

**Matching Decision Tools to Decision Problems:
A Contingency Theory of Strategic and Entrepreneurial Choice**

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Current Draft: September 2026

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Research in entrepreneurship and strategic management offers a wide array of decision-making tools, ranging from discounted cash flow analysis and real options to effectuation, heuristics, and bricolage. Despite this shared concern with consequential decisions, the two literature streams have largely developed independently and, perhaps as a result, have treated decision tools as domain-specific—appropriate for either entrepreneurs or managers, but not both. This paper challenges that assumption and develops a contingency-based theory of decision tool selection that shifts the unit of differentiation from actor identity to decision context. We conceptualize decision contexts along two continuous dimensions: novelty, defined as the degree to which a decision departs from the decision-maker's existing cognitive representations, and uncertainty, defined as the extent to which outcomes and probabilities cannot be reliably specified *ex ante*. We submit that uncertainty directly determines the relative effectiveness of quantitative versus judgment-based tools, while novelty affects tool choice indirectly by shaping uncertainty through problem representation. This framework unifies insights across entrepreneurship and strategy, clarifies the boundary conditions of prominent theories such as effectuation and real options, and generates testable propositions regarding the use of decision-making tools across organizational settings. More broadly, the theory reframes decision-making tools as conditional responses to informational problems rather than as domain-bound logics, aligning with long-standing contingency arguments in strategy while offering a novel synthesis at the level of the decision.

Word Count (225 words)

1. INTRODUCTION

Strategic and entrepreneurial decisions often involve long time horizons, irreversible commitments, and imperfect information. Choices such as entering a new market, launching a novel product, or committing capital to uncertain technologies shape firm trajectories and competitive outcomes (Knight, 1921; Penrose, 1959). In response, scholars and practitioners have developed a wide array of decision-making tools, including discounted cash flow analysis (DCF), real options, scenario planning, heuristics, experimentation, and effectuation. Yet research in entrepreneurship and strategic management has largely treated the applicability of these tools as domain-specific, implicitly tying them to organizational form or actor identity rather than to the attributes of the decision problem itself.

This domain-specific framing implies a strong but rarely articulated null hypothesis: that decision tools are appropriately matched to the decision-maker (entrepreneur versus manager) or to the organizational context (startup versus established firm). Implicitly, this null assumes that decision quality is invariant to problem attributes once organizational identity is specified—a claim that is difficult to reconcile with information-processing (March & Simon, 1958; Simon, 1955; Tushman & Nadler, 1978), knowledge-based (e.g., Grant, 1996), or problem-centric theories of strategic choice (Nickerson et al., 2012; Nickerson & Zenger, 2004).

Empirical practice also runs counter to this assumption. As research has recognized, heuristic and effectual reasoning are widely documented within large, established firms, particularly in innovation and corporate entrepreneurship settings (Eisenhardt & Bingham, 2017); even lean start-up methods, which were originally designed specifically for new ventures (Blank & Eckhardt, 2024), have been proposed for the management of existing firms (Furr & Dyer, 2014). Likewise, those tasked with entrepreneurial decision-making frequently employ formal decision

approaches (Dew et al., 2009). The same tools appear on both sides of the entrepreneurship-strategy divide, suggesting that organizational identity alone cannot explain tool choice.

We take a different approach: decision tools should match decision problems rather than disciplinary domains. From this perspective, strategic management and entrepreneurship are best distinguished by the types of decisions they most commonly address. Strategic management tends to focus on decisions characterized by interdependence—across contemporaneous decisions within the firm, across the decisions of other economic actors, and across time—such that their value depends on patterns of complementary or superadditive choices rather than on the decision in isolation (Leiblein et al., 2018). These decisions typically involve durable commitments that shape future opportunities, constrain subsequent choices, and influence competitive interactions (Ghemawat, 1991; Leiblein et al., 2018; Van den Steen, 2017). Entrepreneurship often focuses on decisions characterized by Knightian uncertainty, in which reliable probability estimates are unavailable, and the decision-maker must actively construct the problem space through experimentation and learning (Alvarez & Barney, 2002; Eisenhardt & Zbaracki, 1992; Foss & Klein, 2012).

Our theorizing emphasizes how problem types relate to decision-making aids. This focus is intentional: decision-making tools are not neutral techniques but embody assumptions about the availability of information, the stability of problem representations, and the feasibility of prediction. As such, tools provide a direct window into how decision-makers respond to different types of decision problems. Our core claim is that the effectiveness of decision-making tools developed by both strategic management and entrepreneurship depends not on who makes the decision or where it is made, but on the informational demands of the decision context.

We formalize this logic using a two-dimensional framework organized around uncertainty and novelty. Novelty captures the extent to which prior experience, established representations, and existing choice structures are insufficient for representing the problem. Although novelty often increases under uncertainty, the two are distinct: uncertainty concerns the extent to which outcomes cannot be reliably quantified, while novelty concerns the adequacy of problem representation itself. This distinction matters for tool selection. Quantitative and optimization-oriented tools are most effective when uncertainty is low, and the problem is already well represented. As uncertainty and novelty increase, tools that support judgment, experimentation, theory construction, and adaptive learning become more effective.

The framework yields two propositions. First, uncertainty directly determines the extent to which effective decision tools rely on quantitative versus judgment-based inputs. Second, novelty influences tool choice indirectly by shaping the decision architecture available to the decision-maker, conditional on experience, knowledge, and cognitive capacity. More specifically, novelty favors experimentation to develop better problem representations. By shifting attention from who decides to what the decision demands, we offer a contingency-based theory of tool choice that integrates entrepreneurship and strategic management.

The framework and propositions provide three primary contributions. First, we introduce a problem-centric theory of decision-making that replaces actor- and domain-based distinctions with decision attributes. By focusing on novelty and uncertainty, we overturn the implicit—even if unintended—null hypothesis that decision tools are tied to organizational identity and instead explain why the same tools appear across startups and established firms. Second, we clarify the boundary conditions of prominent decision logics. The framework specifies when optimization-based tools (e.g., DCF), hybrid tools (e.g., comparables, real options), and action-oriented

approaches (e.g., effectuation, experimentation, heuristics) are most effective, thereby converting broad prescriptions into context-specific predictions. Finally, we generate falsifiable propositions that enable cumulative empirical research. The novelty-uncertainty framework predicts systematic variation in tool use and effectiveness across decisions both within and across firms, creating opportunities for tests that move beyond categorical comparisons between entrepreneurs and managers. Together, these contributions provide a parsimonious foundation for organizing heterogeneity in decision-making across entrepreneurship and strategy, aligning theory with observed practice while enabling more precise empirical evaluation.

2. BACKGROUND LITERATURE

One apparent way to assess whether traditionally entrepreneurial or strategic decision tools are most appropriate would be to define entrepreneurship precisely and then prescribe entrepreneurial decision-making tools for entrepreneurial decisions and strategic tools for non-entrepreneurial decisions. However, decades of debate have failed to produce a stable or widely accepted definition of entrepreneurship. As stated by Alvarez (2005, p. 105), “despite the attempts of many entrepreneurial scholars to develop theory in this field there continues to be a lack of consensus about what constitutes entrepreneurship theory and no generally accepted theory of entrepreneurship has emerged.” Morris et al. (2018, p. 1) echo this view, citing a “lack of agreement about what constitutes an entrepreneurial venture.”

Accordingly, we do not propose a new definition of entrepreneurship or strategic entrepreneurship, nor do we take a position on whether entrepreneurship and strategic management constitute distinct academic fields. Instead, we develop a theoretical framework that reconciles

competing claims about decision-making in these literatures.¹ Our framework centers on two contingencies that are foundational to both fields yet rarely theorized jointly. First, we emphasize that decision environments range in “unknowingness” from risky to uncertain. At one end of this continuum, *risk* refers to situations in which possible outcomes are known and can be quantified, and reliable probabilities can be assigned (Ching et al., 2019; Kihlstrom & Laffont, 1979; Ross, 2014a, 2014b). Moving along the continuum, ambiguity arises when outcomes can be identified, but probabilities are difficult or unreliable to estimate (Ellsberg, 1961). At the far end resides uncertainty, defined as situations in which decision-makers cannot fully specify the set of possible outcomes, cannot quantify them, or cannot assign reliable ex ante probabilities (Alvarez & Barney, 2005; Knight, 1921; Packard et al., 2021). Second, we highlight novelty, understood as the creation of something new, such as new means-ends relationships (Shane & Venkataraman, 2000), new combinations (Schumpeter, 1934), or new organizations (Gartner, 1989). While novelty often breeds uncertainty, the two are distinct. For example, a firm may face high uncertainty in a familiar market due to exogenous shocks (e.g., macroeconomic shifts), or it may introduce high novelty in a relatively stable environment (e.g., a modular product upgrade).

Although novelty and uncertainty are related, their interaction and the implications for tool choice—specifically, the shift from predictive “causal” logic to heuristic-based “effectual” logic—remain underexplored. For example, while procedural rationality and DCF are robust under risk, they may become computationally burdensome when novelty is high and outcomes are ambiguous (Dosi & Egidi, 1991). Nevertheless, the literature has not clarified how variation along these

¹ Consistent with both literatures (Ghemawat, 1991; Leiblein et al., 2018; Van den Steen, 2017), we focus on decisions that are hard to reverse, require significant resources (e.g., creating a new organization, entering a new market), and adopt the perspective of the “entrepreneur-manager.” These decision attributes suggest both the source of risk and uncertainty and additional complexity implied by interdependence.

dimensions at the decision level determines which approaches or tools are relatively more effective. Our theory provides a contingency-based framework to address this gap, offering guidance on when to use specific tools, reconciling conflicting claims, and setting an agenda for future research. In sum, our work challenges a common implicit assumption that decision-making tools are domain-specific by proposing that tool choice depends not on organizational labels—such as “startup” or “incumbent”—but on the degree of novelty and uncertainty surrounding the specific decision at hand.

3. NOVELTY, UNCERTAINTY, AND DECISION MAKING

Table 1 makes the domain-specific assumption explicit by listing several well-known tools from the fields of entrepreneurship and strategic management. A key takeaway from the table is that each of these influential tools engages either explicitly or implicitly with the decision-making environment, including the role of the decision-maker, and with conditions of novelty, uncertainty, or both. The table highlights the prevailing emphasis on “who the decision-maker is” (entrepreneur versus manager) rather than “what the decision context demands” (levels of novelty and uncertainty).

Table 2 summarizes several well-cited papers in the fields of entrepreneurship and strategic management. Across these works, novelty and uncertainty are routinely treated as defining features of “entrepreneurial” decisions, even when the underlying unit of analysis is a strategic action taken within an established firm; the implication is that novelty and uncertainty are first-order defining elements of the decision context. However, existing research has not provided a systematic account of how variation in novelty and uncertainty at the level of the decision (or group of decisions) influences the choice of a particular decision-making approach.

Insert Table 1 and Table 2 about here

This omission reflects a deeper, largely unexamined assumption. Whereas some research has acknowledged that decision-making tools or approaches from one domain may be applicable in the other—for example, the theory-based view (Felin & Zenger, 2017; Wuebker et al., 2023) or effectuation (Sarasvathy, 2001; Wiltbank et al., 2006)—in general, decision-making tools are presumed to be associated with particular domains (entrepreneurship versus strategy) or organizational forms (startups versus established firms), rather than with the characteristics of the decision context itself. As a result, overlaps in tool use across domains are typically treated as anomalies rather than as theoretically informative variation.

We address this issue by first clarifying the type of action—and thus the type of decision—that our theory focuses on. We then define novelty and uncertainty in turn, before explicating their relationship and joint implications for decision-making.

3.1 Entrepreneurial Decision-Making and Strategic Actions

Research in entrepreneurship and strategy highlights that every entrepreneurial or strategic action (e.g., founding a new venture, entering a market, introducing a new product) has at least one associated decision and at least one decision-maker (Douglas & Shepherd, 2002; Hambrick & Mason, 1984; Zhao et al., 2010). Entrepreneurship is often viewed as a process or journey that begins with the decision to take action (Hambrick & Mason, 1984; McMullen & Dimov, 2013). As Wood et al. (2021: 148) highlight, entrepreneurial action theory “is broadly concerned with the *decision* to take action toward entrepreneurial endeavors under conditions of uncertainty” [our emphasis].

Accordingly, our unit of analysis is the decision, not the organizational form or the decision-maker's occupational role. Specifically, we focus on entrepreneurial and strategic actions that have received prior scholarly attention. For example, in describing what she called *entrepreneurial services* in *The Theory of the Growth of the Firm*, Penrose (1959) emphasized new ideas, innovation (whether developed internally or via external proposals), expansion, and significant changes to the firm's organizational structure (Kor et al., 2016; Ross, 2014a). More recent work maintains this focus, speaking of the creation of organizations (Gartner, 1988), the assemblage of factors of production (Lazear, 2005), the discovery and exploitation of new means-ends relationships (Shane & Venkataraman, 2000), and structural transformation (McMullen et al., 2021). In strategy, for its part, attention has focused on decisions that: (a) require substantial resource commitments, (b) are at least partially irreversible, and (c) materially shape the firm's future opportunity set (Ghemawat, 1991; Leiblein et al., 2018; Van den Steen, 2017). This focus is consistent with classical treatments, including transaction cost economics' emphasis on discrete, high-stakes governance choices (Williamson, 1985) and research in many other subfields investigating topics such as acquisitions and divestitures, market entry, and the acquisition of strategic factors (Barney, 1986; Makadok & Barney, 2001; Ross, 2014a).

We recognize that these canonical actions could be decomposed virtually without limit. For example, entering a foreign market involves decisions such as selecting the product or service, choosing the entry mode (joint venture, acquisition, or greenfield operation), and determining the location of the new operation in the target country. However, decision-making tools are typically designed to guide the resolution of these higher-order, commitment-laden choices rather than what Penrose (1959) called routine managerial services (e.g., where to purchase office supplies). As in transaction cost economics (Williamson, 1985), our theory abstracts away from incremental

implementation details to focus on the decision contexts for which alternative tools are plausibly substitutable (e.g., whether to build a new plant but not where to buy office supplies).

Finally, we adopt an actor-centric view of decision-making, not in terms of formal societal role—entrepreneur versus manager—but in terms of how the novelty or uncertainty of a decision depends on experience, knowledge, and cognitive representation. We acknowledge that every entrepreneur-manager is unique and constructs knowledge in their own way (Loasby, 2007). In the absence of luck or special access to resources, heterogeneity in beliefs and expectations is pivotal for generating value for both new and established firms (Felin & Zenger, 2009). Even managers in the same organization have different knowledge and perceptions of a firm’s resources and how they may generate value (Kor et al., 2016; Penrose, 1959). Indeed, value to potential customers and the entrepreneur-manager is inherently subjective (Bylund & Packard, 2022). This emphasis allows the same nominal action (e.g., market entry) to occupy different locations in the novelty-uncertainty space for different decision-makers.

3.2 Novelty

The *entrepreneurial function* described by Schumpeter (1934) in *The Theory of Economic Development* and the *entrepreneurial services* described by Penrose (1959) both emphasize the newness, or “novelty,” of new products, business models, and markets. Prior work often treats novelty as an attribute of outcomes—whether something is objectively new to the market or industry. For example, Amabile (1997) describes entrepreneurial creativity as the development of novel and useful products, services, or business models. In contrast, our emphasis is on novelty as a property of the decision-making problem as perceived by the decision-maker.

We define novelty as the extent to which formulating the decision problem or its potential solutions departs from the decision-maker’s prior experience and established cognitive schemas,

thereby requiring the creation or modification of representations rather than the application of existing ones. Novel decisions require greater cognitive effort in problem framing, solution generation, and evaluation, whereas less novel decisions can be addressed using well-understood routines or analogies. The development of novel and useful ideas, in turn, involves cognitive effort and flexibility (Seligman & Csikszentmihalyi, 2000). Our emphasis on decision-making foregrounds differences in cognitive effort, flexibility, and creativity at the individual or collective level (Baron, 2004; Baron & Ward, 2004; Ward, 2004). Cognitive effort is devoted to defining (and re-defining) problems, applying theory to generate plausible alternative solutions, and prioritizing and/or testing these solutions.

Decision-making concerning actions commonly considered to fall under the “entrepreneurial” umbrella is likely to vary in the levels of novelty, cognitive effort, and cognitive flexibility required. On one end of the creativity spectrum, consider the cognitive load associated with replicating an existing organizational form (e.g., an army unit or a chain store). This task would presumably require little creativity if the decision-makers are sufficiently experienced to understand the process. Some “new” products are also derivative, such as changing a product’s superficial characteristics to produce a new stock-keeping unit (e.g., a new size or color), and would accordingly represent an incremental market or technical change (Ansoff, 1957). The antipode to this extreme may include efforts to devise an entirely new technical component (e.g., using advanced materials), a new system (e.g., innovative cellular therapeutics in biotechnology), or a new business model (e.g., the first discount airline, Southwest, or the first targeted-frills airline, JetBlue).

This conceptualization also implies that novelty is inherently relative. The same action may be highly novel for one decision-maker and relatively routine for another, depending on experience

and domain knowledge. For example, opening a franchise in a familiar location may require little creative cognition for an experienced franchisor but substantial novelty for a first-time franchisee. Similarly, founding JetBlue was less novel for David G. Neeleman, who had already founded two other airlines, Morris Air and WestJet; thus, starting JetBlue, though still a novel and creative act, did not require as much creative cognition as it would have for a founder less experienced in passenger air travel. For the same reason, imitating a first-mover's action is not so novel and requires less creativity than deciding to be that first-mover. Thus, the decision-making context varies along the dimension of "novelty." Problems and solutions are sometimes highly novel, other times less so, and still other times not novel at all, with the entrepreneur-manager's experience and knowledge playing a key role in determining the level of novelty in each case.

3.3 Uncertainty

In classical economic models, outcome variation is treated as risk: outcomes are known, and probabilities can be assigned, enabling expected utility maximization. It is assumed that different outcomes can be quantified and their probabilities assessed by the decision-maker *a priori*, thereby allowing for probabilistic (or expected utility) reasoning (e.g., Ching et al., 2019; Kihlstrom & Laffont, 1979; Ross, 2014a, 2014b).² However, a long tradition in both entrepreneurship and strategy recognizes that many real-world decisions violate these assumptions (Cantillon, 1755; Knight, 1921).

As Knight (1921) observes, assigning probabilities to outcomes is not always possible if the situation "...is in a high degree unique." In other situations, the decision-maker might not have a well-founded idea of what outcomes are possible or how to classify them (Langlois & Cosgel,

² Some research traditions use the word uncertainty as a synonym for risk (Folta et al., 2006; O'Brien et al., 2003; Posen et al., 2018). We distinguish uncertainty from risk in the present work.

1993) or know how their future self will feel about these possible outcomes (i.e., future preferences might be unknown) (Rogotti & Shannon, 2005).

Even if alternative potential outcomes can be described, their probabilities may be difficult to assess. For example, “the market” may not (yet) exist, or it may exist, but other market participants may also have trouble assessing probabilities and thus imputing a value to specific outcomes (Demsetz, 1988; LeRoy & Singell, 1987; Townsend et al., 2025).

On still other occasions, even if it were possible to develop categories of observations and estimate their probabilities, decision-makers may, due to cognitive limitations, fail to do so. For example, when playing blackjack in a casino, most players do not have the ability or the inclination to memorize all the cards as they are played from a shoe and then mathematically optimize their gameplay.

These frictions to applying expected utility reasoning have historically been referred to as *uncertainty* in the literature (Alvarez & Barney, 2005; Knight, 1921; Packard et al., 2021; Park & Shapira, 2017) and create significant obstacles that limit entrepreneur-managers’ reasoning.³ Consequently, we define uncertainty as the decision-maker’s inability to specify a complete set of possible outcomes, assign reliable probabilities to those outcomes, or confidently evaluate their consequences ex ante. Under such (uncertain) conditions, optimization-based reasoning becomes difficult or infeasible—not because decision-makers are boundedly rational or irrational, but because the informational prerequisites for such reasoning are absent or prohibitively costly to obtain.

³ Uncertainty can be disaggregated into different types. For recent articles that propose typologies of uncertainty, see, for example, Dequech (2011) and Packard et al. (2017). For theoretical parsimony, we leave the question of how different types of uncertainty influence the choice of decision tool for future work.

Uncertainty has historically been treated as an all-or-nothing proposition: either sufficient data exist to compute expected payoffs for an entrepreneurial action, or they do not; but there is growing recognition that uncertainty may have gradations. For example, uncertainty researchers distinguish among types of uncertainty based on the openness of options and outcome sets (Packard et al., 2017) or the degree of “remediableness” of the unknown future (Packard & Clark, 2020). Knight himself spoke of entrepreneurs frequently acting on *partial* knowledge, that is, incomplete knowledge of present and future circumstances (Packard et al., 2021; Townsend et al., 2024). Thus, as more experience with a particular type of situation is accumulated, one moves from “high uncertainty” toward an eventual resolution of that uncertainty into what we call risk herein (Packard et al., 2021: 1113). Likewise, because “*partial* knowledge restricts entrepreneurs’ ability to identify the entire set of choices and probability of each outcome” [our emphasis], “*reducing* uncertainty requires building knowledge” (Moeen et al., 2020: 219, 221) [our emphasis], again implying that intermediate levels between the complete absence or presence of uncertainty are germane to entrepreneurial decisions. Where a team of decision-makers is involved, parties may *partly* disagree about important aspects, such as the future value of their idea (Kaul et al., 2024), perhaps because they have different subjective probability assessments of future outcomes (Savage, 1954). Partial disagreement, by definition, can range from low to high. Recognition that uncertainty ranges from low levels (where probabilistic reasoning is feasible) to high levels (where decision-makers must rely primarily on judgment, vision, or experimentation) is central to our theory, because it implies that decision-making tools vary in their relative effectiveness across levels of uncertainty.

Moreover, uncertainty is not solely an environmental condition. It reflects the interaction between the decision context and the decision-maker’s experience, knowledge, and cognitive

capacity. This uncertainty can be further partitioned: “Objective unpredictability references the knowability of some future outcome (e.g., venture performance), while subjective uncertainty references the doubts that one experiences about the outcome (Angus et al., 2023, p. 1148).” Thus, as decision-makers accumulate experience or generate feedback through experimentation, uncertainty may be reduced.

3.4 The Space Defined by Novelty and Uncertainty

Although novelty and uncertainty are often correlated, they are not reducible to one another. Drawing on the General Theory of Information (GTI) (Burgin, 2009), this distinction can be sharpened further. In GTI terms, uncertainty reflects epistemic incompleteness. That is, missing information about outcomes, parameters, or probabilities within a known decision structure. By contrast, novelty reflects a deeper, structural incompleteness, in which the conceptual frameworks needed to represent the problem itself are absent or underdeveloped. As a result, novelty cannot be treated simply as an extreme form of uncertainty. This distinction parallels discussions in the problem formulation and problem solving (e.g., Hsieh et al., 2007; Nickerson et al., 2012; Nickerson & Zenger, 2004) and the knowledge-based (e.g., Grant, 1996) views of strategy. Novelty concerns whether the problem itself is well specified; uncertainty concerns whether its solution can be reliably evaluated.

The relationship between novelty and uncertainty can be clarified through a series of examples that emphasize that decisions differ not only in the degree of uncertainty in outcomes but also in whether the informational structures required to represent the problem are already in place. When both the structure and the relevant informational values are well established, decision-making involves neither high novelty nor high uncertainty.

For example, launching a new venture based on a new technology typically involves both high novelty and high uncertainty. Such decisions require creating new informational structures—new categories, causal beliefs, and evaluative criteria—while also facing substantial epistemic gaps regarding outcomes, market response, and performance. By contrast, opening a new branch of an established retail chain in a location similar to those where the chain already operates involves low novelty since the decision-maker already possesses the conceptual and organizational structures needed to represent the problem. In this setting, uncertainty is also relatively low, as outcomes can be forecast with reasonable accuracy and the probability of investment loss can be quantified.

A similar logic applies to many decisions associated with day-to-day management, or what Penrose (1959) described as managerial services. These decisions typically draw on stable informational structures and involve bounded outcome spaces, even when outcomes cannot be precisely quantified. For example, choices regarding office supplies, cleaning services, or rental car agencies are rarely novel for the decision-maker. Although some uncertainty may remain, the low stakes and limited range of possible outcomes constrain epistemic uncertainty. The relevant informational structure is well-defined, and only minor refinements are required.

Importantly, novelty and uncertainty remain analytically separable because changes in the informational structure do not map monotonically onto changes in outcome predictability. The literature on the Bowman paradox suggests that performance improvements are often associated with greater predictability and thus lower uncertainty (Bowman, 1980). Accordingly, a novel innovation in a firm's production process may reduce outcome uncertainty by stabilizing causal relationships and tightening performance distributions. The Black–Scholes–Merton option pricing model (Black & Scholes, 1973; Merton, 1973) provides a canonical illustration. Although the

model was highly novel in its conception and required substantial creative and theoretical cognition, it transformed option valuation from a judgment-based, highly uncertain activity into a structured, quantifiable, low-uncertainty process by imposing a new informational structure on the problem.

Conversely, some decisions can exhibit high uncertainty despite low novelty. For example, the procedures and processes associated with hiring a new CEO are often well-established, implying little novelty in how the decision is framed and executed. Yet the outcomes of such decisions can vary widely and are difficult to predict, leading to significant uncertainty. The informational structure is stable, but epistemic uncertainty remains substantial due to the complexity and openness of the underlying causal system.

Taken together, these examples underscore a central implication of GTI: novelty concerns the availability of informational structures required to represent a decision problem, whereas uncertainty concerns the availability of information needed to evaluate outcomes within that structure. Their empirical association is common, but neither is reducible to the other.

Accordingly, we use novelty and uncertainty to define a two-dimensional space that represents the universe of decision-making of entrepreneur-managers. See Figure 1, in which the dots represent decisions. The variation in their density across the figure is meant to convey that decisions tend to cluster around the 45-degree line, with more decisions (such as in day-to-day management) occurring near the origin. At the origin, where novelty and uncertainty are low, decision-making is relatively simple. These routine decisions are typically mechanistic and may be usefully guided by standard decision-making processes or personal experience. By contrast, classic entrepreneurship, such as launching a high-technology venture in a new market, involves decision-making far from the origin, amid high levels of novelty and uncertainty.

Our framework thus categorizes different classes of decision-making contexts along these dimensions. In the following section, we generate falsifiable predictions suggesting whether particular decision-making attributes, experiences, training, or tools will be selected and effective in each region defined by this space. By shifting attention from the decision-maker to the decision context, we provide a unifying foundation for theory at the intersection of entrepreneurship and strategy.

Insert Figure 1 here

4. APPLYING THE FRAMEWORK TO STRATEGIC DECISION-MAKING

Good theory draws connections among phenomena and exposes the underlying processes embedded in causal relationships (Bettis et al., 2014; Sutton & Staw, 1995). To develop a theory strong enough to tell an accurate story about why certain behaviors, processes, and events occur, we must carefully distinguish between neighboring concepts, communicate stated relationships clearly and parsimoniously, and operate within a set of agreed-upon constraints and boundary conditions (Bacharach, 1989; Whetten, 1989).

A central social science insight is that the effectiveness of a given set of decision rules depends on the informational conditions under which they are applied. These conditions are defined by the availability of epistemic information within a given informational structure. Tools that rely on optimization and precise calculation presuppose that outcomes can be identified and that probabilities can be reasonably estimated. That is, they assume a stable decision structure and sufficient epistemic information to populate it. When these conditions are not met, such tools may generate spurious precision or impose cognitive demands that exceed their benefits.

We now apply our theoretical framework by mapping regions in the problem space defined by novelty and uncertainty to different strategic decision-making tools. This exercise generates testable—and, thus, falsifiable—propositions. We first maintain that uncertainty is a primary driver in determining the appropriate decision tool, and then that novelty, by shaping the availability of epistemic information through its effects on the informational structure, indirectly influences the choice of decision tool via the mediating role of uncertainty.

4.1 Uncertainty and the Choice of Strategic Decision Tool

It has long been proposed that there is something different about how entrepreneurs approach decision-making, with some even suggesting that the resources available to an entrepreneur should drive entrepreneurial decision-making, and often do, an approach called *effectuation* (Sarasvathy, 2001), as opposed to using available resources to pursue a pre-defined goal, an approach known as *causation*. Conversely, the classic decision-making tool for evaluating a “project” available to a firm is discounted cash flow analysis (DCF). So, does this mean that entrepreneurs should not use DCF and corporate managers should not use effectuation, even though entrepreneurs seem to use both effectuation and causation (Reymen et al., 2015), and effectuation may well be useful for managers in established firms (Welter et al., 2016)? What about other decision tools, such as comparing a project to “comparables,” i.e., similar public firms or firms recently acquired in the M&A market? What about “simple rules” that have been suggested for “high velocity” environments (Eisenhardt & Bingham, 2017)?

We maintain that uncertainty, as defined herein, i.e., epistemic incompleteness regarding outcomes with a known decision structure, is a pivotal determinant of which type of decision tool will be most effective and, thus, which tools we will observe most often used in practice. We make

our argument through a thought experiment that starts with low uncertainty and builds toward higher uncertainty.

To start, consider an entrepreneur-manager contemplating whether to proceed with a new project, for example, a new branch of a retail chain, a new factory, or an entirely new firm. The entrepreneur-manager decides to apply DCF: if the project has a positive net present value and no other use of the capital would yield a higher value, then the entrepreneur-manager would proceed with the project.

The DCF approach may be most straightforward to apply in settings where it was initially intended, such as an investment in a bond, which has regularly scheduled principal and interest payments and, almost always, a set maximum maturity. To value a bond, an investor calculates the present value of each future principal and interest payment by discounting them at a compound interest rate that compensates for the payment's riskiness. For the entrepreneur-manager's project, DCF analysis would instead be applied to expected future cash flows, that is, the mathematical mean of the project's future cash flows, with the discount rate typically set to match the firm's weighted average cost of capital. When reliable data from comparable projects exist and future outcomes can be reasonably predicted, at least to the level of base, upside, and downside cases, the required inputs for a DCF are available, and the method is convenient and informative.

Yet even in reasonably well-established industries, DCF may be difficult to apply because some required inputs are highly uncertain (Heaton, 2022). An example would be ventures that rely on predicting market conditions well into the future (e.g., a new mine). Although it is possible to value the later years of a project by assuming an average growth rate in perpetuity, this growth rate, which is precisely what is hard to predict, often has an outsized influence on the valuation returned by DCF. The problem's informational structure is stable, but epistemic information is

insufficient (uncertainty is too high) to reliably apply the tool. Consequently, even if one could still apply DCF in these cases, many managers find it unworkable because they are simply guessing at the required inputs. Put differently, as uncertainty increases, DCF becomes less effective.

In such cases, recourse will often be had to “comparables,” that is, similar projects or firms and their valuations in relation to various *current* financial metrics (e.g., earnings before interest and tax or revenue per customer), as derived from examining the market capitalization of public firms or the prices paid in the market for corporate control.⁴ Notably, these methods are partly quantitative and partly judgment-based. They are partly based on judgment because the entrepreneur-manager must decide which comparables are most relevant and how the proposed project compares to them. As epistemic uncertainty increases, effective decision tools rely less on precise calculation and more on informed judgment.

Now, suppose the entrepreneur-manager lacks appropriate comparables, and the useful financial data are substantially incomplete. An example would be an established brand’s international expansion. A fast food or fashion retail concept entering a new foreign market would have data on other, similar markets to inform their decisions, but also expect to undertake substantial adaptation after testing the local market, much as fashion retailer Zara does by starting with a flagship store in a prominent location in a new country before expanding. Decision tools with an option lens have been designed for this somewhat higher level of uncertainty. Examples include real options decision-making (Bowman & Hurry, 1993; McGrath, 1999; O'Brien & Folta, 2009), option games (Smit & Trigerogis, 2004), option tools with ambiguity (Cartea & Jaimungal,

⁴ See, for example, <https://corporatefinanceinstitute.com/resources/valuation/comparable-company-analysis/>, visited June 4, 2024.

2017), option tools with noise (Leiblein et al., 2017; Posen et al., 2018), and scenario planning exercises (Schoemaker, 1995).

A notable feature of these decision tools is that they combine elements of trial and error while not neglecting the financial data at hand. Thus, like comparables, they have a quantitative aspect, but unlike comparables, they are partially experimental, reflecting their usefulness when uncertainty becomes significant. These tools acknowledge both epistemic uncertainty and partial instability in the decision structure. Practitioner accounts of venture investing echo this logic. Khosla (2011), for example, argues that when evaluating radical innovation, “option value is far more important than any IRR, NPV and DCF analysis,” because there is often “never enough precision in the big ideas to do actual analysis.” In such contexts, scenario analysis and option-value judgments become more appropriate than precise financial optimization.

Many entrepreneur-managers face even greater uncertainty than contemplated by real options reasoning. They have a hunch that a new technology might serve as the basis for a new business model—as when Marc Randolph and Reed Hastings envisioned a mail-order movie business based on the then-new DVD technology—or, to provide a more modest example, the entrepreneur-manager might be someone with minimal business experience who tries a new cuisine (say, Korean or Egyptian food) in a big city and imagines that they might find a market for this cuisine back home in their small town. In these examples, because of the novelty of the idea or the decision-maker’s lack of experience, the entrepreneur-manager has little more than intelligent speculation to go on.

In such situations, scholars have developed decision-making frameworks, including “simple rules,” local search, and trial-and-error learning. These approaches emphasize action,

experimentation, and feedback rather than optimization. They are well-suited to contexts in which epistemic uncertainty is extreme and informational inputs are sparse.

These pragmatic approaches portray the entrepreneurial process as one of forming beliefs, testing them, and using available feedback to update them (Katila et al., 2012; Leatherbee & Katila, 2020; Zellweger & Zenger, 2023). Empirical evidence further indicates that entrepreneurs can transform negative feedback into strategic pivots that improve subsequent venture performance, illustrating how experimentation and feedback reshape beliefs and opportunity representations over time (Motley et al., 2025). These approaches reduce complex decision-making contexts to simpler choice sets (e.g., test two, choose one). Thus, they can be thought of as a structured heuristic rather than a mathematical formula for which the required inputs are missing (Felin et al., 2021; Gans et al., 2018; Zellweger & Zenger, 2023). What is more, the trial-and-error nature of these frameworks reduces uncertainty about potential outcomes for decision-makers by providing environmental feedback. Thus, these tools reduce uncertainty through experimentation (Agrawal et al., 2020; Gans et al., 2019), potentially enabling the subsequent use of more quantitative decision-making tools. For example, Netflix's early experiments mailing DVDs generated data that could later support more formal analysis.

As this discussion illustrates, the effectiveness of decision tools varies systematically with uncertainty: the lower the uncertainty, the more effective quantitative tools become. The underlying mechanism is informational sufficiency: as uncertainty declines, the informational prerequisites for quantitative tools (enumerable outcomes, estimable probabilities, and stable evaluative criteria) are increasingly satisfied, improving both the accuracy and usability of such tools relative to judgment-based alternatives. Moreover, because entrepreneur-managers tend to select tools appropriate to their informational context, we expect quantitative tools to be used more

frequently as uncertainty declines, due to both circumstances and to the entrepreneur-manager's experience, knowledge, and cognitive ability.

Proposition 1. *The lower the uncertainty associated with the outcomes of an action—holding constant the decision-maker's experience, knowledge, and cognitive ability—the more that the most effective decision tool will make use of quantitative inputs and the more that the entrepreneur-manager will use tools that rely on quantitative inputs.*

4.2 How Novelty Affects the Choice of Decision Tool via Uncertainty

We expect novelty to have an indirect impact on the choice of decision tool via the mediating role of uncertainty. In informational terms, novelty reflects the absence or instability of the informational structures required to represent a decision problem, thereby limiting the availability of epistemic information. We make our argument by working through the thought experiment above, but in reverse order.

A feature of both examples of high uncertainty above—the founding of Netflix and the launch of an ethnic restaurant—is that they are highly novel from the standpoint of the entrepreneur-managers in question. With Netflix, the novelty would presumably have been there for anyone since mail-order DVDs were a new business concept. For the ethnic restaurant, the novelty would have derived from the entrepreneur-manager's lack of experience. In both cases, the lack of familiarity with the situation constrained the actor's ability to make reliable forecasts, increasing uncertainty about the outcome. Other recently founded technological firms (e.g., Google, Facebook, Twitter, OpenAI) resemble Netflix in this respect.

By contrast, the example of international expansion by Zara or another retail chain is less novel because the firm possesses an established information structure derived from prior market entries. Zara already has data from its existing store network and has entered many markets before.

While uncertainty (e.g., regarding local tastes) remains, it is not sufficient to justify purely speculative decision tools. Hence, options-based decision tools are more appropriate.

Finally, if we consider the launch of a new venture by a firm with ample industry and local market experience, such as McDonald's opening a new company-owned restaurant in a market it knows well (e.g., the USA), novelty is minimal. *The stability of the informational structure reduces uncertainty*, allowing the use of highly quantitative decision-making tools such as comparables or even DCF. Again, it is the (lack of) novelty that leads to the (lack of) uncertainty. Thus, novelty shapes uncertainty by influencing the stability and completeness of the informational structure available to the decision-maker, which in turn drives the choice of decision tool.

That said, we emphasize again that novelty and uncertainty are analytically separable. It is possible, even likely, that some experienced venture capitalists, such as Vinod Khosla and his team, are so versed in evaluating new ventures that much of the process has become routine and thus low in novelty. Even so, highly experienced venture capitalists may face low novelty yet still confront irreducible uncertainty, necessitating acceptable-loss logic, as suggested by survey research (Dew et al., 2009). Conversely, some novel ideas—such as quantitative trading strategies—may be highly structured and thus relatively low in uncertainty. Accordingly, novelty affects the choice of decision-making tools only insofar as it alters epistemic uncertainty. We thus have the following proposition:

Proposition 2. *The lower the novelty associated with the outcomes of an action—holding constant the decision-maker's experience, knowledge, and cognitive ability—the more that the most effective decision tool will make use of quantitative inputs and the more that the entrepreneur-manager will use tools that rely on quantitative inputs. This relationship is mediated by the uncertainty associated with the action.*

5. DISCUSSION

Our framework challenges a long-standing implicit assumption in both entrepreneurship and strategy research that decision-making tools are domain-specific. Contrary to the tendency to view tools such as effectuation, heuristics, and bricolage as belonging exclusively to entrepreneurs, while discounted cash flow, real options, and scenario planning are considered the domain of managers in established firms, we argue that the applicability of tools depends on the degree of novelty and uncertainty in the decision context. This insight reframes decision-making theory from categorical distinctions to contingency-based logic. By proposing that decision-making tools are responses to informational problems rather than domain-specific logics, this paper contributes to research seeking to explain heterogeneity in strategic behavior without relying on categorical distinctions among firms, actors, or industries. By categorizing decision problems in terms of uncertainty and novelty and linking these problem types to the effectiveness of specific decision-making tools, our framework clarifies how these tools suit different informational challenges, regardless of whether the decision maker is an entrepreneur or a manager.

Implications for Research

An implication of our analysis is that theories of entrepreneurial decision-making and action depend on the actor's knowledge, not their identity. Our overarching claim is that the unique theoretical mechanisms and empirical findings of various strands of entrepreneurship and strategy scholarship vary across the space defined by the degree of novelty and uncertainty surrounding decision outcomes. Thus, for example, an ethnographic study of a new venture in a creative industry would need to account for both the tendency of decision-makers to face highly uncertain outcomes and the informational structure of the environment before making predictions regarding the appropriate decision-making tool or approach.

This straightforward statement suggests several implications. First, acknowledging the purpose and assumptions of research questions up front will make it easier to postulate boundary conditions for theoretical and empirical claims, rather than implicitly or explicitly claiming to address entrepreneurial or strategic decisions writ large. Second, although more researchers have recognized the importance of heterogeneity among entrepreneurs and managers in recent years, our framework provides a way to organize that heterogeneity. In particular, we suggest that scholars should be precise about the levels of novelty and uncertainty in the decision-making environment when discussing the external validity of their studies. Moreover, acknowledging these assumptions implies an opportunity to develop new contributions by seeking out and testing anomalies and contingencies implied by existing theory and evidence.

Our theory leads to two testable empirical propositions: how uncertainty directly affects the choice and effectiveness of a strategic decision tool, and how novelty indirectly affects this choice via the mediating role of uncertainty. Future work might test the associations proposed by our theory by examining whether the use of particular decision tools aids in completing paper-and-pencil judgment tasks or competitive games that vary across novelty and uncertainty. It might also be informative to study decision-makers “in the wild” to examine whether and how the approaches and tools they utilize differ across the decisions highlighted by our framework.

Managerial Implications

Our theory has important implications for practitioners. To would-be and actual entrepreneurs, we say, “Know where you and your venture are in the space defined by novelty and uncertainty!” The tools you learned in your entrepreneurship courses or the advice you read in your favorite business publication may or may not have you or your venture in mind. Undoubtedly, it may be affirming to liken oneself to famous entrepreneurs such as Elon Musk and Steve Jobs. Still, practitioners

need to be honest with themselves about whether they aspire to enter the high-novelty, high-uncertainty region that these individuals inhabit. There is a significant difference between opening your accounting boutique and an AI enterprise. Ventures in areas of the entrepreneurial decision-making space closer to the origin are generally better served by more traditional decision-making frameworks and financial planning tools. If the management challenge is choosing the appropriate decision-making tools for the problem at hand, our framework provides guidance on identifying when particular tools or approaches are most likely to be helpful. Our framework may also guide which type of venture best suits an entrepreneur's personality by foregrounding questions such as, "How comfortable am I making decisions without good data?" or "How creative am I?" In general, would-be entrepreneurs whose inclinations are toward lower-uncertainty, lower-novelty environments should focus more on "main street" entrepreneurship than high-tech entrepreneurship.

Limitations and Extensions

We suggest that our theory has the potential to shed light on significant debates in the entrepreneurship and strategy literature. However, we do not wish to suggest that novelty and uncertainty are the only possibly relevant dimensions of decision-making. Other decision-making dimensions, such as complexity, interdependence, and group dynamics, may well have significant explanatory power for establishing boundary conditions among claims in the literature and for selecting a decision tool or process. Moreover, novelty and uncertainty may also shed light on the personalities of entrepreneur-managers. For example, entrepreneur-managers who tend to operate in the high-novelty, high-uncertainty region of Figure 1 (e.g., high-technology entrepreneurship) may be more creative and risk-tolerant than those who operate in the low-novelty, low-uncertainty

region (e.g., franchisees). We hope our work serves as a template for scholars investigating other important aspects of strategic decision-making.

In line with a long tradition, novelty and uncertainty are the core dimensions of our framework. Some scholars may prefer to subdivide novelty or uncertainty into more precise attributes (Arend, 2024; Rindova & Courtney, 2020). We acknowledge different sources and types of novelty, as well as differences between sources and types of “uncertainty” (e.g., ambiguity, risk, volatility, and Knightian uncertainty). Our theory is robust to these refinements. It would only be necessary to map the utility of entrepreneurial decision-making tools to different types of novelty and uncertainty. We maintain that digging more deeply into these sub-dimensions of entrepreneurial decision-making is a fruitful area for future research. We also acknowledge that, while we focused on decision-making, scholars interested in other aspects of entrepreneurship may find other dimensions more helpful in conceptualizing the field and its intersection with the management of established firms. For example, future research could also examine whether organizations deliberately redesign decision architectures—through training, analytics, or experimentation—to shift decisions toward lower-uncertainty regions of the novelty–uncertainty space, thereby endogenizing tool choice.

Conclusion

We maintain that leveraging the concepts of novelty and uncertainty advances our understanding by suggesting a parsimonious way for scholars with different theoretical lenses, empirical contexts, and disciplinary orientations to harmonize their theoretical and empirical claims at the intersection of entrepreneurial and strategic decision-making. More research is needed on the intersection of entrepreneurship and strategy. In this paper, we have sought to ignite a journey of discovery and collaboration, offering a foundational starting point for future efforts.

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Table 1: Domain-Specific Assumptions in Entrepreneurship vs. Strategy

Dimension	Entrepreneurship Literature	Strategic Management Literature
Core Assumptions	Tools are designed for entrepreneurs and start-ups . Decision-making occurs under extreme uncertainty , resource scarcity, and novelty.	Tools are designed for managers in established firms . Decision-making occurs under predictable or analyzable conditions with access to historical data and resources.
Dominant Logic	Non-predictive, adaptive approaches: focus on flexibility, experimentation, and affordable loss.	Predictive, optimization approaches: focus on forecasting, planning, and maximizing returns.
Fundamental Tools	Effectuation Bricolage Heuristics & “gut feel”	Discounted Cash Flow (DCF) Real Options Scenario Planning
Underlying Assumptions	Outcomes cannot be predicted or quantified. Decisions rely on judgment and stakeholder co-creation.	Outcomes can be forecasted and probabilities estimated. Decisions rely on quantitative analysis and optimization.
Typical Context	New venture creation Novel technologies Market emergence	Corporate investment decisions Market entry in known industries Strategic resource allocation

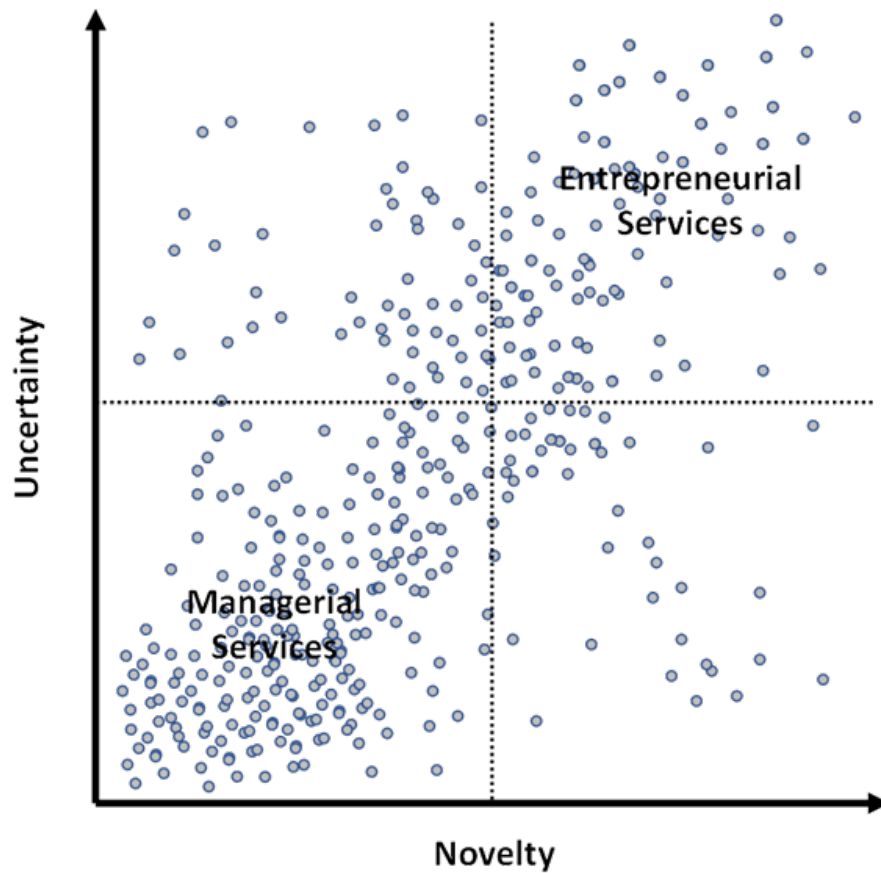
Table 2: Representative Work on Major Perspectives on Entrepreneurship

Theory	Citation(s)	Unit of Analysis	Description	Treatment of Novelty	Treatment of Risk/Uncertainty	Treatment of Decisions/Decision Maker
Schumpeterian Entrepreneurship	Schumpeter (1934); Schumpeter (1943)	The entrepreneur	The entrepreneur is a catalyst for economic growth through innovative activity that drives cycles of "creative destruction."	Novelty is key; entrepreneurs introduce new products, processes, and organizational structures to replace old ones.	While acknowledging market uncertainties, Schumpeter suggested that the entrepreneur is not the risk bearer; financial risk falls on the capitalist, not the entrepreneur.	Schumpeter posited that new combinations of resources are always preceded by a decision, assuming that everything unfolds according to that decision.
Penrosean Growth	Penrose (1959)	Firms	It emphasizes that firms grow and expand by maximizing the productive use of their internally developed resources and capabilities, particularly in an environment of uncertainty and change.	Novelty emerges from the firm's internal growth and development. As firms learn and develop internal resources, new growth opportunities are identified.	Uncertainty is inherent in the firm's growth process.	Decision-making is tied to the firm's strategic direction and how resources are deployed for growth. Managers utilize firm-specific knowledge and resources to decide the firm's growth strategy.
Behavioral Theory of Entrepreneurship	Gartner (1988)	New Venture Creation	The focus shifts from entrepreneurs' traits to their behaviors, highlighting that entrepreneurs' actions are key to explaining entrepreneurship.	Novelty is implicitly treated, derived from the behaviors and actions that lead to new venture creation.	Risk and uncertainty are embedded in entrepreneurial behaviors and actions during new venture creation.	The decisions entrepreneurs make are shaped by their behaviors and actions throughout the new venture creation process.
Judgment facing Uncertainty	Knight (1921); Foss and Klein (2012)	Assembly of Resources (Investment)	Entrepreneurship is judgment-based decision-making under uncertainty, even when no clear model or decision rule is available because data are incomplete or unreliable.	Judgment is not limited to daring, boldness, or innovation but is exercised in mundane scenarios for ongoing operations as well as new ventures, creating new opportunities.	Risk is distinguished as measurable uncertainty, whereas uncertainty is unmeasurable. In practice, risk involves known outcome distributions, while uncertainty stems from unique situations with no known outcome distributions.	Decision-making under uncertainty is entrepreneurial and does not necessarily require traits such as imagination, creativity, or leadership.

Discovery Theory	Shane and Venkataraman (2000); Shane (2000)	Opportunity	Entrepreneurial opportunities arise because different people have different information, allowing them to discover and sell new goods, services, raw materials, and organizing methods at a profit.	Novelty is created by introducing and selling new goods, services, raw materials, and organizing methods at a price greater than their cost of production.	Risk is not an explicit feature of discovery theory. However, tolerance of investment risk in the decision-making environment is discussed as a key trait of entrepreneurs.	Exploiting discovered entrepreneurial opportunities depends on the joint characteristics of the opportunity and the individual's nature; not all discovered opportunities are brought to fruition.
Creation Theory	Alvarez and Barney (2007)	Opportunity	Entrepreneurial opportunities do not exist but are created by the actions, reactions, and enactment of entrepreneurs exploring new ways to produce goods and services.	Novelty is fundamental to creation theory, as entrepreneurs actively create new opportunities rather than passively discovering existing ones.	Uncertainty is fundamental because opportunities are created, not found, leading to a lack of information about possible outcomes at the decision point.	Decision-makers navigate uncertainty through iterative, inductive, and incremental decision-making, relying on biases and heuristics while prioritizing affordable losses to learn and adapt.
Effectuation	Sarasvathy (2001)	Entrepreneurs, Firms, Stakeholders	A model of entrepreneurial reasoning that describes how, under conditions of uncertainty, entrepreneurs make decisions based on their available resources, personal abilities, and existing networks.	Novelty is embraced as entrepreneurs start with their available means and co-create opportunities with stakeholders, leading to unexpected outcomes.	Uncertainty is seen as a positive aspect; entrepreneurs engage with it rather than trying to reduce it. They focus on the potential losses they can afford, which are within their control, rather than maximizing returns.	Decisions are made iteratively, adapting as new information becomes available and new stakeholder interactions occur.

Note: Our selection criteria for inclusion are that the papers are, in the authors' experience, commonly included on the syllabuses of PhD seminars in entrepreneurship and have more than 1,000 citations in Google Scholar.

Figure 1. The Space Defined by Novelty and Uncertainty



Note: Each dot represents a decision taken by an entrepreneur-manager, as defined in the text (over some particular period, in a specific context). The relative density of the dots is meant to convey that such decisions occur more frequently along the 45-degree line and that managerial decisions are more common than entrepreneurial ones (in the Penrosean sense).
