

Dialogue, Debate, and Discussion

Managers Fail to Innovate and Academics Fail to Explain How

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I am stunned by the failure of so many organizations to create the capability for generating streams of new products and services over time. Organizations capable of ongoing innovation can create more profits, more value, more employment, more growth, and more adaptability to transformations in technologies and markets (BCG study of investor returns). Generating streams of innovation is even more important now, especially for organizations in emerging economies, because industrial transformations and global grand challenges (Ferraro, Etzion, & Gehman, 2015) demand continuous innovations in products, programs, business processes, and strategies. For example, digitalization is transforming business models from vertical industrial silos such as consumer goods, materials, or financials to horizontal platforms that orchestrate networks, create technologies, and provide services (think Amazon, Alibaba). New markets and technologies emerge unpredictably but will produce major economic and social changes. Emerging economies more directly face grand challenge complexities of poverty, water scarcity, inequality, and climate changes. Innovations in emerging economy organizations are also very complex, since they often include innovations in sales, distribution, and business models along with rigorous product design and development processes.

Innovation management scholars have identified the organizational structures, practices, capabilities, approaches, processes, and strategies that innovative firms rely on (see, for example, studies from 20 years ago: Brown & Eisenhardt, 1997; Dougherty & Hardy, 1996; Jelinek & Schoonhoven, 1990; Leonard-Barton, 1995; Tushman & O'Reilly, 1997; Van de Ven, Polley, Garud, & Venkatamaran, 1999). I sincerely believe that this large literature has identified most of the crucial *whats* (i.e., what to do) of effective innovation management, at least in general. And we continue to publish nuances and elaborations on this base of what managers should do.

But many managers seem to ignore all this research. CEOs cite innovation as a top concern year after year according to Boston Consulting Group's annual

survey, but the rate of innovation has been flat for decades, and the rate of radical innovation that experiments with new sciences and technologies is down (Markham & Lee, 2013). The executive chairman of Google suggested that, given the current pace of technological change, every company faces some form of existential threat in the next 5 to 10 years. Yet the investment community not only allows most CEOs to ignore these threats, it actually rewards them for ignoring it (MIT Technology Review, 2016: 103). Many incumbent firms use R&D to exploit existing knowledge (Markham & Lee, 2013), so it should not be surprising that economists find a pervasive decline in US business dynamism over the last several decades. Emerging economy managers do not support continuous innovation much either, and instead participate in supply chains for conventional products, replace existing jobs with cheaper ones rather than create new opportunities, and slash costs rather than create new solutions.

So, what can we academics do about strategic managers' failure to foster innovation, despite all the published research that confirms its importance and tells them what to do? We can start by acknowledging that managers do not pay much attention to what we publish in our journals, suggesting that what we publish makes no sense to them. We know that managers want roadmaps for how to do things, insights into how to implement best practices, and confirmation that particular strategic actions work (from panels of managers and consultants at SMS 2016). Managers also want simple ideas. But academics (including me) publish research on *what* managers should do, not on *how* they can do so *while at the same time* grappling with the blooming, buzzing confusion of everyday managerial practice. Research on what to do makes little sense when it fails to show managers how to carry out these what-to-do's in a way that fits into the complexities of managing that they experience.

I propose that we transform our institution of scholarly publishing to include theory-based studies of *how* managers carry out the *what* we profess. We do not need more special issues on why managers ignore our work or special managerial journals. Instead, all current journals should publish a substantive proportion of articles that apply our theories to explain to managers working in complex settings how they can carry out what we profess. I emphasize changing our publishing norms because academics do work that they think can be published. If what is now published is any indication, useful applications of our theories are not publishable. We need not eliminate variance studies of what managers do, but we can reduce their preponderance from about ninety-five percent of what is published now to around eighty or even seventy-five percent. Some may ask for proof that we publish the *whats*, not the *hows*. I have no simple proof. But I cannot find a clear description of how managers actually implement or maintain the 'what to do' that is implied in any journal article I look at (again, including my own). A clear, simple description of how in the abstract along with well-developed, clear, and detailed descriptions of how in the body of the paper are two criteria that papers do not meet, including papers in MOR. I hope you find a few papers that do meet these criteria,

but even then, you would show that we publish only a tiny proportion of how papers.

To get the ball rolling, this essay sketches out one way to carry out and publish studies on theory-based roadmaps of how managers can actually implement, keep alive, and change those specific organizational activities that constitute the ‘what’ of good performance. I think that theory-based studies of how can be both more scholarly and more usable. Publishable studies of how managers can do our *whats* should be based on theory, because theories provide important understandings for how and why certain management structures, practices, and processes work to resolve critical managerial challenges, like being innovative. A research study for innovation would empirically explore how and how well the theory-based roadmap that the researcher begins with captures how managers can create and reinforce the organization-wide capability for streams of new products over time. The theory tells the researcher what to look for in all the complex goings on of everyday managing, and helps her spot inconsistencies that suggest new theoretical ideas. ‘Best practices’ devoid of theory to explain how and why particular practices produce desired outcomes merely hides underlying assumptions that may be incorrect.

DEVELOPING THEORY-BASED, PUBLISHABLE STUDIES ON HOW MANAGERS CONTINUALLY DO X

Managers have three problems dealing with complex problems like ongoing innovation that our current publishing practices fail to address adequately. These problems lead to three steps in applying our theories to the *hows* of management. The problems: 1) few strategic managers read our scholarly publications, so our work apparently makes no sense to them; 2) managers do not seem to understand social structures and structuring, and focus instead on personal traits, which makes it especially difficult to see how to orchestrate organization capabilities like innovation; and 3) managers do not understand how to grapple with complexity and emergence, because they get caught up in the immediacy of messy problems and have a short term view that precludes complex innovation.

Overcoming Our Failure to Make Sense to Managers

The first problem managers have with our current publishing practices is the big one: managers cannot make much, if any, sense of what we now publish. We do know that managers want roadmaps for how to do things, insights into how to implement best practices, and confirmation that particular strategic actions work (from panels of managers and consultants at SMS 2016). Managers also want simple ideas. Since good theory is simple and clear, there is no reason not to use our theories more effectively.

To overcome our failure to make sense, the researcher should focus on one core process that underlies the phenomenon of interest and develop how the theory of this process suggests a roadmap. Innovation involves many processes, but a central process is learning: creating new categories of knowledge, new syntheses of ideas, and new routines of collective practice. Each study of how would build on one core process and theory about that process. The scholar's job is to identify that central process and articulate why a particular theory captures its essence. Published research now simplifies, so simplifying is not strange. However, most publications now simplify by parsing out one element of an ongoing flow of events rather than suggesting a simple understanding of that flow.

I focus on learning as a core process because product innovators create, combine, and recombine knowledge about the product's functionalities (what it will do and how based on science and technology) and the product's applications and uses (why it will do what it does for whom). Since each project in the continuous innovation stream involves learning about technologies and markets and linking this new knowledge into novel configurations, strategic managers need to create and deploy an infrastructure of knowledge resources in R&D, marketing, manufacturing, and so on that can support a variety of new products at the same time. Managers also need to deploy processes that enable people across the enterprise to work on various innovation projects by learning and doing, and provide an innovation strategy that identifies the kinds of innovations the enterprise can support.

Organizational learning has been central to organization theory for decades, starting with the behavioral theory of the firm (Cyert & March, 1963). More recent extensions of organizational learning by March, Lant, Levinthal, Feldman, Argote, and Fiol (among others) suggest how managers can foster continuous learning. I leverage these insights into four simple rules that explain how managers can apply learning theory to enable innovation.

First, learning for innovation is a multi-functional team sport (Tushman & O'Reilly, 1997), so innovators heedfully contribute their unique expertise to collective innovating (Clark & Fujimoto, 1991; Leonard-Barton, 1995). If people understand how their expertise fits with others' expertise to create innovations, they overcome individual limits and bounded rationality. Second, learning builds from concrete experience of actively creating products. The more people work directly on product innovation, R&D, and other related innovation work, the more they know. Third, knowledge produced in continuous innovation is a central strategic resource. Each new product generates knowledge of potential trends and opportunities, while R&D, marketing, and so on develop knowledge of what the organization can do in the future. By actively seeking this knowledge to continually map out strategic possibilities, managers reinforce ongoing innovation. Finally, most people learn in this hands-on, experimenting fashion (Barley, 1996), so employees do not need to be micro-managed. But they do need strategies that direct their efforts and reinforce these rules.

Overcoming Our Failure to Explain Social Structuring (Sensibly)

By reinforcing each rule and its activities (with metrics, rewards, structuring), managers develop and maintain the organizational capability for generating streams of innovation. But suggesting to managers that they should foster these rules does not fully explain how to do so in a simple way. The second challenge that strategic managers have with our publishing practices comes from my own (admittedly ad hoc) surveillance of what managers and consultants talk about – they emphasize individual traits and ignore social structuring (other than ‘reorgs’ like divestiture). Managers may fail to enable innovation because they do not understand how to create the social structuring to reinforce the four simple rules outlined above. It is impossible to create an innovative organization one person at a time, and managers cannot build organizational capabilities unless they understand the role of social structuring. Our published research reinforces ignorance of social structures. Some published research discusses individual traits in ways that ignore the social contexts that always exist in organized settings, and always shape behavior over and above individual traits. And some research articulates social structuring theories and/or their effects so obtusely that only a few other scholars can fathom their meaning.

If my hunch that managers do not understand social structuring is correct, then scholars have an enormous opportunity to enhance managerial practice by explaining clearly and simply how and why certain kinds of social structuring enable ongoing collective practices, like innovation. To study how managers can develop organizational innovativeness (or anything else) in a way that makes sense to managers, our roadmaps need to keep it simple by focusing on one theory of structuring that we think best fits the phenomenon of study. I build on the idea of learning routines (which grew out of the behavioral theory of the firm perspective) as the social structuring for continuous innovation (Dougherty, 2016). ‘Routines’ are not hard and fast rules that people execute by rote, rather they are recognizable, repetitive patterns of interdependent actions (Feldman & Pentland, 2003). Routines structure action, but also generate new actions. Routines emerge over time because they involve multiple actors with divergent goals and understandings, and are carried out in a variety of unique situations. People adapt their routines to the particular contexts they are in and to the actions of the people with whom they are working, so routines absorb these contextual variations.

One way to carry forward the simple focus on organizational learning into social structuring is to use learning routines. Organizations learn by embedding new knowledge in their routines, so in studying how managers can enable innovation, I would study the routines for learning about markets and technological possibilities that managers develop and foster, and the routines for applying that knowledge to new products and to strategy. Studying how managers in innovative organizations reinforce effective learning routines to foster the four simple rules for learning for innovation would provide a theoretically rich yet reasonably

simple roadmap. Focusing on routines for learning about markets and technologies and for materializing that knowledge into products that both work and address actual customer problems is, of course, limited. But routines are central: if the organization, for example, relies on a top-down command and control structure it will not have learning routines that work for innovation. However, I have still not described how these routines actually work. Next, I fold in the challenges of complexity and emergence to develop routines for taking advantage of emergence.

Overcoming Our Failure to Incorporate the Immediacy and Messes of Everyday Managing

Managers may also ignore what we publish because they get bogged down in the complexity of everyday managing, or in what Ackoff (1981) called ‘messes’. In the extreme, some managers get trapped in the moment of immediate decisions, which blinds them to longer term issues. The more fundamental problem, I think, is that managers do not know how to deal with complexity and its core dynamic of emergence. They do not understand how to incorporate the inherently unpredictable emergence of knowledge into their daily management practices, even though emergence characterizes the shifting global relations and the grand challenges all organizations need to grapple with. Knowledge for innovation in complex systems not only emerges, but also is noisy, fragmented, and widely dispersed (Tsoukas, 2005), so complex innovations themselves emerge over ten or more years.

Published research based on confirmation and reduction fails to explain to managers how they can deal with complexity. Managers do not see the interdependencies they face in these studies, and learn nothing about how to spot the emergence of unexpected interdependencies that can wreak havoc in complex systems. Managers react to this void in their understanding of emergence by avoiding uncertain activities, including innovation, and by focusing on the short term. One consultant said that managers stick to the status quo if their revenues are okay now, since ‘innovation’ takes work. A colleague said that managers will not try anything that takes more than three years because nobody present now will be around then, thus precluding complex innovation.

Theory-based roadmaps for building the capability for streams of innovation need to add the ability to deal with emergence. For managers to deal with emergence, learning routines need to explain how to do three kinds of activities: 1) how to capture and use the noisy, fragmented, and dispersed knowledge that emerges unpredictably; 2) how to stretch out in time far enough to encompass long term innovations yet also keep a toehold in the present; and 3) how to generate some sense of control here and now, despite the long-term nature of complex innovation.

The process of taking advantage of the emergence of knowledge based on abductive learning routines (Dougherty, 2016) shows how to carry out all three

activities. Taking advantage of emergence means grabbing fragmented and noisy information, integrating and configuring all these bits into potential solutions for concrete problems, applying the possible solutions to learn whether, how, and why or why not they may work and what else seems relevant, and reframing configurations to accumulate more noisy bits of information into better and better solutions. With abductive learning routines to take advantage of emergence, managers can make good use of noisy information, generate intermediary signposts to gauge progress for the very long term, and control the innovation process by shaping and framing innovation projects and business strategies that use the emergent innovations.

Taking advantage of emergence represents theories about learning under complexity and the discovery style of research used by scientists working at the frontiers of knowledge (Nightingale, 2004). Denrell, Fang, and Levinthal (2004) suggest a metaphor for complex learning: managers are navigating in a labyrinth. They cannot predict how to get to the desired outcome from their current position, but they can proceed by using intermediary models to impute next steps. They see if the results of the action taken fit the model, and if not, they learn about the situation from the deviation. Nightingale (2004) argues that the world is not all predictable, which means that prediction alone cannot work. Rather than focus on prediction, scientists (and by extension strategic managers) need to create the conditions for predictability.

An article colleagues and I published in *MOR* suggests that innovators use learning events as intermediary models to create the conditions for predictability as they navigate in the labyrinth of complex innovation (Dougherty, Bertels, Chung, & Kraemer, 2013). Learning events are endogenous occurrences that emerge when innovators and managers learn enough about the configuration of interdependencies among various product elements they are working on to indicate the next thrust of their innovation work. These intermediary models are moments of closure in exploration that capture enough of the whole for the possible product, process, or strategy to enable people to see what they know so far and identify plausible next thrusts for their innovation work.

Learning events occur in the relative short term, and multiple learning events arise in the short term across innovation projects. Learning events capture what innovators and managers know so far, and think they will learn across their various innovation launches. Strategic managers do not have to wait many years to see if their plans work. Instead, they can use learning events to construct a portfolio of possible value creating opportunities and project those out into the future. As project innovators are navigating in the labyrinth of developing their particular new product, strategic managers are navigating in their labyrinth of strategizing by using the learning events from diverse projects and knowledge development processes (e.g., R&D). They hypothesize new business opportunities, models, or niches, try them out by experimenting to learn if markets might exist, what customers want, and if the technology might work. In this process, they

generate new learning events about the emergence of new industry structures and technologies, and their impacts on new markets.

Abduction makes use of all the emerging learning events (Ansell, 2011; Ferraro et al., 2015; Locke, Golden-Biddle, & Feldman, 2008; Weick, 2005). Abduction is the deliberate reasoning that leads to scientific discoveries, and was developed by logician Peirce and pragmatist philosophers in the late 19th century to contrast with deduction and induction. According to Peirce, abduction is the best answer we have to problems of discovery, since abduction alone among the forms of reasoning originates possible explanations and introduces new ideas. Magnani (2001:18) defines abduction as ‘...the process of reasoning in which explanatory hypotheses are formed and evaluated’. In a study of emerging innovation, we extend this definition to encompass formulating, evaluating, and reframing hypotheses in continual cycles of learning and exploring (Dunne & Dougherty, 2016). Abductive reasoning provides a methodical process that innovators can use to create, combine, and recombine partial, emergent knowledge into a functioning product for customers, and that managers can use to establish and modify directions and boundaries for complex innovations in real time.

Weick (2005), Grandori (2010), Ansell (2011), and Ferraro et al. (2015) detail various ways that people can use abductive reasoning over time for complex challenges. Here I outline Dunne and Dougherty’s (2016) articulation of how innovators and managers use three abductive learning routines to take advantage of the emergence of knowledge: formulating, evaluating, and reframing hypotheses about innovations and potential value creating opportunities for deploying or commercializing those innovations. I highlight the essence of each abductive learning routine, which is what managers would be interested in. Scholars interested in full theoretical elaboration of abductive reasoning (beyond the scope of this brief essay) can begin with the articles and books cited above.

To formulate hypotheses about possible future business opportunities, strategic managers would consider how these learning events across projects suggest a viable configuration for a new business model or opportunity (e.g., what technologies and other solutions will work for what markets, how, and why). Formulating a hypothesized configuration includes identifying assumptions about what would make this a good opportunity, considering how the configuration will emerge, and anticipating interdependencies. Strategic managers evaluate hypothesized configurations for value creation by implementing them, and use this experimenting to generate evaluative knowledge. They consider if expected interdependencies are central or not, how and why, and what else they can learn. They narrow in on interdependencies that seem stable, and then elaborate out again to see other possibilities. For example, managers might narrow in on a market and consider whether and how they can access it. To reframe, strategic managers critically examine assumptions, deliberate over different perspectives, and bridge possible differences into new directions. They might refine and replace milestones, develop new performance objectives that reflect new alternatives and consequences

from evaluation, or revise the future trajectories of anticipated activities that need to be accomplished.

The ongoing cycling of abductive learning routines provides a methodical approach for leveraging noisy and fragmented knowledge into possible new products, business models, and strategies, trying out these possibilities to learn more, and deliberating to rethink and accumulate insights. This methodical approach reaches into the future but also anchors on today. Strategic managers can generate metrics to gauge progress and to control developing new strategic opportunities. They can ask, can we evaluate learning events? How quickly do others provide input to our analyses? How quickly do we identify alternatives and choose among them to take next steps? They can also use judgments such as are we able to handle a larger variety of configurations? Are the learning events that emerge getting better and better? Does this opportunity open a new niche, protect us from competition, extend our existing franchise adequately, and allow us to know more about the opportunity as we also generate revenues?

This outline for taking advantage of emergence is a theoretical framework for the empirical study of how managers in innovative versus non-innovative organizations support new products and services, make decisions about projects to continue or shut down, choose among multiple opportunities, and explore the unknown unknowns of complexity. The empirical work will reveal how actual managers carry out the process of taking advantage of emergence – including the possibility that they do not use something like the process proposed, but something else entirely. The published study would explain why the final theoretical understanding of how that is developed and sharpened in the empirical analysis both captures the essence of the challenge being studied and explains the underlying mechanisms at work. Managers are not interested in tests of our theories that are abstracted from the complexities of managerial practice. But I think they would be interested in the understandings that applying our theories to actual practices would provide to them.

SO WHAT?

This essay sketches out a theory-based roadmap as a foundation for studying how managers can do our *whats*, using the example of developing and maintaining the organizational capability for generating streams of innovation in the complex global world. Only a simple sketch is possible in this essay, but I hope that the example suggests how others might develop frameworks to study how managers can do other things, and write up that study for publication in a way that displays both good scholarship and useful theoretical applications. The example roadmap incorporates what to do for innovation from theory (foster learning about markets, technologies, and strategic possibilities) and how to do these things when the knowledge emerges unpredictably (using abductive learning routines).

Applying our theories to how managers practice in real time, with real complex activities like innovation, is every bit as scholarly, and perhaps more so, than filling

abstracted gaps in theories. Building a theoretical roadmap up front to study the complexities of strategic management identifies what to focus on, from all that might be going on, especially the interdependencies among elements. Having a theoretical roadmap in mind also helps researchers notice unexpected actions. The outcome should be a clear, simple understanding of how managers can build and maintain innovativeness (or motivate employees spread around the world or participate in resolving global grand challenges). Because the study applies theory, the published paper will explain how and why things actually work. The research will also uncover situated contingencies that vary by industry, the nature of the economy, the age of the organization, and so on.

Theory-based studies of how strategic managers carry out our what-to-dos require access to strategic managers in action. Managers interested in doing a good job want road maps and how-tos, so access should be possible. And keeping the research simple by focusing on core processes and their related theories may overlook other important aspects of how managers can accomplish some complex ongoing activity like innovation. But studies of how can accumulate as subsequent work adds extensions (e.g., learning in practice, power, socio-materiality extend or reframe basic organizational learning theory), or includes alternate processes.

We can do a better job of explaining to reflective practitioners how and why they can implement particular activities to generate a desired capability. We can change our institutionalized norms of publishing to include discovery scholarship that seeks to understand, not only to predict. If we do, we can help managers build the capability to generate streams of new products and services over time, and otherwise operate more effectively in this complex world.

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