Intentional goal uncertainty: A definition and a theoretical model linking it with innovation performance

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Abstract
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Abstract

By convention, management and strategy theory holds that uncertainty is generally undesirable for organizations. This brief paper questions that convention in the context of innovation teams. Specifically, I propose that an innovation team may be better able to innovate if it pursues intentional goal uncertainty, either by explicitly acknowledging that a) it does not know the preference ordering among the items in their goal-set or b) that it does not know the full composition of its goal-set. I develop two general principles and their concomitant mechanisms through which goal uncertainty and intentionality separately and jointly affect innovation. I then synthesize these mechanisms into a model linking intentional goal uncertainty and innovation at the level of the organization. I conclude by discussing how this model updates existing theory about the undesirability of uncertainty and may offer additional explanations for inter-firm performance heterogeneity.

In this paper, I develop a theoretical model of mechanisms by which intentional goal uncertainty may improve an organization’s innovation performance. The concept of intentional goal uncertainty is, in itself, counter-intuitive given existing theorizing about uncertainty in the organizational context. As such, an illustrative anecdote may help set the frame for the analysis to follow:

The paradox of intentional goal uncertainty at Alphabet.

X is a subsidiary company in the Alphabet portfolio of companies (the re-organized Google) that works on a variety of discrete ideas for projects that, if completed, would achieve “moonshot” goals that are inherently far-fetched at their inception. To be suitable for X, a goal must have three characteristics: “First, it must address a huge problem; second, it must propose a radical solution; third, it must employ a relatively feasible technology” (Thompson, 2017). By design, therefore, X works on a huge number of highly speculative ideas with the “riskiness and ambition of early-stage research” and is willing to quickly discard them and/or find new ideas: “Thousands of [our] ideas last for a few hours,
hundreds for a few days, and dozens for a few weeks or months. If the idea survives, then we shape it into a real product” (X, 2016). This aggressively tapering development funnel at X means that project ideas must be proposed in great volume and pursued with great earnestness, but also that there is an internal understanding that the vast majority of them will be failures—the X organization includes a team called Rapid Eval whose function is to “kill, as quickly as possible, ideas that will ultimately fail” (Thompson, 2017). The set of goals X pursues at any time is therefore inherently and intentionally uncertain because many ideas (with their implicit goals) are constantly being added to and subtracted from the set being actively worked on. This allows X to be “a breeding ground for big bets that could turn into colossal failures or [Alphabet]’s next big business—and it could take years to figure out which—just the idea of these experiments terrifies some shareholders and analysts” (Miller & Bilton, 2011). As of 2018, X has thirteen publicly disclosed projects (three of which have been killed) and numerous undisclosed projects, almost always in industries quite distant from Alphabet’s core business of Internet and mobile technology. Alphabet attributes this rate and breadth of innovation to its intentional pursuit of uncertain goals: “We want to force ourselves to learn. We actively embrace failure: by making mistakes, we make progress. In this way, our ideas get stronger faster, or we discard them and move on to new ones” (X, 2016).

Alphabet attributes its success in innovation to its intentional pursuit of uncertain goals. This attribution seems paradoxical given current management theory which holds that uncertainty is bad for organizations. This apparent paradox reveals a gap in theory usually concealed by its taken-for-granted nature: The fact that some organizations appear to thrive and innovate under conditions of intentionally self-imposed uncertainty suggests that some kinds of uncertainty may have beneficial effects for organizations. However, the mechanisms that might generate these beneficial effects have not been systematically explored. This paper examines intentional goal uncertainty and theorizes about its effects specifically in the context of innovation work and innovation teams.

Innovation work is inherently uncertain (Elster, 1990; Christensen, 1997). For innovation teams, much of this uncertainty derives from having to do things that have not been
done before: innovation work requires teams to achieve outcomes that are emergent and
cannot be fully defined in advance (Harrison & Rouse, 2015). While uncertain goals are
unavoidable in innovation work, innovation teams nonetheless have a choice of treating their
goals as either certain or uncertain. If the former, the organization’s representation of its goals
is deluded; if the latter, the representation is accurate. In focusing on the intentionality of goal
uncertainty, this paper distinguishes between the reality of innovation work on the one hand,
and how the innovation team chooses to treat those goals on the other. I argue that this
distinction allows us to see that organizations have the opportunity to engage in a form of
strategic choice that has not yet been theorized: The choice between treating their goals as if
they are certain and treating their goals as if they are uncertain.

I begin by outlining working definitions for and the distinction between goal uncertainty
and intentional goal uncertainty. I then present two principles built on insights from related
existing theory that separately and in combination help explain how intentionally uncertain
goals might affect an organization’s ability to innovate. I synthesize these mechanisms into a
model linking the intentional goal uncertainty with an organization’s increased ability to
innovate through increased search, sensemaking, and learning—this model is previewed in
Figure 1 below and discussed in detail toward the end of the paper.

I conclude with a discussion of how this theory of intentional goal uncertainty updates
existing beliefs about the undesirability of uncertainty and helps explain inter-firm
performance heterogeneity. I also describe some directions for future research on heterogeneous goals within industries, goal formation within organizations, and meta-preferences for goal uncertainty.

GOAL UNCERTAINTY

Organizational goals, at base, are the set of desired outcomes the organization pursues. Extrapolating from ?, uncertainty in relation to goals can only be understood in contrast with certainty in relation to goals—which is simply a situation in which an organization has complete clarity and certainty about both the composition and the preference ordering of its goal-set. This means that the organization both knows all the possible desired outcomes it could pursue, as well as the importance of each desired outcome relative to all the others. Such a clear-cut situation of goal certainty exists only in conceptual form—an ideal-typical analytical construct (Weber, 1949, p90) in contrast with which goal uncertainty can be more easily and clearly defined.

The minimum condition for an organization to be considered as pursuing uncertain goals is when it does not know the preference ordering of its goal-set. In other words, the organization pursues multiple goals but the priority and preferability of those goals relative to each other is unclear. An example of this is when different members of an interdisciplinary grant evaluation team fail to agree on which grants to fund because each member has a different system of evaluating grants. These differences in turn deriving from different disciplinary ideas about what constitutes valuable and worthwhile research (Lamont, 2009).
Further, an organization can also be considered to pursue uncertain goals when it realizes that it does not know the full composition of its goal-set. In such a situation, the organization becomes aware of new goals that it might pursue—these new goals might displace some of its existing goals or alter their relative preferability. An example of this might be the classic case of new-market industry disruption described by Christensen (2003). New entrants to the industry use disruptive innovations to serve new market segments that are less profitable while incumbents focus on more established and more profitable market segments. When disrupters achieve success in those new market segments, incumbents become aware that those new market segments potentially represent goals that they should have pursued. Incumbent laptop and computer manufacturers experienced this form of goal uncertainty when Apple introduced the iPhone in 2007—because it quickly supplanted laptops as the primary channel for accessing the Internet Christensen et al. (2015).

Goal uncertainty is thus when an organization is uncertain about how to prioritize the different goals it has, or when it is uncertain about which goals it is pursuing in the first place. The second condition necessarily contains the first, since uncertainty about the composition of a goal-set automatically creates uncertainty about the preference ordering of that goal-set.

WHAT IS INTENTIONAL ABOUT INTENTIONAL GOAL UNCERTAINTY?

“Intentionality,” Searle argues, “is that feature of certain mental states and events that consists in their (in a special sense of these words) being directed at, being about, being of, or representing certain other entities and states of affairs” (Searle, 1984). What makes a mental
state or action intentional is the fact that it is directed at something. For the purposes of
definition, the intentionality of goal uncertainty relates only to how an organization regards or
treats its goals.

As alluded to earlier, organizations can experience uncertain goals purely as a result of
the kind of work they engage in; innovation organizations experience goal uncertainty by
definition. However, the fact that they actually experience goal uncertainty does not mean
must treat their goals as if they were uncertain—in other words, they need not represent their
goals to themselves as uncertain. When an organization treats its goals as if they were
uncertain, it represents the state of its goals as uncertain. For the purposes of this paper, an
organization will be said to experience intentional goal uncertainty as long as it represents its
goals to itself as uncertain. Crucially, as Searle points out, intentionality is independent of
whether or not the intention accurately represents reality or can be realized (Searle, 1984):
Regardless of whether or not its goals are actually uncertain, it represents those goals to itself
as such. Intentional goal uncertainty is thus a state of mind, distinct from an objective reality
or the perception of an objective reality.

**INTENTIONAL GOAL UNCERTAINTY VS. INTENTIONAL GOAL CERTAINTY**

It may be helpful to exemplify intentionality in the contexts of the two forms of goal
uncertainty defined in the previous section, and then to contrast intentional goal uncertainty
with intentional goal certainty.

As an example of intentional goal certainty, consider an innovation organization within,
say, a bank. Senior management forms the organization after comprehensive market research and sets it the goal of delivering a suite of novel payments technology innovation products for small business users within the next two years. To align it with the rest of the bank, which works on quarterly evaluations, this organization is given quarterly milestones toward its goal. The team members’ quarterly and annual performance evaluations and annual bonuses are tied to their ability to deliver on these milestones. Though the team’s members may recognize the reality that the parameters of the new payment product are emergent and might change in the course of their work, the binding actions taken by senior management treat the organization’s goals as if they were clear, definable, and predictable.

The minimum condition for intentional goal uncertainty is when an organization represents its goal-set as one in which the relative priority and preferability of the different goals is unknown. One example of such an organization is the pseudonymous heterarchic company NetKnowHow described by Stark et al. (2009). A new-media consulting firm in New York operating during and after the Internet bubble in the early 2000s, NetKnowHow was organized as a collection of internal communities (e.g. programmers, information architects, marketers) each of which had a different set of goals. The firm’s consulting projects each required participation from these diverse internal communities, but—by intent—no one community was systematically privileged over the others. Consequently, there was uncertainty at the organizational level in terms of how each set of goals should be prioritized relative to other goal-sets.

In addition to that minimum condition, an organization may also intentionally pursue
uncertain goals in a more fundamental way by consciously acknowledging that it does not know the full composition of its goal-set. In other words, the organization represents its goal-set as one which may be incomplete—it assumes that new goals may be discovered and added to the goal-set, thus changing its composition. The opening example of Alphabet’s X division illustrates such a situation. X acts not just to achieve a well-understood set of goals but also to find and evaluate potential new goals. The organization’s structure and ways of working are intentionally designed to treat its goals as if they were uncertain. X’s project development funnel tapers aggressively by design. It incentivizes team members to generate a wide variety of ideas (each representing a different desired outcome), and has a dedicated subgroup (Rapid Eval) the function of which is to kill ideas off as quickly as possible. When members kill their own projects by finding fatal flaws in them, they are often given a bonus and recognition within the organization (Leber, 2016). In combination, X’s goal set at any time is constantly in flux.

**TWO PRINCIPLES CONNECTING INTENTIONAL GOAL UNCERTAINTY AND INNOVATION PERFORMANCE**

To date, uncertainty has generally been thought to be undesirable because it prevents formal-rational, optimizing decision-making (March & Simon, 1958; Simon, 1991; Gintis, 2008) and introduces suboptimal heuristics and biases into judgment and decisionmaking (Tversky & Kahneman, 1974). In the context of management and organizations, uncertainty has been found to interfere with an organization’s ability to make choices about what actions to take (Conrath, 1967; Jauch & Kraft, 1986; Lawrence & Lorsch, 1969; March & Simon, 1958;
Milliken, 1987; Thompson, 1967; Tosi et al., 1973), constrain the structures it chooses to implement (e.g. van de Ven et al., 2013), influence its decisions to enter or exit from markets (e.g. Ahsan & Musteen, 2011; Gaba & Terlaak, 2013), modify its internal strategic processes (e.g. Kaplan, 2008; Miller & Friesen, 1983; Wernerfelt & Karnani, 1987), and reduce its ability to reach its target performance levels (Loch et al., 2011; Thompson, 1967; Tushman & Nadler, 1978). This stream of research and theory conceptualizes uncertainty as a condition imposed on organizations. Understandably, in this context uncertainty is deemed undesirable because it interferes with attempts to optimize their strategy and operations.

Much of the prior work on uncertainty in organizations focuses on the actual state of uncertainty the organization faces, not on whether the organization represents that state to itself as uncertain. This paper is concerned with the latter, and specifically how the organization represents its own goals to itself as being uncertain, and how that representation influences how it acts in a way that affects its ability to innovate. Innovation work is a special case of a type of organizational activity that is definitionally not susceptible to a priori optimization (Elster, 1990). When attempting to create new ideas and develop them into useful and valuable products and services, organizations and their members must engage in more intensive sensemaking, search, and learning than usual (Cyert & March, 1992; Nelson & Winter, 1982; Hannan & Freeman, 1984). In the context of innovation, organizations that treat their goals as uncertain may change their behavior in ways that increase their ability to innovate. Two general theoretical principles guide this paper. First, organizations that believe their goals are uncertain may engage in more sensemaking, search, and learning—behaviors that are associated with innovation performance. Second, the directedness implied by intentional goal
uncertainty may further enhance those behaviors by increasing complementary behaviors and reducing conflicting ones through planning.

**Principle 1: Uncertainty stimulates sensemaking, search, and organizational learning.**

**Search.** Search and exploration has a long-established association with innovation activity, since it is necessary for the discovery of new possibilities (March, 1991; Levinthal & March, 1993; Andriopoulos & Lewis, 2009; Smith & Tushman, 2005). Empirically, organizations exhibit increased innovation performance when they broaden their search scope (Zhang & Li, 2010) and search not only broadly but deeply (Laursen & Salter, 2006; Fabrizio, 2009). However, as March (1991) and Levinthal & March (1993) argue, the outcomes of search are less certain, more likely to be distant in the future, and more diffuse than the outcomes of exploitation. As organizations learn and adapt, they thus tend to emphasize exploitation over search—this tendency also has the tendency to inhibit innovation.

Believing that organizational goals are uncertain may counteract this tendency. Uncertainty stimulates agents to search for more new information in an attempt to reduce that uncertainty (Starbuck, 2009), and this search activity can be aimed at both finding specific pieces of information or at finding out more about the range of possible information available (Stigler, 1961). For instance, Bell & Esch (1987) describe how uncertainty at NASA about the right technical strategy to safely land humans on the moon prevented NASA engineers from taking the success of their planned actions for granted and led them to seek and integrate advice and guidance from more diverse sources of information. In the context of innovation, goals represent areas of the cognitive landscape to be either discovered or explored.
Uncertainty in relation to organizational goals is thus likely to lead organizations to explore existing goals more intensively or to seek out new goals to pursue. In combination, these patterns suggest **Mechanism 1a: Goal uncertainty increases search in relation to goals.**

**Sensemaking.** While all work requires sensemaking, previous research suggests that successful innovation work is especially reliant on effective sensemaking. In the organizational context, the creation of new ideas is often a collective process that emerges from negotiating between the numerous and often competing interests of different groups within the organization—this inherently requires sensemaking at the individual, intersubjective, and collective levels (Drazin et al., 1999; Ring & Rands, 1989). Creativity and new ideas alone are insufficient for innovation; these creative new ideas must then be developed into viable and useful products or services. Because this development process cannot simply take known approaches to a pre-established solution, successful innovation requires sensemaking to find useful new patterns, meaning, or connections between ideas (Kolko, 2010; Dougherty et al., 2000).

Exposure to uncertainty appears to stimulate sensemaking in individuals and organizations. As Weick et al. (2005) and Mills (2003) point out, searching for meaning and developing meaningful interpretations of previously meaning-less data are ways in which both individuals and organizations deal with uncertainty and attempt to reduce it—though too much uncertainty can overwhelm organizations and lead to the collapse of sensemaking (Weick, 1993). When agents perceive the world to be different from expectations, they engage in sensemaking in order to bring what they perceive back into alignment with their systems of
expectations. Uncertainty in this case represents either a breach or absence of expectations which prompts sensemaking actions to bring the situation back to normalcy.

Jay (2013) finds that when organizations face situations in which there is uncertainty about whether certain outcomes represent success or failure, actors must expend energy to interrogate their definitions of success to either reconcile conflicting definitions or create novel syntheses with the inclusion of new perspectives from the external environment. Taken as a whole, when organizations and their members believe that their goals are uncertain, they are likely to invest more energy in sensemaking activities—specifically those which allow them to interpret or re-interpret their goals to make them meaningful in the context of their internal and external environments. Consequently, this implies **Mechanism 1b: Goal uncertainty increases sensemaking in relation to goals.**

Organizational learning. Organizational learning is both empirically and theoretically linked with innovation performance, though this linkage appears to be bidirectional and contextual. When driven by the optimizing and exploiting tendency mentioned earlier, learning supports adaptation that can increase the organization’s ability to exploit known routines. Optimization-driven learning can thus impair innovation if investment in exploitation is at the expense of investment in search (March, 1991).

Innovation requires an organization to not only search for and find new information and ideas, but also for that organization to be able to integrate that new information (Argote & Miron-Spektor, 2011) and recognize when that information fits with a viable market opportunity (Lumpkin & Lichtenstein, 2005). Moreover, successful innovation requires
organizations and their members to do new things or to do old things in new ways, implying that an organization’s innovation performance should be associated with its ability to create and modify its routines so that they generate outputs that its markets demand while also being internally coordinated (Sørensen & Stuart, 2000).

There is evidence that being forced to confront uncertainty drives organizations to learn and change. For instance, Brown & Duguid (1991) find that small communities of practice “evade the ossifying tendencies of large organizations” because they are forced to respond to not-always-predictable changes in membership, environment, and practice. In a similar vein, Simon (1991) suggests that some degree of uncertainty permits or stimulates innovation, while Christianson et al. (2009), studying the consequences of an unexpected building structural failure at a museum, find that organizational learning can be triggered by unexpected events that highlight strengths and weaknesses in organizational repertoires, offer chances to reorganize organizational routines, and reshape organizational identity.

Uncertainty also provides individuals and organizations with opportunities and incentives for evaluating and changing their routines, resources, and capabilities—in other words, opportunities for learning new things (Starbuck, 2009; Lampel et al., 2009). Swidler (1986) argues that “settled” times are defined by certainty and stability in the relationship between what agents do and the results of their actions. In settled times, agents succeed by refining and reinforcing tried-and-true action routines. “Unsettled” periods, in contrast, make action-outcome relationships unclear, making it difficult to tell which routines are optimal. This forces organization to learn or create “new ways of organizing individual and collective
This suggests that uncertainty drives organizations to take actions that they would not otherwise take, which in turn allows them to figure out new ways of doing things that are more adapted to the changed current environment. When the uncertainty relates directly to goals, Stark et al. (2009) and Jay (2013) show that contesting internal groups must negotiate with each other—and the constant presence of the need to negotiate definitions of successful goals allows the organization to innovate and adapt to an uncertain external environment by updating its routines, resources, and capabilities. This suggests **Mechanism 1c: Goal uncertainty enhances organizational learning.**

**Principle 2: Intentionality modifies actions taken in response to goal uncertainty.**

Intentionality increases the organization’s motivation for and focus on taking the search, sensemaking, and learning actions prompted by goal uncertainty. Intentionality also implies that the organization is able to anticipate the need for those actions, thus permitting it to design them so that they complement or reinforce each other and avoid actions that conflict with each other.

*Motivation and focus.* In the context of planned behavior, “intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior. As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance” (Ajzen, 1991, p181). Intentionality can thus be assumed to focus the organization’s attention on actions prompted by goal uncertainty (such as
search, sensemaking, and learning) and the details of how it will be performed. As Ocasio (1997) points out, what individuals and organizations end up doing depends on what issues and answers they pay attention to.

While most organizational or strategic studies of uncertainty have focused on involuntary exposure to uncertainty and concluded that it is not advantageous to organizations, the findings from a handful of other studies at the individual level suggest that uncertainty may be beneficial for organizations who intentionally create or embrace it. At the level of individual members in the organization, the act of forming an intention in relation to an action increases the member’s motivation to perform the action. This is because the act of forming the intention involves the individual developing reasons to support the action (reviewed in Westaby, 2005). Since any organization is a collective of individuals, this suggests that intentionality should increase the organization’s overall motivation and focus on the search, sensemaking, and learning actions prompted by goal uncertainty. In turn, this should increase the likelihood that these actions are carried out.

Intentional uncertainty in the form of a holistic, accepting approach to an object of ambivalence has also been shown to heighten information processing and increase adaptability in individuals (Ashforth et al., 2014). In turn, this suggests that members of organizations which treat goals as intentionally uncertain will be better able to engage in search and sensemaking (because of heightened information processing) and learning (because of increased adaptability). Taken as a whole, this suggests Mechani**sm 2a: Intentionality increases sensemaking (M1a), search (M1b), and organizational learning (M1c) by
increasing motivation and focus on these actions, by heightening information processing, and by increasing adaptability.

Planning and mutual adjustment. Closely related but distinct from motivation and attention is the element of advance planning and adjustment implied by intentionality. Intentionality in the context of goal uncertainty implies that the organization anticipates that its goals will be uncertain. This enables the organization to proactively plan around the expectation of uncertain goals instead of only responding reactively when goals are unavoidably revealed to be uncertain.

When actions are intentional (instead of accidental or forced) and thus planned in advance, they are more likely to be integrated into the broader system of actions the organization has planned. By this I mean that contextual actions and a focal action are more likely to be mutually adjusted to each other if the focal action were intentional than if the focal action was unintentional or forced on the organization. All else equal, intentional actions are less likely to conflict with other actions, and more likely to reinforce or optimize other actions—a crucial consideration in the perspective on strategy theory that places primacy on “the configuration of [a firm’s] activities and how they interrelate” (Porter, 1991, p102).

First, the organization is more likely to demonstrate more motivation and focus on investment in behaviors that support innovation performance. Second, the organization is both more likely to engage in activities that reinforce these activities, and less likely to engage in activities that conflict with them. Together, these imply both Mechanism 2b: Through planning, intentionality reduces the degree to which an organization’s sensemaking, search,
and learning activities conflict with each other, and the related but distinct **Mechanism 2c:**

Through planning, intentionality increases the degree to which an organization’s sensemaking, search, and learning activities are designed to support and reinforce each other.

**A Model of How Intentional Goal Uncertainty Affects Innovation Performance**

The two general principles outlined above connect intentional goal uncertainty with the organization’s innovation performance via search, sensemaking, and learning. Figure 1 presents these relationships graphically.

In the first instance, uncertain goals drive the organization to invest more effort and resources in searching for information about existing and potential new goals (M1a), in making sense of goals in relation to each other and in relation to the organization as a whole (M1b), and in the kind of organizational learning that allows the organization to adapt and reshape itself in response to new information (M1c). Intentionality conditions that first principle in two ways. It increases the organization’s motivation to carry out the search, sensemaking, and learning actions prompted by uncertain goals (M2a). Through the possibility of advance planning and coordination, it also increases the likelihood that these actions are implemented in ways that do not conflict with each other (M2b) and in fact reinforce each other (M2c).

Overall, the effect of intentional goal uncertainty is to increase the likelihood that new information is discovered (through search), useful patterns and opportunities are identified (through sensemaking), and routines modified to increase adaptability (through organizational learning)—these then increase the organization’s ability to innovate. The following sections
consider how this model of intentional goal uncertainty modifies existing management theory, research, and practice.

**IMPLICATIONS FOR MANAGEMENT RESEARCH**

Recognizing the effect of intentional goal uncertainty opens up new research questions in strategic management, provides an alternative explanation for performance heterogeneity among firms, and updates management theory about the desirability and strategic value of uncertainty.

**Alternative Explanations for Inter-firm Performance Heterogeneity**

Strategy research often implicitly assumes that firms within the same industry have the same goals, and thus that firms in the same industry aim for the same measures of performance. Strategy research focuses on performance variation between firms and aims to explain such variation with firm-level variation, for instance in strategy choice (Davis et al., 2009; Zott & Amit, 2007), ability to imitate optimal strategy (Bikhchandani et al., 1998; King, 2007; Powell et al., 2006; Reed & DeFillippi, 1990), resources (Newbert, 2007; Peteraf, 1993; Wernerfelt, 1984), or capabilities (Eisenhardt & Martin, 2000; Helfat & Winter, 2011; Teece et al., 1997).

The theory outlined in this paper suggests that this assumption of goal convergence among organizations may not always be valid. In particular, firms in an industry may not all conform to a single performance standard because some firms are pursuing different goals or seeking other (currently unknown) goals to pursue. In industries where some proportion of firms pursue goal uncertainty—for instance, creative industries or nascent industries—there
are likely to be multiple clusters of goals being pursued instead of goal convergence. Where strategic management theory and empirical research usually infers that performance heterogeneity results from heterogeneous competencies or capabilities, intentional goal uncertainty suggests that performance heterogeneity may be a natural characteristic of at least some industries.

This has several implications for evaluating existing empirical research that attempts to explain performance variation through firm-level variation. First, selection bias will inevitably be operating if the outcome variable used to operationalize performance in an analysis represents only a subset of the range of goals being pursued in the industry. More broadly, the idea of intentional goal uncertainty directs strategy researchers to ask questions not simply about performance heterogeneity in terms of a narrow range of firm goals, but also questions relating to goal heterogeneity. I expand on this in the section on future research directions.

**Updating Our Understanding of the Desirability of Uncertainty**

The theory outlined above suggests that individuals and organizations which intentionally pursue uncertain goals should behave differently from those which have uncertain goals forced upon them. An organization that intentionally pursues uncertain goals is more likely to have invested in creating or accumulating the internal processes and structures that allow it to more fully use diverse resources (Boltanski & Thévenot, 2006; Lamont, 2012; Stark et al., 2009) and engage in the types of extensive search and information integration that enable radical innovation (Elster, 1990; Norman & Verganti, 2014; Zhou & Li, 2012). These benefits of
intentional goal uncertainty are particularly useful to organizations operating in uncertain environments.

This updates extant theory which holds that organizations seek to reduce uncertainty and perform better when they are able to do so (Thompson, 1967; Kamps & Pólos, 1999). Understanding the effects of intentionality in the context of goal uncertainty and innovation transforms our previous understanding of uncertainty from something uniformly undesirable to something contingently desirable and susceptible to intentional action. An organization intentionally pursuing goal uncertainty must commit to and invest in different types of internal structures and decision-making processes, and potentially a different conception of its goals compared to organizations that have goal uncertainty forced upon them. Such actions logically lead to performance differences, such as increased ability to detect and respond to changes in the external environment, and ability to innovate radically. Intentional pursuit of uncertain goals may therefore constitute a distinct type of strategic management, a type so far not studied by researchers.

FUTURE RESEARCH ON INTENTIONAL GOAL UNCERTAINTY

Building on the implications discussed above, future research and theory development could focus on three related but so far unexplored aspects of organizational preferences: 1) Goal heterogeneity between organizations, 2) goal formation and heterogeneity within organizations, and 3) patterns and sources of variation in organizational meta-preference for goal uncertainty.
Exploring Goal Heterogeneity Between Organizations

The theory developed above implies that firms in the same industry might intentionally pursue uncertain goals to evaluate potential goals and discover new ones. Counter to the predictions of institutional theory, firms within industries may pursue a wide range of different goals and some of those goals may be emergent. Future empirical research should explicitly test this proposition. One initial study could use a survey with ranked open response options for organizational goals to elicit responses from firms about the goals they pursue and how those goals are prioritized relative to each other—this would reveal the extent to which goals are shared across firms in an industry. Conducting the same survey across a random sampling of firms in different industries would also allow researchers to compare levels of preference heterogeneity across industries; two simple computed measures of which would be 1) the central tendency and dispersion of the number of distinct goals reported by each firm, by industry and 2) the dispersion of rankings for specific goals, again by industry.

Beyond such initial descriptive research, subsequent studies might explore—at first descriptively, then with a greater focus on causal mechanisms—if and how levels of goal heterogeneity change over time within industries. In addition, further theoretical and methodological development will be necessary to understand whether and how to compare firms that are pursuing different goals. Most prominently, it may be necessary to develop different performance measures that more accurately reflect the range and distribution of goals pursued by organizations within and across industries, analogous to attempts by economists (Nordhaus & Tobin, 1972; Stiglitz et al., 2008) to construct more complete measures of
economic welfare and development than the original largely GDP-based measures.

**Exploring Goal Formation and Heterogeneity Within Organizations**

The model presented above applies at multiple levels of analysis. Organizations are not the only agents that can intentionally pursue uncertain goals: The individuals and sub-groups within organizations can pursue uncertain goals as well. Previous research suggests that an organization’s goals emerge out of political processes between the organization’s sub-units (Cyert & March, 1992; Lawrence & Lorsch, 1969) In turn, this implies that researchers should more closely consider the currently under-examined multi-level question of how an organization’s collective preferences arise out of the preferences of its component groups and members.

Because this research program is emergent, initial studies should focus on construct clarification and development (Edmondson & McManus, 2007) by qualitatively documenting the concrete processes by which organizational sub-units and members contest or negotiate their preferences and how these processes are affected by organizational structure and power differentials—in other words, a preference-formation analogue to studies of internal strategy-formation processes (e.g. Kaplan, 2008). Two other important research programs in this area would be 1) documenting the consequences of different types of preference uncertainty occurring simultaneously in the same organization, and 2) documenting the varying consequences of the different types of preference uncertainty when they occur in different degrees.
Such research would support the development of tools to measure types and levels of contestation and negotiation, which would in turn make it possible to conduct studies that examine how variation in these internal processes and power dynamics affects the preference set that emerges at the organization-level. Structural equation modeling (Pearl, 2000; Shook et al., 2004) or agent-based modeling approaches are more likely to be useful for this research than conventional multi-level modeling, since the goal is to explain group-level preferences in terms of sub-unit preferences and internal processes.

Exploring Patterns and Sources of Variation in Meta-preference for Goal Uncertainty

Previous research already described suggests that firms that intentionally pursue goal uncertainty will be more likely to be able to adapt and innovate—capabilities that are particularly important for organizations operating in uncertain external environments. The resource-based view of strategy (Peteraf, 1993; Powell et al., 2006) and organizational learning theory (Levitt & March, 1988) both predict that the prevalence of a meta-preference for goal uncertainty will increase over time as organizations learn about its benefits and engage in imitation, and that this is more likely for organizations operating in more uncertain environments and industries.

Increasingly heterogeneous goals within industries over time would be evidence to support the existence of such a trend. A possible quantitative study would test this proposition using a longitudinal open-response survey of organizational goals comparing the levels of within-industry goal dispersion over time between industries with different levels of environmental uncertainty. A separate qualitative study could explore meta-preference for goal
uncertainty as a form of organizational innovation, looking at how third-party organizations and inter-personal and -organizational networks affect patterns in organizational meta-preference for goal uncertainty. Empirical settings for such studies are becoming more common: One example is the growing inter-organizational network of benefit corporations—legislatively defined corporations aiming to redefine success in business by pursuing different sets of goals compared to conventional businesses (Hiller, 2013)—working to make it easier for conventional businesses to re-organize themselves as benefit corporations.

A related research program would go one level deeper than the pattern analysis described above in order to understand the sources of variation in individual or organizational meta-preference for goal uncertainty. Previous research indicates that organizations are influenced by leaders (Chatterjee & Hambrick, 2007; Lieberson & O’Connor, 1972) and early employees (Eisenhardt & Schoonhoven, 1990; Beckman, 2006; Helfat & Peteraf, 2003). Research in personality psychology also suggests that individuals vary in their tolerance for ambiguity. One possible multi-level study would thus examine the extent to which organizations’ preferences for goal uncertainty (as measured by dispersion of explicit goals) are related to the ambiguity tolerance of their leaders and early employees.
References


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Innovation performance

Goal-related sensemaking

Organizational learning

Discovery of new information

Identification of useful patterns and opportunities

Creating/modifying routines that enable innovation

Reinforcing activities

Goal-related search

Goal-related sensemaking

Organizational learning

Intentionality

Goal uncertainty

Figure 1
A model linking intentional goal uncertainty to innovation performance