The Role of Narratives in Sustaining Organizational Innovation

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Sustaining innovation is a vital yet difficult task. Innovation requires the coordinated efforts of many actors to facilitate (1) the recombination of ideas to generate novelty, (2) real-time problem solving, and (3) linkages between present innovation efforts with past experiences and future aspirations. We propose that innovation narratives are cultural mechanisms that address these coordination requirements by enabling translation. Specifically, innovation narratives are powerful mechanisms for translating ideas across the organization so that they are comprehensible and appear legitimate to others. Narratives also enable people to translate emergent situations that are ambiguous or equivocal so as to promote real-time problem solving. With their accumulation, innovation narratives provide a generative memory for organizations that enable people to translate ideas accumulated from particular instances of past innovation to inform current and future efforts.

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Innovation is an important source of growth for many organizations. Yet, sustaining innovation is not easy. The innovation process is multifaceted, encompassing the generation of novel ideas for products and services, as well as related fixes to business processes, technological capabilities, and production and distribution methods. Consequently, not only must organizations generate new ideas, but they must also perform the necessary work to connect these ideas with business opportunities.

Innovation thus requires the coordinated efforts of many actors operating across different parts of the organization (Dougherty 1992, Jelinek and Schoonhoven 1990). Achieving such coordination can be a difficult task. Challenges arise in integrating activities across domains of knowledge and contexts of applications (Iansiti 1998). Challenges also arise in bringing together activities across different stages of the innovation process and across multiple innovation streams (Dougherty and Hardy 1996, Tushman and O'Reilly 1996, Van de Ven et al. 1999). Still other challenges emerge as organizations balance the flexibility required for innovation with the routinization needed for ongoing operations (Burns and Stalker 1961, March 1991, Tushman and O'Reilly 1996).

Innovation research has explored organizational designs and processes to address these coordination challenges. For example, Jelinek and Schoonhoven's (1990) "quasi-formal structures" and Brown and Eisenhardt's (1997) "semistructures" suggest how multiple problem-solving groups and projects teams can achieve coordinated action through both formal practices and mutual adjustment. Other research has identified cross-functional teams (Dougherty 1992), integration teams (Iansiti 1998), and overlapping development phases (Nonaka and Takeuchi 1995) as approaches to collective problem solving on specific projects and to orchestrate processes and strategies across the organization. Clark and Fujimoto (1991) described the role that "heavy weight project leaders" play in linking together activities unfolding within teams as well as in connecting these activities with top management to ensure overall product integrity.

But bringing people with disparate perspectives and capabilities together during the innovation process can, in turn, create other difficulties. For example, ideas that come from different parts of the organization may remain underused to the extent that people are unable to see their relevance to their own work. Also, dysfunctional confrontation can arise as people with diverse backgrounds and expertise interact, thereby undermining innovation (Dougherty 1992, Jelinek and Schoonhoven 1990). Such unproductive social interactions can exacerbate the uncertainties inherent in innovation processes and increase the chances of generating suboptimal outcomes.

Innovation thus requires mechanisms to facilitate productive social interactions as these organizational designs and processes are implemented. It is this facet of coordination that we focus on in this paper. Innovation research has suggested that organizational culture can play a key role in this regard (Jelinek and Schoonhoven 1990, Tushman and O'Reilly 1996). An organization's

culture creates a connective thread among diverse people, reminding them of what they are doing and why (Tushman and O'Reilly 1996). Indeed, cultural values and norms provide a common ground for social action during the innovation process by defining customary attitudes, behavioral expectations, and accepted practices (Jelinek and Schoonhoven 1990).

However, there is a paradox in the use of culture. In addition to providing coherence to social interaction, an organization's culture may also inhibit change and stifle innovation (Tushman and O'Reilly 1996). This is because cultural values, norms, and beliefs can become so ingrained that it becomes difficult for people to recognize and adapt to changing situations. Attempts at overcoming such inertia by embracing an adaptive culture can generate other difficulties. Specifically, as different people with diverse ideas and perspectives come together, unproductive stress can be generated (Jelinek and Schoonhoven 1990).

Innovation thus requires cultural mechanisms that can provide both the coherence and flexibility needed for people throughout an organization to productively integrate their ideas and efforts into everyday practices. We propose that innovation narratives can promote such coordination. We use the term "narrative" to refer to a set of events and the contextual details surrounding their occurrence (Bruner 1986, Czarniawska 1997, Pentland 1999). Innovation narratives can depict past innovations as well as project future innovations in a structured manner with a beginning, middle, and ending, and offer a particular point of view on a situation through the use of a plot (Bruner 1986, Polkinghorne 1987). Other times, narratives depict innovative efforts that are still unfolding. Such narratives are more provisional in nature, capturing fragments of activities at a given moment in a less structured manner and without a clear plot (Boje 2001). Our discussion of "innovation narratives" involves both structured and provisional narratives.

Our proposal that innovation narratives can promote coordinated action during the innovation process builds on organizational research that describes how narratives can symbolize the boundaries of acceptable behavior in organizations, provide a means of information sharing, and inspire new ideas. For example, narratives are part and parcel of an organization's culture and convey accepted and expected attitudes and behaviors (Martin 1982, Smircich and Morgan 1982). Narratives are especially instrumental in socializing newcomers and creating a common ground of social action within organizations (e.g., Brown 2002, Gundry and Rousseau 1994, Lave and Wenger 1990, Louis 1980). At the same time, narratives allow for flexibility in social interactions by presenting information, ideas, or practices in a manner that is evocative. For example, prior research has described how individuals use narratives to share their unique professional knowledge and collectively solve problems (Brown and Duguid 1991, Orr 1995). Even academicians use narratives to describe their findings and to theorize about the deeper driving forces that constitute dynamic processes in organizations (Pentland 1999, Pentland and Feldman 2007, Tsoukas 1989).

However, the processes through which innovation narratives provide coherence and flexibility to social interactions during the innovation process remains understudied. In this paper, we explore how innovation narratives enable coordination across actors and activities by enabling translation. Translation implies "displacement, drive, invention, mediation—the creation of a link that did not exist before and that to some degree modifies two elements or agents" (Latour 1994, p. 32). Translation results in a transformation of ideas and people as innovation processes unfold over time (Czarniawska and Sevon 1996, Garud and Karnoe 2001). We propose that it is through translation that innovation narratives enable people to gain an appreciation of the resources that exist in different parts of the organization and to draw on them to generate new products and services or novel ways of solving problems in their own work contexts.

The paper is organized as follows. First, we outline several aspects of the innovation process where coordination is required and detail the types of translations that each requires. We then explore how innovation narratives can address these coordination challenges, focusing on the properties of narratives that facilitate translation. We conclude with the implications of our perspective.

Coordination Challenges During Innovation

Whether on a grand or modest scale, the basis for most innovation in organizations arises from the stimulating effect of novel ideas and the recognition of new possibilities. Top management may formulate new perspectives on an organization's strategic direction, engineers may envision unique product offerings, marketing experts may cultivate new client services, and members throughout an organization may generate novel work practices that correct problems, surmount obstacles, or otherwise improve specific task activities. But, at its core, innovation requires the coordinated efforts of multiple individuals and groups who become involved in different parts of the process (Pelz 1985). In particular, three aspects of innovation that prior research has featured prominently include: (1) the creation of new ideas (Usher 1954), (2) the commercialization of these ideas into valuable products and services (Van de Ven et al. 1999), and (3) the sustenance of these processes over time (Tushman and O'Reilly 1996). Coordination across each of these parts of the innovation process requires that ideas be translated across space and time. The specific coordination tasks and types of translations involved are described below.

Genesis of Novelty

Generating novel ideas is an essential part of the innovation process. Prior research suggests that novel ideas are likely to emerge through the recombination of ideas from different domains of organizational activities (Hargadon 2003, Tuomi 2002, Usher 1954). Such recombination, however, is not easily accomplished. Division of labor and layers of management can easily impede the flow of ideas from one organizational domain to another (March 1991). Moreover, the particular perspectives that different groups generate can act as barriers to the integration of ideas (Carlile 2004, Dougherty 1992). Complicating matters, new ideas may appear illegitimate, and therefore unworthy of consideration to those who have the resources to see these ideas through (Aldrich and Fiol 1994, Dougherty and Heller 1994, Lounsbury and Glynn 2001, Tschang 2007). These problems of translation were evident in Xerox's inability to build on key inventions pertaining to the modern personal computer that emerged from its research site, Palo Alto Research Center (PARC). Specifically, those who possessed control over financial resources required to connect PARC discoveries to commercial applications were unable to understand and build on the products' potential (Smith and Alexander 1988).

Consequently, a key coordination task is to facilitate the recombination of ideas from multiple sources within the organization. Innovation research has explored different means to promote such recombination, such as open forums and brainstorming sessions and the creation of physical spaces that facilitate interactions between key actors (Allen and Henn 2007, Hargadon and Sutton 1997). However, to succeed, such approaches require specific translation mechanisms to enable people to comprehend, draw insight from, and build on these ideas.

Commercial Development

Bringing new ideas to fruition is another part of the innovation process that requires real-time coordination among people with different kinds of knowledge, systems of meaning, and modes of acting (Brown and Duguid 1991, Van de Ven 1986). A key task for organizations is to cultivate a process that can leverage the multiple perspectives that people bring to the table while preventing the larger effort from fragmenting. Indeed, the concentrated focus that exists in different parts of the organization can generate impeccable "microsolutions" that often result in "macrononsense" (Van de Ven 1986, p. 605).

A further complication is that the innovation process is not a linear one from idea conception to commercialization. The process is full of twists and turns, false starts, and dead ends (Van de Ven et al. 1999). Unforeseen problems arise that require new solutions. It is not possible to predict ex ante the specific issues that will arise and the outcomes that will result. Yet, coordinated action is needed for an initiative to be successful. This requires that ambiguous and equivocal situations be translated in a way that promotes real-time problem solving among diverse actors.

Innovation research has explored the use of team-based designs (e.g., cross-functional teams, projects teams, brainstorming groups) to address this coordination challenge (Dougherty and Hardy 1996, Nonaka and Takeuchi 1995). Teams unite people with different functional knowledge and capabilities around a common task or goal. Yet, productive cross-disciplinary collaboration also requires a means of promoting translation as these interactions unfold. Specifically, individuals must reconcile and integrate their ideas and work in real time. Indeed, research on work groups and teams has demonstrated how diversity in members' perspectives can generate conflict and misunderstanding (Jehn et al. 1999) that can undermine creativity and effective performance (e.g., Milliken et al. 2003, Pelled 1996). Consequently, collaborative designs and processes require additional mechanisms that deal specifically with overcoming translation problems that lead to unproductive social processes (Dougherty 1992).

Sustaining Innovation

Additional coordination challenges become apparent when we consider the sustenance of innovation over time. A key task for organizations is learning from a process that is uncertain and complex (Van de Ven and Polley 1992). Organizations need a way to harness knowledge accumulated from particular instances of past innovation so as to inform their subsequent efforts (Garud and Nayyar 1994). Clearly, accumulated knowledge cannot predict or determine future initiatives. Rather, knowledge must accumulate in a manner that generates new options and possibilities (Boland and Collopy 2004). This is not an easy task. For example, formal databases are effective means of archiving ideas and solutions for specific problems, yet do not facilitate obvious links between different ideas when people lack direct experience with such problems. Innovation therefore requires alternative mechanisms to keep ideas alive in such a way that they are accessible and comprehensible to people across different work contexts. Thus, to sustain innovation, organizations need to translate their activities across time, so that present and future efforts coordinate with their past.

Prior organizational research has explored how innovation can be sustained not only from establishing a strategy, structure, and set of systems, but also from creating a cultural infrastructure that fosters innovation (Deuten and Rip 2000, Swidler 1986). Such a cultural infrastructure should help individuals navigate the tensions that often exist between new ideas and existing operations, the potential fragmentation that innovation entails, and the stagnation that organizational inertia can create. Yet, how such infrastructures enable coordination and promote innovation require further study.

Innovation Narratives and Coordination

We have suggested that sustaining innovation within organizations involves several coordination challenges that center on how ideas can be translated across space and time. These coordination challenges are not independent tasks to be accomplished. Failure to achieve coordination in any part of the process can undermine the larger effort. In this section, we explore how innovation narratives operate across multiple aspects of the innovation process to address these interrelated coordination challenges.

We focus on two forms of innovation narratives: narratives that portray events in a structured manner and offer a particular point of view on a situation through the use of plot (Bruner 1986, Czarniawska 1997, Polkinghorne 1987) and provisional narratives that capture fragments of activity without a clear plot (Boje 1991, 2001). Clearly, there is a relationship between these two forms. Provisional narratives may be transformed into more structured narratives as individuals add a sense of closure to fragmented and equivocal events by imposing coherence and order on these events (Boje 2001). In turn, structured narratives may inspire new ideas or courses of action (Bruner 1986) that fuel new provisional narratives as individuals make sense of these emergent situations. In this way, structured narratives and provisional narratives are related over time.

As we explain below, these innovation narratives can address several coordination challenges that are central to innovation. First, narratives enable people to translate ideas across different parts of the organization in a manner that allows them to generate new inferences and applications for their own work. Second, narratives enable people to translate emergent situations that are ambiguous or equivocal so as to promote real-time problem solving. Third, narratives enable people to translate ideas accumulated from particular instances of past innovation to inform current and future efforts throughout the organization. Although all of this may sound sequential, the actual innovation process is highly iterative. Nevertheless, for ease of exposition, we explore the role of innovation narratives in addressing coordination challenges in each part of the process separately.

Before presenting these arguments, it is important to define the boundaries of our perspective. First, we focus on organizations whose primary task is to innovate, and in which the creation of solutions to novel problems is an ongoing activity. Second, we focus on large, complex organizations with a high degree of internal differentiation. Innovation in such organizations stems from the ebb and flow of collaborative work among individuals and groups over time to bring new ideas to fruition. Third, our perspective has the most to offer organizations that have created a supportive context for innovation. Such a context would, for example, articulate innovation as a companywide commitment, encourage and support entrepreneurial action, and reward collaborative work and innovative action all throughout the organization.

Having outlined key boundary conditions, we now turn our attention to the heart of this paper—how innovation narratives address specific coordination challenges during the innovation process. Table 1 summarizes the main arguments we present below.

Idea Recombination and Resource Support

Generating novel ideas within organizations requires a coordination mechanism that is coherent enough to bring together groups with diverse knowledge bases and yet offer individuals flexibility to apply their specific knowledge in productive ways. A solution can be found in the concept of boundary objects proposed by Star and Griesemer (1989). Boundary objects are abstract or physical artifacts that have the capacity to bridge perceptual and practical differences among diverse actors to promote cooperation. Star (1989) offered the example of geographical maps as boundary objects in their capacity to cover identical physical territories, and at the same time, allow multiple groups to focus on different knowledge interests (e.g., life zones of interest to biologists versus trails identified by museum conservationists). Boundary objects thus provide a common basis for interaction, but are pliable enough to accommodate and retain heterogeneous goals and points of view (Carlile 2002).

Boundary objects, therefore are translation devices that enable meaningful communication among different

Table 1   Mechanisms in Innovation Narratives Promoting Coordination Across the Innovation Process

Aspects of the innovation process	Coordination challenges	Mechanism in innovation narratives
Genesis of novel ideas	Recombination of ideas from across functional and hierarchical boundaries	Narratives serve as boundary objects to help in translation
Commercialization	Real-time coordination of the activities of multiple constituencies	Provisional narratives allow for translation between multiple participants by promoting problem definition and problem solving
Sustaining innovation over time	Coordination of present and future initiatives with past initiatives	An organizational repository of narratives provides a generative memory that allows for the translation of ideas in ways that shape, but do not determine, ongoing innovation processes

social entities, such as business units, functional departments, or professional groups (Bowker and Star 1999, Carlile 2004). Boundary objects provide common information spaces that enable interaction and coordination without requiring actors to adopt a common perspective about the work. That is, they create a shared context that "sits in the middle" (Star 1989, p. 47). This concept has been applied in various contexts, including design teams (Henderson 1991), new product development (Carlile 2002), production and manufacturing systems (Bechky 2003, Garrety and Badham 2000, Karsten et al. 2001), and information systems (Dodgson et al. 2007, Yakura 2002).

We propose that innovation narratives can serve as boundary objects, as they are both coherent enough to bring together individuals subscribing to different organizational realities and pliable enough to let them draw inferences that fit their unique contexts. The concept of structural levels from narrative theory (Bruner 1990, Greimas 1987, Pentland 1999) explains how the combination of surface-level details (pertaining to a particular innovation and locale) and deeper underlying themes (plots) enable narratives to be both coherent yet pliable (Taylor and Van Every 2000). Coherence is established by the ordering of surface-level details—both technical and social—into one totalizing whole that is made comprehensible through the presence of a plot (Czarniawska 1997, Polkinghorne 1987). Plots are conventional themes with which people in a given social context can readily identify, enabling them to see actions, events, and circumstances as related parts of a larger whole (Bruner 1986). Surface-level details provide relational (who), contextual (where), and temporal (when) information. To make sense of these surface-level details, though, an individual needs to grasp the deeper underlying plot. But to grasp the plot, an individual needs to understand the sequence of events that connects specific actors and actions. In moving between surface details and plot, individuals translate narratives not in a modular but in a holistic manner, thereby generating an overall gestalt. It is this "hermeneutic" property of narratives (Ricoeur 1984, Tsoukas and Hatch 2001), wherein the whole and its parts are mutually defined, that makes it possible for the same narrative to be coherent to multiple groups within the organization.

For example, the details of a narrative about how a product manager surreptitiously obtained a new sales contract to extend the life of a discontinued product become comprehensible by appreciating the deeper plot about the struggle between control and entrepreneurship. As individuals from different parts of the organization infer that the narrative conveys this tension, it connects them to the larger cultural context that they all share. With this in mind, it becomes understandable how evading a managerial decision might secure the time and money needed to keep the innovation process alive. It is

the relationship between the surface-level details and the deeper plot that makes it possible for individuals from different settings within the organization to comprehend this narrative.

Despite such coherence, innovation narratives are flexible enough to allow individuals to generate different inferences that apply to their unique contexts. Individuals translate narratives depicting past innovations through their own frames of reference (e.g., identities, schemas, scripts, goals, and belief systems), real-world experiences, and tacit knowledge of given tasks and actors (Bruner 1986). The connection between the surface-level and deeper plot makes it possible for individuals to ask, "What would I have done?" or "What does this mean for me?" (Taylor and Van Every 2000). In moving between surface details and plot, individuals no longer stand as outsiders evaluating an idea or initiative, but, instead, become active participants constructing an interpretation. Central to these interpretations are inferences about the deeper generating mechanisms (i.e., general characteristics of the system—structures, processes, etc.) that might be driving the depicted pattern of events (Pentland 1999). Such inferences further inform when and how the narrative connects to one's own situation. As this translation process unfolds, it does not sacrifice the integrity and distinctiveness of the narrator's perspective, but, rather, encourages individuals to recognize, examine, and compare it with their own views and lived experience of the organization. Consequently, different people can draw different inferences from the same narrative.

It is this paradoxical combination of coherence and pliability that makes narratives of past innovations important boundary objects that facilitate idea recombination in the genesis of novelty. Narratives stimulate multidisciplinary thinking, enabling individuals to draw inspiration from concepts, ideas, and events in other organizational domains to develop ideas or initiatives that ring true in their own work contexts (Boland and Tenkasi 1995, Denning 2001). These different inferences are not more or less true or correct in any objective sense. Rather, their appropriateness and usefulness is assessed by "verisimilitude"—their perceived plausibility or acceptability as an interpretation of events (Bruner 1986).

This discussion suggests that ideas do not simply diffuse as has commonly been conceptualized in the innovation literature (Rogers 2003), nor do they simply recombine by themselves. Instead, recombination is an active process of translation wherein ideas are fundamentally transformed through application to a given context (Czarniawska and Sevon 1996, Latour 1986). This translation process is similar to the concepts of "generative imitation" (Tarde 1962) and "interpretive flexibility" (Pinch and Bijker 1987) that appear in innovation research. Innovation narratives thus act as triggers and probes, not as formulae, for action. Specifically,

innovation narratives allow for a holistic presentation of ideas in ways that are generative to listeners, making it possible for them to actively reconstruct these ideas so as to see their potential value and viability. In the process, it may alter individuals' broader conceptions of how their ideas and activities relate to others within the organization.

As the recombination of ideas brings new possibilities into focus, individuals may begin to conceptualize new initiatives for particular products or services. They then must quickly connect with key resource providers who can lend the support needed to develop them. Individuals often will convey their ideas about an anticipated innovation in the form of narratives (Lounsbury and Glynn 2001). Translation explains how narratives about anticipated innovations serve to enroll potentially skeptical resource providers into an initiative with an uncertain future. New ideas often have little legitimacy at this early stage, especially when those ideas must move across functional and hierarchical boundaries to reach resource providers in other parts of the organization (Aldrich and Fiol 1994, Dougherty and Heller 1994). Yet, as noted, narratives have the capacity to attract the attention and interest of resource providers because they have elements of familiarity (symbols from a larger shared cultural context) even as they have elements of novelty (new ideas) (Barry and Elmes 1997).

The translation process we have described makes it possible for resource providers to understand and evaluate novel ideas in ways that resonate with their own perspectives and experience of the organization. Resource providers thus generate interpretations that are plausible or acceptable to them (Czarniawska 1998, Lounsbury and Glynn 2001). Consequently, narratives impart legitimacy to new ideas by establishing plausibility rather than removing doubt (Lampel 2001). Specifically, when resource providers play an active role in visualizing future possibilities, they are likely to gain confidence in the viability of those possibilities and in others' ability to make them a reality. It is this sense of anticipation that creates psychological buy in among prospective resource providers. To this point, Shaw et al. (1998) noted how organizations craft strategic stories as part of the planning process to mobilize members to move the organization in a desired direction. These researchers argued that "when people can locate themselves in the story, their sense of commitment and involvement is enhanced" (Shaw et al. 1998, p. 50). In this way, innovation narratives invite resource providers to imagine both the significance of new ideas and how they might come to fruition, thereby building legitimacy.

Real-Time Coordination

Innovation narratives, specifically, provisional narratives, enable real-time problem solving among individuals who must coordinate within and across different domains of activity to commercialize these proposals. Coordination difficulties that inevitably arise are likely to spawn provisional narratives as individuals make sense of emergent processes through the course of their actions. Individuals use such narratives to record observations, generate multiple interpretations of what is going on, and decide what they might do next (Boje 2001). Because real-time problem solving during commercial development involves interdependent activity, individuals are likely to share their provisional narratives with others. Indeed, when faced with an equivocal situation that is captured in narrative form, individuals reduce equivocality by seeking out the interpretations of others (Weick et al. 1999).

We propose that provisional narratives promote real-time coordination by shaping how individuals define problems and identify solutions. Provisional narratives have properties that promote such coordination. Unlike structured narratives that offer a particular point of view on past situations through the use of plots, provisional narratives are in-process speculations on situations that have not reached a conclusion (Boje 2001). They are narratives in the making. Provisional narratives are fragments marked by subtle suggestions, abbreviations, and ambiguities. Thus, such accounts offer surface-level observations of a given situation. Lacking an acceptable plot, individuals are faced with the task of forming plausible hypotheses or theories about what is happening—what Schon (1983) has labeled "reflection in action." Essentially, individuals are looking for a way to define or frame problems.

Indeed, the meaning of problems is rarely a given in organizations but is constructed from elements of the situation that are often vague and confusing (Lave 1988, Weick 1995). While idea generation and problem solving tend to receive considerable attention in innovation research, Hargadon (1999) argued that problem definition exerts an equal, and possibly stronger, influence on the creative process in organizations. Framing a problem in a particular way, in turn, brings into focus a set of solutions associated with that type of problem, which can be adapted to fit the new situation.

The manner in which individuals translate provisional narratives generates potential problem definitions and solutions. Interactions in which individuals convey to others their thoughts and speculations in the form of provisional narratives invite others to translate these accounts and rearticulate the situation from their own vantage point. Individuals connect the surface details of the story to their own experience of the situation or to prior situations they've been in. Individuals therefore become active coproducers of the narrative in the making (Boje 1991)—drawing on their own perspectives, real-world experiences, and knowledge of a given issue or context to fill in the gaps, propose possible plots, and consider deeper generating mechanisms that might

be at play. In this way, translation helps individuals to define the problem or situation the provisional narrative captures.

The acceptance of one or several frames for a situation emerges through social interactions (Hargadon 1999). As individuals from different parts of the organization work interdependently to commercialize new ideas, the narratives that emerge and translations that follow may generate broader meaning for a given situation than could have been accomplished if individuals were acting alone. Specifically, individuals may introduce new details or a new definition of the problem that may spawn a narrative of their own as well as shape the subsequent narratives that others tell. The introduction of alternative frames makes salient different aspects of the situation, which, in turn, may prompt insights into other potential frames (Fiske and Taylor 1991). By generating a range of problem definitions to choose from, these social interactions make available an even wider range of solutions to consider.

Provisional narratives therefore are not simply conversations to negotiate resources or to gain control over the process. Rather, they are the very mechanisms whereby ideas from one domain combine with ideas from another to define problems that arise as new initiatives are commercially developed. The provisional narratives that individuals bring to the conversation are only speculations. Because different people will have different speculations about a highly ambiguous process, when juxtaposed, these provisional narratives generate productive tensions, the resolution of which is manifest in the form of new ideas about how to define and solve particular implementation issues. These multiple narratives serve as the repertoire from which people can generate approaches that enable real-time problem solving.

Provisional narratives thus enable individuals to construct their actions with an understanding that the organization consists of critical interdependencies among all actors, and to interrelate their actions to others in real time. Indeed, we suggest that provisional narratives are the fabric behind the heedful interrelating that Weick and Roberts (1993) suggest holds groups together as they improvise their ways through difficult situations. On the one hand, provisional narratives provide the mechanisms whereby individuals can work interdependently with one another. On the other, these narratives create an overall shared space—a "working consensus" (Weick et al. 1999)—that provides coordination for engaged actors during emergent situations (see also Hatch and Weick 1998).

Perspectives on sense-making stress the interplay of text and action (Ricoeur 1984, Weick 1995), and we suggest that provisional innovation narratives are a potent means of activating cycles of translation and action that give momentum to real-time coordination. Provisional narratives that individuals develop become a part of their experience—they no longer exist as entities that are separate from the person. Both the person and narrative are transformed as a result (Garud and Karnoe 2001). Through translation, individuals transform their perspectives on specific innovation problems as they gain insight into how others make sense of them. Such insights can bring new meaning to the situation and, in turn, inform new approaches or solutions (Czarniawska and Gagliardi 2003, Weick 1995). As the situation takes a new direction, provisional narratives are revised to capture the unfolding sequence of events and to make sense of what moves to make next. Thus, narratives and innovations coevolve, with one influencing the other over time (Tsoukas and Hatch 2001). It is through these narratives that innovation proceeds as a series of translations across space and time from conception to commercialization.

Coordinating the Past, Present, and Future

Another major facet of the innovation process is to learn from experiences, so that an organizational memory can inform the organization in its quest to sustain innovation. With the completion or abandonment of innovations, some of these experiences are later captured in narratives. How do these innovation narratives help organizations coordinate their present and future efforts with their past?

As we have already pointed out, narratives provide a memory of past innovations (Walsh and Ungson 1991) that preserves the complexities of innovation (Tsoukas and Hatch 2001). As mechanisms for representing phenomena, narratives do not transform complex innovation processes into generic representations that are invariant across time and contexts (Boje 1991, Bruner 1986). Rather, innovation narratives preserve the details by representing the myriad technical and social factors involved—i.e., actors and their activities, material artifacts and how they are transformed during the innovation process, the departments and resources involved, and deviations from established operations and how the organization eventually responds. This holistic property of narratives enables them to offer "requisite variety"; that is, the richness required to adequately represent a given context (Ashby 1956, Morgan 1986). As a result, narratives capture insights and activities that emerged in other parts of the organization and, through translation, enable individuals to see how these ideas and practices might connect to their own work.

Besides capturing such "detail complexity" (Senge 1990), innovation narratives are also able to capture "dynamic complexity." As Senge (1990) explained, dynamic complexity refers to the interactions among the underlying forces that drive any phenomena. This is consistent with Pentland's (1999) point that narratives convey deeper generating mechanisms that explain patterns of events. In this regard, innovation narratives enable individuals to see how the tension between emerging ideas

and established operations lies at the heart of complex, nonlinear innovative processes, generating ups and downs, false starts, and dead ends (Van de Ven et al. 1999). In this way, narratives avoid creating a false sense of order that innovation efforts do not possess. Rather, as Bruner (1986) noted, narratives are uniquely suited to capturing situations involving a breach of social order (e.g., established norms, routines, or practices) and its eventual reparation. By preserving and emphasizing such dynamic complexity, innovation narratives may generate in entrepreneurs the "tenacity" that is required to carry innovative ideas to fruition (Garud and Karnoe 2001).

Most importantly, innovation narratives provide a means of coordinating the past, present, and future. Going beyond simple chronological conceptions of time, narratives generate a phenomenological sense of time as individuals simultaneously attend to the past, present, and future (Carr 1986, Czarniawska 2004, Ricoeur 1984). As we have explained, individuals translate narratives in ways that activate imagination about the future while drawing on both memory and current experience. This simultaneous activation of memory and imagination serves as a bridge between the past and future in the present moment. This is consistent with Weick's (1995) point that sensemaking in real time involves looking back, retrospectively, and ahead, prospectively, to construct an understanding of ideas or events. In the context of innovation, knowledge, and experiences are brought forward from the past and elaborated into new representations in the present that make projections about future innovations comprehensible to both the individual and others within the organization.

Innovation narratives provide a particularly powerful means of coordination in this regard as they can be retold, reinterpreted, and applied to a broad range of different situations. People have an inherent ability and predisposition to use narratives (Baumeister and Newman 1994, Polkinghorne 1987), and information in memory tends to be stored and recalled in narrative form more often than in propositional form (i.e., abstract rules and guidelines) (Fiske and Taylor 1991). Moreover, narratives tend to generate concern, curiosity, and excitement that draw the attention of people (Bruner 1990, Czarniawska 1997, Patriotta 2003). Such features point to how innovation narratives provide a means of coordinating an organization's past, present, and anticipated future experiences in such a way that they are widely accessible to people throughout the organization.

Each innovation narrative is important in its own right, but provides only a partial window into certain aspects of the organization—details of organizational resources, social and material, scattered throughout the organization. Together, multiple narratives help set an overall cultural infrastructure within which innovation emerges. We see this as key to how innovation narratives help sustain innovation over time. Elements of these narratives become accepted as part of the organizational culture (Swidler 1986), shaping, for example, role expectations and goals, problem definitions and typifications, including what forms of innovation should be fostered. At the same time, these multiple narratives serve as the repertoire from which individuals can draw upon (Deuten and Rip 2000, Swidler 1986) to generate a rationale and script for their behaviors that otherwise may be dismissed as being irrational or inappropriate. This repertoire inspires new ideas but also sets the limits of acceptable behavior by shaping the boundaries of activities, the types of problems that are likely to be encountered, and the kinds of solutions that are acceptable and effective. Innovation narratives thus do more than memorialize past innovations and capture elements of the organization's culture—narratives provide organizations with a memory that is generative, enabling people to coordinate their present and future efforts with their past, thereby holding the cultural system in an overall dynamic balance.

Discussion

Coordination is a central task that organizations must accomplish to innovate successfully. Innovation research has offered designs and processes to connect different parts of an organization to the larger whole so as to bring new ideas to life. In everyday practice, however, people often struggle to integrate their ideas and activities with others. It is often difficult for people to see the relevance of information, ideas, and practices that come from outside their own work context and to draw on these to generate new products and services or novel ways of solving problems in their own locales. These translation problems can serve as a barrier to innovation. Therefore, of practical concern is the creation of a social fabric that provides both the coherence and the flexibility required to promote and sustain innovation (Jelinek and Schoonhoven 1990, Tushman and O'Reilly 1996).

Our perspective on innovation narratives makes a contribution in this regard. We suggest that organizational designs and processes, although necessary, may not be sufficient for innovation to occur, and that innovation narratives are key cultural mechanisms that can make these work practices more effective. Specifically, we see innovation narratives playing an instrumental role as the complexities of social interaction grow over time in organizations that must sustain innovation. We have argued that innovation narratives promote productive social processes by providing a way for people to manage the tensions between coherence and flexibility that characterize innovation. Innovation narratives make this possible by facilitating the translation of ideas across space and time in three key parts of the innovation process. These include: (1) the recombination of ideas to

generate novelty, (2) real-time problem solving to promote commercial development, and (3) the sustenance of innovation by coordinating present innovation efforts with past experiences and future aspirations.

These ideas extend prior research that has called attention to the role of narratives in collaborative practice (e.g., Brown and Duguid 1991, Lave and Wenger 1990, Orr 1995) by specifying translation as a key coordinative process that narratives facilitate and how it is accomplished in everyday practice. We also extend research on the apparent paradox of organizational culture in sustaining innovation, specifically how culture is both a pragmatic resource and a contextual constraint (Jelinek and Schoonhoven 1990, Tushman and O'Reilly 1996). We suggest that innovation narratives provide a means of balancing these contradictory forces for change and consistency. Specifically, innovation narratives enable organizations to harness knowledge accumulated from particular instances of past innovation to inform its subsequent efforts. Given the complex and uncertain nature of innovation, narratives allow for knowledge to accumulate and be used in a manner that generates new options and possibilities.

Our perspective on the role of innovation narratives in sustaining innovation in organizations has several implications. The first implication relates to the notion of brokering that is central to innovation. Many have suggested that individuals often serve as brokers by connecting pockets of knowledge to enable recombinant innovation (cf. Hargadon and Sutton 1997). Our discussion suggests that innovation narratives effectively broker ideas and activities among different domains of knowledge and activities. As discussed, these narratives comprise actors and material artifacts, all stitched together in a compelling account. As specific narratives circulate within organizations, they become boundary objects around which different social groups interact. Thinking about innovation narratives as brokering mechanisms makes it possible for us to envision that agency shifts across the different people who become involved in these narratives as the innovative process unfolds. That is, the role of broker is transitory and does not remain located within a specific individual. This possibility could be explored in future research.

Another implication of our perspective is that innovation narratives continue to provide generative impulses for innovation on an ongoing basis. Over time, changes in the organization as well as individuals' circumstances give rise to new experiences, opportunities, and challenges. Individuals can reinterpret the same narrative at a later point, bringing to light unrealized connections between actors, circumstances, and outcomes. This occurs by drawing connections between the events retold and events that have occurred since, or by bringing to light untold details of past events. The possibility of reinterpreting the past offers individuals new opportunities for reimagining and reconstructing a future. It is through this process that innovation narratives offer a mechanism for sustaining innovation that has significant durability.

A third implication of our perspective is that generating a process that encourages innovation narratives is an important practical task for organizations that must sustain innovation on an ongoing basis. This task is especially relevant for large complex organizations that are highly differentiated, and thus have intense coordination requirements. In this regard, we have suggested that narratives that arise before, during, and after the completion of innovations are a means to create an organizational memory of its innovation experiences that is also generative. Innovation narratives allow for knowledge to accumulate and be used in a manner that generates new options and possibilities. It is the extent to which a "narrative infrastructure" (Deuten and Rip 2000) is established that may determine the success or failure of an organizational approach that builds on narratives to foster innovation. How organizations that lack a narrative infrastructure can build one is an important question for future research. Once a narrative infrastructure emerges, a virtuous circle (Masuch 1985) may be established with innovations spawning narratives that, in turn, galvanize further innovation. Future research could explore empirically whether organizations that start to make greater use of narratives realize a greater innovation yield than they did prior to their introduction.

Conclusion

In this paper, we have offered insights on how innovation narratives operate as cultural mechanisms to facilitate structures, processes, and practices required to sustain innovation. In doing so, the perspective that is emphasized is that innovation processes unfold by coupling emerging ideas with the outcomes of earlier innovation efforts, some of which may not have come to fruition. Given the broader temporal perspective that narratives entail, these outcomes can serve as solutions to emergent problems, a possibility that is enhanced by the creation of a narrative infrastructure. In sum, our understanding of innovation from a narratives' perspective highlights the dynamic relationship between the genesis of ideas and their implementation. Together, triumphs, partial wins, and unequivocal failures that are captured in innovation narratives may provide organizations with a generative memory that is vital for sustaining innovation.

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