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The Creation Theory of Entrepreneurship and Lean Startup Frameworks: Complementary or Contradictory?

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The practitioner framework, the Lean Startup, largely based on the experience of Blank (2013), and developed separately from scholarly work, has none-the-less made inroads in the academic literature. In reconciling The Lean Startup framework with entrepreneurship theory, Blank and Eckhardt argue that theory work in entrepreneurship is fragmented. However, this paper argues that these theories may not be as fragmented as implied. Indeed, many theories in entrepreneurship can be grouped into two "families"—one of which is broadly consistent with the model in The Lean Startup, while the other is deeply inconsistent with this model but consistent with an important theory in entrepreneurship: the Creation Theory of Entrepreneurial Opportunities. What this paper shows is that there are important differences that lead to boundary conditions between these two families of theory. More profound, these different approaches to the entrepreneurship process suggest they should be applied in different entrepreneurial settings and at different points in the process. This paper examines the link between the Creation Theory of Entrepreneurship and its associated family of theories and the Lean Startup framework and its associated family of theories, such as Discovery, IO Nexus, The Scientific Method, and so forth. The paper concludes by describing the different contexts under which each family of theories apply and suggests future research that empirically test the boundary conditions of these different theory families.

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Consumer demand for frameworks designed to help individuals become successful entrepreneurs appears to be unabated. If, for example, you type "Entrepreneurship Books" into Amazon's search engine, you will see a list of approximately 1,650 books, many of which present such "entrepreneurial success frameworks."

Although several of these books claim to be the "#1 entrepreneurship bestseller of all time," there is little doubt that one of the most influential of these books has been *The Lean Startup* (Ries, 2011), based on the *Lean Startup* method (Blank, 2013). Much of the work on the Lean Startup framework is based on the experience of Blank (2013; Blank & Euchner, 2018), and the framework emphasizes "validated learning," where would-be entrepreneurs learn how to build a sustainable business by using frequent experiments to test the veracity of each element of their vision (Blank, 2013; Ries, 2011). *The Lean Startup* methodology is touted as an extension of both the scientific method and "lean manufacturing" and is used in many academic classes on entrepreneurship.

While the *Lean Startup* methodology refers to the scientific method and lean manufacturing, the book does not directly refer to any currently influential theories in the scholarly field of entrepreneurship. Blank and Eckhardt (2023) attempt to remedy this problem by identifying the relationship between *The Lean Startup* framework and seven current theoretical conversations in the academic field of entrepreneurship. However, the success of this effort by Blank and Eckhardt (2023) is limited for a couple of reasons. First, their reviews of different theories in entrepreneurship are not in-depth or systematic, and thus the links between these different theories and *The Lean Startup* are not clear. Second, their view of theory in the field of entrepreneurship is that it is highly fragmented, divided into seven—and perhaps more—different theoretical perspectives in heated competition with each other.

One way to address the first limitation of Blank and Eckhardt (2023) would be to systematically review each of the theories they identify in-depth, and then explore how these theories do or do not link with the model in *The Lean Startup*. However, this seems like a task more suited for a book than a single article. So, rather than take on this broad task, this paper examines one theory identified by Blank and Eckhardt (2023)—creation theory (Alvarez & Barney, 2007)—in sufficient detail to identify its links with *The Lean Startup*.

This effort leads to an approach to addressing the second limitation of Blank and Eckhardt (2023) concerning the perceived fragmentation of theory in the field of entrepreneurship. While there are heated conflicts among different entrepreneurship theorists, theory in entrepreneurship may not be as fragmented as Blank and Eckhardt (2023) imply. Indeed, many of these theories can be grouped into two "families"—one of which is broadly consistent with the model in *The Lean Startup*, and the other which is deeply inconsistent with this model, the Creation Theory of Opportunities.[1] While each of these families of theory apply under different contexts and are differentiated by boundary conditions, taken together, these two families of theories may offer a more complete view of the entrepreneurship process than has previously been acknowledged.

Thus, the purposes of this paper are, first, to review the creation theory of opportunities and recent work, in order to do a more in-depth analysis about the link between creation theory[2] and the model in *The Lean Startup*; and second, to examine the relationship between this *Lean Startup* model and broader theoretical conversations in the field of entrepreneurship.

Creation Theory

Following the work of other theorists in the field of entrepreneurship (e.g., Shane, 2003; Shane & Venkataraman, 2000), Alvarez and Barney (2007) define opportunities as competitive imperfections in product or factor markets. What distinguishes creation theory from other popular entrepreneurship theories is the idea that these competitive imperfections are created, endogenously, by the iterative and path-dependent actions of individuals. When this is the case, opportunities do not exist as objective phenomena just waiting to be discovered by unusually alert individuals (Shane, 2003), rather creation opportunities are socially constructed by individuals whose actions may form these opportunities.

These socially constructed opportunities do not exist independent of an individual's perceptions and actions and, thus, cannot be studied—or measured, for that matter—as if they are out there waiting to be discovered.

In this view there is no "end" until the creation process has unfolded, thus, opportunities in this view cannot be understood until they exist, and they only exist after they are enacted in an iterative process of action and reaction. (Alvarez & Barney, 2007: 15)

The following sections discuss entrepreneurs, the decision-making context, and the process of creation. These sections are followed by two sections on the social ontology and conversational experiments that incorporate more recent work on creation theory.

Creation Entrepreneurs

Theories consistent with *The Lean Startup* framework about the formation and exploitation of opportunities assume that entrepreneurs differ from non-entrepreneurs in ways that make the former more alert to opportunities than the latter (Blank & Eckhardt, 2023; Shane, 2003). Despite a great deal of research designed to identify these critical differences, there is still relatively little systematic work that demonstrates how these two groups of individuals differ ex ante to the process (Eckhardt & Shane, 2003). Even when differences have been identified, it remains unclear whether or not they are the cause of entrepreneurship or the effect of entrepreneurship (Alvarez & Barney, 2007).

Creation theory is agnostic about these kinds of ex ante differences—they may or may not exist, and if they do exist, they may or may not make some people more alert than others to entrepreneurial opportunities. Instead, creation theory focuses less on ex ante differences between entrepreneurs and non-entrepreneurs, and more on how the process of creating an opportunity can affect the people who go through this process (Nonaka, Toyama, & Nagata, 2000). Thus, for example, while there is strong empirical evidence that entrepreneurs manifest certain cognitive biases—including the representativeness bias and the overconfidence bias (Busenitz & Barney, 1997)—to a greater degree than non-entrepreneurs, it is still unclear if individuals who manifest these cognitive biases are naturally drawn to entrepreneurship, or

if the process of creating opportunities reinforces and strengthens the cognitive biases that everyone already has, or both (Hecker, Dutke, & Sedek, 2000).

Indeed, it may be the case that two individuals might be virtually indistinguishable with respect to their personality, their cognitive abilities, their social position, and so forth, ex ante. However, even small differences in their local environments—who an individual happens to know, where they happen to live—and their personal attributes—small cognitive differences, small personality differences—can evolve into larger differences, ex post, through the process of creating an opportunity. Thus, large ex post differences between entrepreneurs and non-entrepreneurs—in cognitive biases, attitudes toward risk, and so forth—do not necessarily imply that these same differences existed, ex ante, or that such differences are the explanation of why some people and not others become entrepreneurs (Alvarez & Barney, 2007, 2013; Alvarez & Sachs, 2023; Hayward, Shepherd, & Griffin, 2006).

Creation Decision-Making Context

If individuals create opportunities that they end up exploiting, then it follows that the decision-making context in which this process unfolds is uncertain. Since opportunities do not exist until they are created, at the point a decision about whether or not to engage in forming an opportunity is made, the information required to know the possible outcomes associated with this decision, and their probability, does not yet exist (Knight, 1921). The inability to estimate the probability distributions associated with making decisions in this setting does not depend on the limited time that potential entrepreneurs have had to collect information about a new opportunity, nor on the ability of potential entrepreneurs to analyze the information they have collected. In conditions of uncertainty, even entrepreneurs with a great deal of time, or with unusual analytical abilities, will not be able to estimate the relevant probability distributions of their actions (Knight, 1921).

This does not mean that entrepreneurs operating in creation settings will be unable to collect at least some information, ex ante, about certain courses of action. Thus, for example, experimenting is not impossible in the opportunity formation process, but the experiments are conversational experiments where individuals interact with each other to understand and give meaning to the new innovation that is emerging (Alvarez & Sachs, 2023). The purpose of conversational experiments in this uncertain setting is not to ascertain the "actual" or "objective" properties of an opportunity, but, rather, to test whether the language an individual uses to describe a possible opportunity can be understood and appreciated by other individuals, including potential employees and customers.

The entrepreneur in creation theory does not efficiently search an exogenously given and fixed "landscape" to avoid getting "stuck" on a "local optimum" in a risky context with incomplete information about the structure of a "landscape." Nor does creation theory assume, as does *Lean Startup*, that the main informational issue is information asymmetry (customers know something that entrepreneurs do not know, or entrepreneurs know something customers do not know).

Rather, creation theory supposes the possibility that entrepreneurs and others jointly interact to endogenously create the landscape within which they are operating. The creation view assumes the main information problem is symmetric Knightian uncertainty (neither entrepreneurs or what, ex post, turn out to be their potential customers, understand what an opportunity

is). In creation settings, entrepreneurial choices can change the landscape and, thus, for example, may take what was at one time a "local minimum" and turn it into a "global maximum."

This creation process is path dependent, in that small differences in initial decisions and choices made by humans can lead to large differences over time (Arthur, 1989). This path has chasms, discontinuities, and a higher rate of independence between steps. Uncertainty is interwoven with the path, and being on one step in the path does not mean you can see the next step or have enough predetermined knowledge of how to see the next step since the knowledge to make the next step may not exist.[3]

The Opportunity Creation Process

The process by which opportunities are formed in creation theory is evolutionary in nature (Campbell, 1960; Nelson & Winter, 1982; Weick, 1979).[4] Evolutionary processes have three critical elements: variation, selection, and retention.

In creation theory, actors are assumed to have intuitions or "guesses" (rational but subconscious; Metcalfe & Wiebe, 1987; Simon, 1987), or pursue epistemic curiosities (rational and conscious; Arikan, Arikan, & Koparan, 2020) about what might be an entrepreneurial innovation, and act accordingly. This is a source of variation in the evolutionary process. Markets that may not exist may also be formed at this time as individuals respond to those curiosities, intuitions, or "guesses," either positively or negatively.[5] This is the selection process. Finally, entrepreneurs respond by revising their beliefs about the nature of an opportunity or choosing to disengage in the opportunity formation process. Entrepreneurs who revise their beliefs and continue creating an opportunity are how retention occurs in creation theory (Newell & Simon, 1972; Nonaka & Takeuchi, 1995).

While the opportunity creation process is evolutionary in nature, the fact that this process unfolds under conditions of Knightian uncertainty has an important impact on this process. For example, under uncertainty, individual curiosities, intuitions, or "guesses" about what might turn into an opportunity are typically not well-informed and may be quite random. It is possible to describe these curiosities, intuitions, or "guesses" as theories (Zellweger & Zenger, 2023), but if they are theories, they are highly underdeveloped—at least in the earliest stages of the opportunity creation process.

Also, tests of these intuitions or "guesses" are conversational experiments that are fragmented, underdeveloped, and often generate deeply ambiguous understanding. As the process evolves, even when there may be a product or service, there may still be considerable ambiguity. For example, it may be the case that customers do not buy an entrepreneurial endeavor's products or services, but the reason why these purchases are not forthcoming may not be easy to know—is the product too big, or too small, or too fast, or too slow, or did potential customers just not know about the product?

Indeed, customers themselves may not fully understand why they are not purchasing new products or services. In this setting, asking potential customers why they did not buy or like a product or service may not be helpful. More fundamentally, identifying a sample of potential customers to ask about the potential of a product or service assumes that entrepreneurs know who their potential customers will be. Entrepreneurs may have a "hunch" about who those customers are, only to discover that—after an opportunity has become more fully formed—their actual customers are different from what they had anticipated (Alvarez, Young, & Wooley, 2015).

We also know, from both theory and practice (Christensen, 1997), that customers can lead a venture to engage in less innovative, less creative investments. When this is the case, trying to identify a new innovative product by asking a customer can be very problematic. As Steve Jobs said "You can't just ask customers what they want and try to give them that. By the time you get it built, they'll want something new" (Isaacson, 2011: 143).

Finally, because this evolutionary process unfolds under conditions of uncertainty, entrepreneurs engaging in opportunity creation will often fail to develop valuable opportunities. Indeed, it is likely that most efforts to create opportunities fail. However, this must logically be the case, because any model that "guaranteed" the creation of an opportunity would violate the rules for riches constraint in economics (Alvarez, Barney, & Anderson, 2013). That constraint is: Any process that will certainly create wealth will only create wealth for the person selling that process. In creation theory, entrepreneurs, and those with whom they interact, shape the context.

The Social Ontology of Creation Opportunities

An ongoing debate in entrepreneurship is whether opportunities are objective or subjective (Alvarez & Barney, 2010). Objective opportunities exist independent of human thought; subjective opportunities exist because of human thought (McBride & Wuebker, 2022). Without asserting that all opportunities are or are not subjective,[6] it is clear that creation theory assumes that opportunities formed by the iterative and path dependent process described here are—at their core—subjective in nature. They exist to the extent that entrepreneurs—and others associated with an entrepreneurial venture—have socially constructed them. As Nonaka, Von Krogh, and Voelpel (2006: 1181-1182) have observed, knowledge—including knowledge about opportunities—is "never free from human values and ideas, is embodied in an individual and is historically dependent, context specific and about problem definition rather than problem depiction and problem solving."

That opportunities are often subjective in nature does not mean that they cannot be studied. Indeed, to the extent that an entrepreneur is able to build a consensus among others that are engaged in the creation process about the value associated with an opportunity, it is possible to study a subjective opportunity as if it was objective. In this sense, entrepreneurship under conditions of uncertainty can be thought of as a process of developing a common belief about the positive value of an opportunity, even if that opportunity is deeply subjective in nature (Nonaka & Takeuchi, 1995; Pinker, 2018). As critical stakeholders come to believe in the value of such an opportunity, they can act on it as if it was objective.

However, that the opportunities discussed here are subjective in nature does not mean that they are not subject to external, sometimes seemingly objective, market and related forces. On April 23, 1985, the Coca-Cola Company introduced what they called the New Coke, a reformulated Coca-Cola. New Coke had been market tested for taste and was preferred by nearly 200,000 customers. By June of 1985, the Coca-Cola consumer hotline was receiving 1500 calls a day complaining about the New Coke. New Coke has been considered one of the biggest market failures ever (https://www.cocacolacompany.com/aboutus/history/new-coke-the-most-memorable-marketing-blunder-ever). So too, can entrepreneurs and those closely associated with an entrepreneurial endeavor firmly believe that the opportunity they are creating will generate real value—only to discover that other individuals in the market disagree.

The creation view assumes that demand for products and services and their markets are themselves social institutions and depend on humans to create these institutions while convincing others to be a part of a new future that may become institutionalized (Alvarez et al., 2015). While the market is socially subjective, the strengths of the beliefs of the market can seem as objective as a brick wall.

Conversational Experiments in the Opportunity Creation Process

Before an opportunity is created or even articulated, individuals have conversations about things that might be new or different within a context. Individuals in the creation process think, speak, act, respond, and react in a manner that might not have been predicted, perhaps even moments before they acted (Alvarez & Sachs, 2023). The notion of blind variation in the creation process emphasizes changes in unforeseen and perhaps even unwanted ways that might simply have been stimulated by cognitive processes of curiosity, creativity, imagination, and judgment (Arikan et al., 2020; Campbell, 1960). Thought, knowledge, and language are profoundly connected and evolve and can occur without any self-conscious planning or foresight (Sapir, 1944). These variations manifest themselves as conversational experiments posited by theory in the field of linguistics (Clark, 1996, 1998; Clark & Schaefer, 1989).

The creation of knowledge is a continuous process in which individuals overcome boundaries and constraints imposed by information and history and often requires an individual to view the world through a different lens (Nonaka et al., 2006). Individual understanding about a subject is based on the human ability to cognitively integrate various different subjective aspects from their context, the ability to differentiate among different dimensions of an issue, and the capacity to integrate the various aspects together (Conway, Suedfeld, & Tetlock, 2018), and is both conscience and unconscious. Beliefs themselves can be unconscious if an individual is unaware of that belief. Both the conscience and unconscious nature of beliefs and knowledge are passed on through language, a window into cognition (Pinker, 2018).

In the creation view, knowledge is transformative and a recombination of what might have seemed like disparate and unrelated knowledge, and allows for deviation from existing patterns of actions within a particular situation through the imagination of new possibilities (Arikan et al., 2020). Creativity and imagination in cognition are not an individual sport, they benefit from communication with many others (Pinker, 2018), making conversational experiments essential to the creation process.

Conversational experiments can focus on something that has not yet been created, that may be new to everyone involved and, perhaps, new to the world. Conversational experiments are how individuals articulate and give expression to what they are feeling or observing. As conversations begin and continue to evolve, they articulate the evolving variations in beliefs, knowledge, values, and—ultimately—can lead to the development of new language to describe an opportunity that accumulates over time, a language that had not previously existed. As people continue to interact and new language begins to emerge, they may become emotionally attached to these new ideas (Alvarez & Sachs, 2023). It is these attachments to the idea, and to each other, that guides subsequent actions of those associated with what may potentially be an opportunity (Alvarez & Sachs, 2023; Clark, 1998; Schleiermacher, 1998; Weick, 1995).

However, often, in this language building process, individuals learn that their original beliefs about the nature and scope of what they thought was interesting, was not that

interesting. Indeed, after several iterative actions, evaluations, and reactions, individuals may decide they have something potentially new to the world, or then again, they may go back several sequences to start again or even abandon the entire conversation altogether (Alvarez & Barney, 2007; Alvarez & Sachs, 2023; Cyert & March, 1963; March & Simon, 1958). This can lead to the abandonment of an idea or possible opportunity, and whatever new language was being used to discuss the idea or opportunity may go dormant.

Thus, the evolution of the opportunity creation process critically depends on the evolution of language to talk about the meaning and implications of that opportunity for those associated with its formation—for entrepreneurs, their potential partners, and their possible customers. As consensus about this language emerges among these stakeholders, an opportunity becomes more socialized (Berger & Luckmann, 1967), and the likelihood that it will lead to real failures in factor or product markets increases as the entrepreneur shapes the new context (Alvarez et al., 2015).

Creation Theory and *The Lean Startup* Method

This robust summary of creation theory suggests that while there may be some overlaps between creation theory and the assumptions of *The Lean Startup* method, these two ways of thinking about entrepreneurship are, at their core, fundamentally different.

On the side of overlap, both creation theory and *The Lean Startup* method suggest the importance of experimenting with new ideas, to understand their potential—economic and social. However, even here, the differences between these two approaches are manifest: Creation theory suggests that entrepreneurs can use conversational experiments to help create meaning and understanding of emerging opportunities that are endogenously formed (Alvarez & Sachs, 2023; Shelef, Wuebker, & Barney, 2023), while *The Lean Startup* approach seems to suggest that the primary use of experiments is to reveal existing information asymmetries about opportunities that exist independent of individuals (Blank & Eckhardt, 2023).

In creation theory, conversational experiments enable an individual's use of prescriptive language to pass on knowledge and communicate thoughts, represent ideas, make sense of the world, and talk about shaping an unknown future. Humans use conversation with others not just to understand their context but also to imagine how the context could be in the future. The enactment process of opportunity creation may lead to the formation of opportunities that require the development of fundamentally new knowledge and language to give meaning to an opportunity that did not exist prior to the formation process (Alvarez & Sachs, 2023). The individuals engaged in the process change their context, but they themselves are often fundamentally changed by the process and the language they have spoken.

The most fundamental differences between creation theory and *The Lean Startup* approach seem to be assumptions about where opportunities come from. For creation theory, opportunities are endogenous to entrepreneurial action; in *The Lean Startup*, they are exogenously created. In creation theory, entrepreneurs operate under conditions of uncertainty; in *The Lean Startup*, they operate under conditions of risk.[7,8] The informational problem facing entrepreneurs in creation theory is that information about an opportunity does not exist, ex ante. The informational problem facing entrepreneurs in *The Lean Startup* is that information about opportunities exist, but entrepreneurs do not yet have this information.

These, and other differences between creation theory and *The Lean Startup* method are fairly obvious; however, these differences suggest that these two approaches to understanding entrepreneurship may be complements, rather than competing substitutes, and may apply during different stages of the entrepreneurial process. Creation theory focuses on the very earliest stages of the opportunity formation process and as novel products and services that often require the education of customers are developed (Gladwell, 2009). While *Lean Startup* opportunities, by definition, are far enough developed and of a smaller scale to have objective, testable information, most are commonly found in add-on products and services where there is sufficient information to specify a hypothesis.

In the creation process, over time, as those associated with a potential opportunity develop a common language and test the fruitfulness of this language with others, the decision context of entrepreneurship begins to morph. It shifts from almost entirely Knightian uncertainty, to a setting where at least some decisions are risky in nature. As an opportunity evolves in this way—that is, as it becomes more risky and less uncertain—then many of the tools and methods of *The Lean Startup* seem more likely to be applicable. While Knightian uncertainty never fully disappears, it can nevertheless be the case that endogenously created opportunities can evolve to the point that they can be treated as if they are objective, and collecting data from possible customers can be useful in exploiting such an opportunity. Put differently, the creation process can endogenously form opportunities that when they reach a certain point of development, they may be seen as exogenous from the point of view of those applying *The Lean Startup* method.

Of course, it can sometimes be difficult to know if an opportunity has evolved to the point where it can be evaluated using *The Lean Startup* methods. Creation theory suggests several possible indicators of this change in the nature of an opportunity—for example, when a new language has been created and implemented for describing an opportunity, it may be possible to use *The Lean Startup* methods for evaluating that opportunity.

The Structure of Entrepreneurship Theory

As has already been suggested, Blank and Eckhardt (2023) characterize the theoretical landscape in entrepreneurship as highly fragmented—with seven, or more, theories of entrepreneurship competing with each other. The idea that creation theory and *The Lean Startup* method may be complements but not substitutes suggests a different way of thinking about the current state of entrepreneurship theory. Indeed, it may be possible to group many of the apparently "competing" theories of entrepreneurship into two complementary "families" of theory (Table 1).[9]

Type One Entrepreneurship Theories

The first family of theories—call it Type One Entrepreneurship Theories—focuses on the earliest stages of entrepreneurial action. Type One Theories—including creation theory, bricolage (Baker & Nelson, 2005), and effectuation (Sarasvathy, 2001)—focus on decision-making under Knightian uncertainty. They tend to focus on how cognitive biases inform and enable decision-making in these settings, and how random events can affect the evolution of entrepreneurial endeavors. For example, in the creation theory of opportunity formation, agents are cognitively biased. These biases help individuals think about events, contexts, and

Table 1
Type I and Type II Theories of Entrepreneurship

Dimensions	Type 1	Type 2
Emergence of thought	Endogenous	Exogenous
Entrepreneurial opportunity with profit potential	Created	Discovered
Lifecyle of entrepreneurship	Early phase of emergence	Later phase of venturing
Behavioral tenants	Effectuation, bricolage, enactment, information sharing, leaning by doing	Information asymmetry, learning races, herding, contagion, learning existing knowledge
Cognitive processes	Stimulus-independent *rational but subconscious processes* like intuition, "guesses," biases, and generative cognitive cognition (e.g., dreaming and imagination) or Stimulus-independent *rational but conscious processes* like epistemic curiosity, generative cognitive cognition (e.g., mental simulation, mind-wandering).	Stimulus dependent alertness, awareness, pattern matching, problem identification and solving methods, efficiency in learning and application
Decision-making mode	Non-codifiable subjective certainty and judgment under uncertainty Consistent with assumptions of Knightian Uncertainty	Codifiable objective decision making and optimization under risk Consistent with assumptions risk
Coalition building	Process-based new language generation by conversational experimentation adhering to descriptive and analogical insights, idiosyncrasies hindering replicability (e.g., open-system with undetermined boundary conditions)	Evidence-based communication adhering to (quasi) scientific experimentation outcomes and results, replicability (e.g., closed-system with boundary conditions)
Theories in the Same family	Creation Theory, Bricolage, and Effectuation	Discovery Theory, Lean Start-up, Scientific Method

so forth, in a different manner than others in the population. Cognitive biases and generative cognition, creativity, curiosity, judgement, and imagination assist individuals making decisions when there is a lack of information and knowledge, when the information is complex, or competing information needs to be processed (Nordgren, Bos, & Dijksterhuis, 2011). Creation theory posits that cognition and cognitive biases are useful when the process requires an individual to consider multiple and uncertain alternatives as well as unknown means–end connections, and to integrate remotely associated cognitive material (Campbell, 1988; Miron-Spektor, Efrat-Treister, Rafaeli, & Schwarz-Cohen, 2011).

This family of theories acknowledges that conversational experiments such as interacting with potential stakeholders can be important in helping entrepreneurs to give meaning to and understand their emerging opportunities, but they also recognize that entrepreneurs' assumptions about who their potential customers are, and what questions they should ask, can be deeply wrong. Finally, they also recognize that not only can opportunities be endogenously created, but that the context within which an entrepreneurial endeavor competes is also socially constructed. In other words, these entrepreneurs shape their contexts.

None of these Type One Theories provide an algorithm or framework that individuals can use to create and exploit opportunities. But this does not mean that these theories do not have important implications for practicing entrepreneurs. Indeed, the pitching of ideas is a way to have conversational experiments that are geared primarily at understanding the idea. Sarasvathy's (2001) "five principles" of effectuation provide a framework for teaching and practice that is broadly consistent with both bricolage theory and creation theory as it has been reviewed here. Similar to *The Lean Startup* that provides a framework for certain entrepreneurship theories, Effectuations' Five Principles and the pitching of ideas can provide a framework for theories consistent with creation theory.

Of course, none of this suggests that there are not important differences among different Type One Entrepreneurship Theories; it only suggests that these theories actually have much in common and, in particular, are fundamentally different from Type Two Entrepreneurship Theories.

Type Two Entrepreneurship Theories

The second family of theories—Type Two Entrepreneurship Theories—focuses on later stages of entrepreneurial action where information is sufficient to build experiments, such as add-on products and services. Type Two Theories—including *The Lean Startup* method, discovery theory (Shane, 2003), and recent applications of the scientific method to entrepreneurship (Zellweger & Zenger, 2023)—characterize the entrepreneurial process as unfolding under conditions of risk, where actors use experiments to search for information and eliminate information asymmetries that help them to exploit opportunities that are objective, in the sense that they exist independent of human perception.

The first assumption of *The Lean Startup* and models consistent with this approach, is that information asymmetries between entrepreneurs and customers need to be reduced by the entrepreneurs through their actions to discover demand. The process *The Lean Startup* suggests using is "a quasi-scientific approach that emphasizes testable hypotheses and empirical data to generate knowledge regarding market feasibility" (Blank & Eckhard, 2023: 10). Experiments and application of the scientific method are important in most of these theories, for this is how entrepreneurs can come to understand the nature of the opportunities they seek to exploit; and, of course, both opportunities and the landscapes within which they are embedded are exogenously formed.

These theories also have important implications for entrepreneurs, especially for entrepreneurs operating under conditions of risk. Many of these implications are presented in *The Lean Startup*. In these Type Two Theories, an entrepreneur has a pre-existing theory. A formal theory is a set of principles upon which the practice of an activity is based and is falsifiable. A non-formal theory is an idea used to account for a situation or to justify a course of action. In these Type Two Theories a theory is no more than an idea, and this method does not account for how the idea came about in the first place. This notion of an idea, however, would have its origins in the myopic variations theorized in the creation process.

Research on applying the scientific method in entrepreneurial settings explicitly examines whether or not training entrepreneurs in these skills improves their economic outcomes.[10] However, in order to have a testable hypothesis as suggested in these theories, the researcher needs to have both an independent and dependent variable that is provable or disprovable; it

has to be reproducible, and require enough data gathered to draw a credible result. The information requirement of the Type Two Theories suggests that the types of opportunities considered are connected to abundant data and are likely to be well defined, perhaps limiting their wealth-creating potential.

Of course, none of this suggests that there are not important differences among different Type Two Entrepreneurship Theories. It only suggests that these theories actually have much in common and, in particular, that they are all different from Type One Entrepreneurship Theories.

Are These Theory Families Complements or Substitutes?

Based on the logic presented earlier on the relationship between creation theory and *The Lead Startup* method, it follows that it is likely to be more fruitful to think of Type One and Type Two Entrepreneurship Theories as complements, but not substitutes. They are clearly both theories of entrepreneurial action, but seem to apply in different settings. Creation Type One theories apply during the initial phase of the opportunity formation process and when developing novel products and services where customers need to be educated before the opportunity becomes viable (Alvarez et al., 2015). Type Two theories apply when there is sufficient data and product/service knowledge developed that experiments can be designed and tested. In this sense, it is probably unreasonable for theorists in one family or the other to claim to have "the" theory of entrepreneurship.

In the last 25 to 30 years, several authors, including but not limited to Alvarez and Barney (2007), Alvarez and Sachs (2023), Blank (2012), Eckhardt and Shane (2003), Sarasvathy (2001), Shane (2003), Venkataraman (1997), and so forth, have made significant theoretical contributions in the modern field of entrepreneurship. As these theories of entrepreneurship have become more specified, it becomes clear that they apply under different conditions of the entrepreneurial process. The important challenge going forward is to empirically test these different theories to better understand the boundary conditions of these theories. In other words, under what conditions do they apply and when they do not apply? After all, if a theory can explain everything, it is a theory of nothing.

Boundary conditions in theories are the set of conditions or constraints that indicate the edges of the theory and have to be specified for a theory to be valid (DiMaggio & Powell, 1983). Indeed, specifying boundary conditions is critical for a theory to be both understood and developed (Bacharach, 1989). Boundary conditions improve precision and are important to advance all theories and constitute the core foundation from which methods to explore the theory are used and developed (Gonzalez-Mulé & Aguinis, 2018).

Going forward, probably the most critical theoretical issue for the field is to spend time and energy identifying and empirically testing the boundary conditions that identify when these two theory families do and do not apply. The extreme cases are already reasonably clear: Type One theories apply in the early stages of entrepreneurship, where decision-making takes place under Knightian uncertainty, and so forth; Type Two theories apply in later stages of entrepreneurship, where decision-making takes place under conditions of risk, and so forth.

However, identifying when an entrepreneurial endeavor evolves from a Type One to a Type Two condition is likely to be a difficult problem. For example, different functions in an entrepreneurial venture may evolve from Type One to Type Two conditions at different rates.

There may be, for example, considerable uncertainty about what a customer's final product preferences will be, but much less certainty—although some important risk—regarding how a venture's products should be produced. Therefore, a single endeavor may be operating, simultaneously, under conditions of uncertainty and under conditions of risk. The practical implications of this kind of "organizational schizophrenia" deserve further attention.

Implications for Practice

The field of entrepreneurship has grappled for the last four decades for a theory of entrepreneurship. There have been papers suggesting it is not about the person, papers suggesting it is about the context, papers suggesting it is about how a person thinks, and papers that suggest it is about how a person feels. As each paper has become part of the entrepreneurship research lexicon, the debate has been about whether the different theory was wrong and whether any one theory is the grand theory of entrepreneurship. In all probability, there is no one theory that is the grand theory of entrepreneurship but theories that together give a more complete view of entrepreneurship than each does alone. The boundary conditions of each theory, and when each theory applies, help us understand entrepreneurship more clearly today than probably at any other time in our history.

In the end, Blank and Eckhardt's (2023) effort to identify the relationship between the entrepreneurship model in *The Lean Startup* and current theories in the field of entrepreneurship has led to a surprising outcome: It may be that theories in the field can be grouped into two relatively homogenous and complementary families. Recognizing these two sets of theories, and when they are and are not applicable, is likely to have profound effects on entrepreneurial practice. Instead of assuming that all entrepreneurial endeavors should implement the idea that pitches can be developed into opportunities, or apply the *Lean Startup* method, the analysis here suggests that entrepreneurs should first seek to understand the context within which they are operating. Applying Type Two Theories in conditions of uncertainty that are more consistent with Type One Theories is likely to be no more successful than applying Type One Theories in conditions of risk that are more consistent with Type Two Theories.

In turn, while some entrepreneurship scholars will prefer to continue to elaborate important differences among the theories within these different family groups, and still others will elaborate still more new theories that can fit within these groups, the analyses in this paper suggests that understanding the boundary conditions when these different theory families do and do not apply is an important scholarly endeavor and an endeavor that can have important practical implications for all kinds of entrepreneurs.

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Notes

1. There are also several approaches being advanced, consistent with *The Lean Startup* assumptions, that opportunities are pre-existing and can be discovered through systematic searches. These include Discovery Theory (Shane, 2003), IO Nexus (Eckhardt, Houston, Jiang, Lamberton, Rindfleisch, & Zervas, 2019), Entrepreneur-as-Scientist Method (Zellweger & Zenger, 2023), and entrepreneurship as theory (Felin, Gambardella, Stern, & Zenger, 2020). This paper considers these theories to be Type Two Theories.

2. Creation Theory and theories in entrepreneurship of Effectuation (Sarasvathy, 2001) and Bricolage (Baker & Nelson, 2005) are considered Type One Theories.

3. Path-dependent processes also play an important role in other social science theories, including resource-based theory in strategic management (Barney, 1991; Dierickx & Cool, 1989). In a sense, these theories emphasize the importance of information and knowledge generated from the process of enacting an opportunity. It is not surprising that Apple's competitors criticized Apple when Steve Jobs was alive by suggesting that they—the competitors—lived outside of Jobs' inner circle. By not being part of the process of constructing a new social reality—or, as Barney (1995) would suggest, a socially complex process—Apple's competitors were unable to imitate Apple's products. As the process of enacting an opportunity evolves differently for different entrepreneurs, the opportunities that result may be heterogeneous in costly-to-copy, and costly-to-reverse ways (Barney, 1995).

4. The creation process may begin before we have a language; the development of language is not theological. When language and action are related, and language is used to coordinate cooperative activity, then you have teleology—because the action and coordination involve teleological reasoning. If language is absent action, however, it is not teleological. Creation can be teleological when action becomes purposeful, but it does not necessarily start there.

5. A market may consist of two individuals.

6. A debate best left to philosophers and not to business scholars.

7. Information asymmetries occur when one party to an economic transaction possesses greater knowledge than the other party (Akerlof, 1970). These asymmetries in transactions represent a seller knowing more than a buyer or a buyer knowing more than a seller. This fundamental assumption of information asymmetries underpins the assumption of the Lean Startup design suggesting a quasi-scientific approach with its testable hypotheses (Blank & Eckhardt, 2023). The Lean Startup posits that there is sufficient information in the discovery process to formulate a hypothesis to clear up the information asymmetry. This is consistent with conditions of risk—those of information asymmetries—not conditions of uncertainty, where knowledge does not yet exist.

8. The Lean Startup suggests the use of testable hypotheses but then specifies conditions of uncertainty. A testable hypothesis is a statement that proposes a possible explanation to a phenomena or event and includes a prediction about the outcome (Helmenstine, 2023). In order to have a testable hypothesis, the researcher needs to have both an independent and dependent variable that is provable or disprovable, it has to be reproducible, and have enough data gathered to draw a credible result. This is not internally consistent with the Lean Startup definition of uncertainty taken from (Pearce, 1992), "that uncertainty is an event where no probability distribution can be assigned to the likelihood of an event occurring" (Blank & Eckhardt, 2023: 10). Testable hypotheses cannot be derived in conditions of uncertainty, as defined by Blank and Eckhardt.

9. Not all the theories mentioned in Blank and Eckhardt (2023) neatly fit into the two "theory families" that are discussed here. Some seem relatively tangential to entrepreneurship as a field, and others (e.g., the Individual/Opportunity Nexus Model; Eckhardt, 2014) seem more like broader organizing frameworks than specific theory of entrepreneurial action.

10. This kind of training does improve entrepreneurial outcomes, but has little to say about how entrepreneurs form their initial ideas about what opportunities they might want to exploit—a topic more successfully addressed by Type One Entrepreneurship Theories.

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