importance of knowledge articulation as a means for linking problems to solutions, people to ideas (i.e., either problems or solutions), and enlisting people to participate in unfolding action trajectories. The expanded application of garbage can organizing was anticipated by Cohen and March (1974, p. 91), who indicated that their model suggested "behaviors that can be observed some of the time in almost all organizations and frequently in some, such as universities." Such a view of organizing, originally thought to be "exotic" and difficult to generalize (Perrow 1977), now appears increasingly applicable to the continual combinatorial activity found in emerging forms of networked organizing.

Truce. This approach also offers new insight on Nelson and Winter's (1982) characterization of the organizational routine as truce, both in terms of how truces are maintained and how they might be renegotiated. The PPP routine represented a truce between engineering and purchasing, as well as a corresponding one between the opposing projections held by these two groups (Pentland and Feldman 2008). The participants in the two creative projects described here conceived and pitched new trajectory projections as a means for negotiating new truces to replace the existing one. The creative projects' emergent search for new combinations of people, problems, solutions, choices, and resources were a means by which existing truces were challenged and new alternatives were proposed. This dissolving and remaking of truces through the vetting and adaption of new trajectory projections also offers a dynamic account of the unfreezing and refreezing Lewin associated with episodic change (Lewin 1951, Weick and Quinn 1999).

Architectural Innovation. Although the degree of repetitiveness of the interdependent action can be used to distinguish between organizational routines and creative projects (Strauss 1988), broadening the combinatorial elements under consideration suggests an additional dimension of analysis: the novelty or familiarity of the elements involved (see Figure 2). Stable organizational routines imply repetitive trajectories with the almost exclusive use of familiar elements (e.g., Craig's static supplier list). Actors in pursuit of creative projects may choose to combine people, problems, solutions, choices, and resources that are entirely new to them or that have varying degrees of familiarity (Nelson and Winter 1982). As actors exercise more agency and discretion, they may combine elements that are more or less novel. The most extreme expression of a creative project thus involves a trajectory consisting of both nonrepetitive action *and* novel people or ideas, a combination most suggestive of radical innovation—although the impact of such creative projects cannot be known in advance.

Furthermore, nonrepetitive trajectories involving familiar elements would appear to correspond with what Henderson and Clark (1990) refer to as "architectural innovation,"—that is, changes to the linkages between product components without changing the components themselves. Henderson (1992, p. 128) describes architectural innovation as a "technical event" that requires the firm to break away from existing architectural knowledge embedded in routines to establish new connections between relatively unchanged components. Architectural innovation, therefore, suggests a type of creative project where the elements involved are not entirely novel.

Figure 2 Two Dimensions of Interdependent Action


Element recognizability
Novelty
Search
"Radical" creative projects
(Although "radical" in composition, the ultimate impact of such projects cannot be predicted)
Action repetitiveness
Repetitive
Discrete
Stable, more invariant routines
Architectural creative project
Non-search
Familiarity

Applications and Future Directions

The introduction of the creative project relieves the strain created by attempts to understand a broad range of organizational activity in terms of routines alone. Such efforts stretch the concept of routine so broadly that the boundaries of the construct have become difficult to define, according to some observers (Cohen et al. 1996, Foss 2003, Weick 1998, Weick and Sutcliffe 2006). This trajectory framework has applicability at multiple levels within and across organizations. It can provide a fuller theoretical account for the unfolding of action trajectories involving changes in processes, the creation of entirely new products or services, and the founding of firms.

An analytical framework consisting of creative projects and organizational routines, for example, can illuminate complex phenomena involving co-occurring, intersecting, and nested trajectories (Brown and Eisenhardt 1997). Where Strauss (1988) stressed the importance of interlocking trajectories, others have emphasized the hierarchical configuration of routines (Cyert and March 1963, Nelson and Winter 1982). Work on metaroutines (Cyert and March 1963, Nelson and Winter 1982) concerns how higher-order routines guide change in subordinate operational routines. Given their substantial discretion to coordinate and integrate action (Eisenhardt and Martin 2000, Knott 2001, Wezel et al. 2006), however, metaroutines may be better conceptualized as metatrajectories comprising novel trajectory projections, nonroutine action, and subordinate routines. The AllCar creative project, for example, employed a scaffolding of subordinate routines for meeting and pitching that were proven over time to generate support from various stakeholders.

This perspective offers a view of organizations as assemblages of creative projects and organizational routines. Patterns of creative projects, as opposed to routines, suggest an alternative source of dynamic capability (Winter et al. 2007, Teece et al. 1997). March (1991 p. 84) indicated that "multiple, independent projects may have an advantage over a single, coordinated effort." Firm adaptation may be a function of a variation, selection, and retention of routine and project trajectories where creative projects initiate new action and routines provide continuity. How firms blend portfolios of projects and routines to adapt and compete in different environments, and how such portfolios might evolve over time, are issues for future research. Further study can also explore new forms of organizational learning that take place in these project constellations and in the absence of the strict repetition found in routines (Grabher 2002). Finally, entrepreneurship can be fruitfully revisited with the creative project as the unit of analysis (Obstfeld et al. 2011). The trajectory-based approach presented here, with its emphasis on projection and unfolding action over time, suggests an emphasis on opportunity creation over opportunity discovery (Alvarez and Barney 2007, Sarasvathy et al. 2003).

Nonroutine activity has often received less attention from practitioners and academics than organizational routines, perhaps because of its fleeting nature and the challenge it poses for systematic observation (Emirbayer and Mische 1998). Routines' inherent repetitiveness facilitates their observation and retention in individual and shared memory (Cohen and Bacdayan 1994) and makes them easier to track, measure, and study. In contrast, projects can fade from view, sometimes imperceptibly, making them more difficult to capture and analyze. Herein lay a challenge and a limitation of this study. Ethnographic observation supplemented by prior quantitative work permitted the observation of two creative projects and their comparison to an organizational routine in some depth, but it made a broad sampling of project activity during the observation period difficult. Subsequent work emphasizing a larger, less detailed set of longitudinal creative project and organizational routine trajectories in multiple organizations could further delineate how certain individual-level and contextual factors influence project success.

In conclusion, Schumpeter (1947, p. 151) characterized the creative response underpinning innovation and entrepreneurship as "getting new things done." The tension and interplay between creative projects and organizational routines is found in Schumpeter's (1934, p. 78) observation: "Everyone is an entrepreneur when he actually 'carries out new combinations,' and loses that character as soon as he has built up his business, when he settles down to running it as other people run their businesses." This paper begins to address this largely unresolved tension in organization theory—how organizations get new things done amid the relative stability of everyday operations—by putting forth a new conceptual framework that integrates routine and nonroutine action. The framework presented here, which involves routine and creative project trajectories consisting of different forms of trajectory projection; combinatorial action linking people, problems, solutions, choices, and resources; knowledge articulation; and contingency management, can be used to understand how organizational routines and creative projects differ, interrelate, and, in some cases, evolve into one another.

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Endnote

[1] *Merriam-Webster's Dictonary of Law*, 1996, s.v. "de novo."

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David Obstfeld is an associate professor of management at the Mihaylo College of Business and Economics at the California State University, Fullerton. His research examines the knowledge-intensive, network-based social processes associated with organizational change, entrepreneurship, and innovation at the local and firm levels. He received his Ph.D. from the University of Michigan Ross School of Business.

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