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Getting Nothing from Something: Unfulfilled Promises of Current Dominant Approaches to Entrepreneurial Decision-Making

Richard J. Arend

Department of Business Administration, University of Southern Maine, P.O. Box 9300, Portland, ME 04104-9300, USA; richard.arend@maine.edu

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Abstract: We provoke. In this conceptual piece, we challenge the value of two dominant models of the entrepreneurial process that have existed over the past two decades—the creativity school and the logic of effectuation. We point out their weaknesses and their unfulfilled promises, and we argue for the field to move on forward with different ideas. We identify the lessons our field should learn so as to minimize the possibility of potentially detrimental model dominance in the future. We then outline three alternative approaches to modeling entrepreneurial decision-making that suggest further skills and policies required in improve the entrepreneurial process.

Keywords: entrepreneurial decision-making; resource-based view; opportunity identification; competitive advantage; critical assessments

1. Introduction

The research area of entrepreneurial decision-making remains important despite being bogged down over the last two decades by too few dominant approaches representing too few schools. Therefore, it is time to provoke. It is time to expose the weaknesses in those approaches to stop their persistence and to allow new ideas to breathe. Such an exercise is important in order to shift attention away from favored but flawed logics and towards alternative ideas that offer new models that address current weaknesses and explore fresh topics (Renwick et al. 2019). That is our intended contribution here.

That contribution is scientific. Every step in the progress of science entails an improvement to a field's knowledge base. That always entails suggesting (if not proving) errors in the current knowledge base (e.g., gaps, failures to consider interdependencies, incorrect assumptions, and so on). Often this critique of currently dominant ideas is done implicitly or indirectly, or framed in a positive light, as complementary. We are more blunt here. We expose the major weaknesses and failures of two currently dominant approaches in entrepreneurial decision-making in order to provide a basis to move forward, and then we suggest several alternative ways to do so.

We define entrepreneurial decision-making as choices made in the pursuit of differential value creation, appropriation and defense, necessarily against competing forces and beliefs (e.g., Westgren and Wuebker 2019). We see entrepreneurship research as the study of new value generation, often under conditions of relative uncertainty and resource scarcity, often through new products, processes and structures that address an *ex post* identifiable failure in a past market (Venkataraman 1997). Analyzing the phenomenon of entrepreneurship, in addition to the core of that process—decision-making—is vitally important because the majority of businesses in advanced economies are small, often new ventures, that have a disproportionate effect on both job creation and innovation. Therefore, when the model approaches are deficient, the non-beneficial effects from following their prescriptions, and from ignoring alternative approaches, can be significant.

Our plan in this paper for addressing those issues is the following: We first critically assess the two dominant approaches represented in the creativity school (e.g., Alvarez and Barney 2007) and in the logic of effectuation (Sarasvathy 2001), in addition to their epistemological basis. Then, we outline three alternative approaches that address some current flaws while building on a common underlying ambition to explain differentiated value generation. For each alternative, we discuss practical and academic implications. Finally, we summarize and conclude.

2. Critical Assessment of Dominant Approaches

Effectuation and the creativity school are two entrepreneurial decision-making model approaches that each have come to dominate the discussion since the early-to-mid 2000s (with their original articles being cited over 5300 and 2200 times in Google Scholar, and with numerous follow-on papers for each continuing into the present—e.g., Grégoire and Cherchem 2020; Mansoori and Lackeus 2019; Chandra 2017; McBride and Wuebker 2020, respectively). Below, we critique them and their epistemological base in order to suggest each is detrimental to the field. Each effectively exploited the weakness in then-current models in order to bolster a relative versus an absolute promise of improvement in understanding. Yet, each model is itself weak: each is incomplete (e.g., Ranabahu and Barrett 2019), based on questionable epistemology for the task, prescribes potentially detrimental behaviors, and does not fully recognize the ideas upon which it is built. Despite those issues, each approach has been seen in multiple publications in our top journals in a manner that took attention away from alternative approaches and reinforced limited perspectives. Table 1 summarizes our detailed critiques described below.

Given our definition of entrepreneurial decision-making, any model approach has to consider, at a minimum, the basis of differential value-creation. Without heterogeneity of a ventures' factors (e.g., their resources, capabilities, beliefs), then theoretically there is no new value to create. Without new value to create, there is no path to competitive advantage (CA) or sustained CA (SCA). This logic is clearly stated in the strategic management literature through the resource-based view (referred to as RBV henceforth—Barney 1986, 1989, 1991; Penrose 1959; Peteraf 1993; Wernerfelt 1984)[1]. Unfortunately, the RBV is deficient in explaining where resource heterogeneity originates—" ... an important question in resource-based theory remains unanswered—where do heterogeneous resources come from" (Alvarez and Barney 2007, p. 22). Alvarez and Barney answered the question by connecting the RBV to entrepreneurial opportunity identification. They assert that the value of factors or products[2]

They were not the only ones pushing for a perspective on strategic decision-making in entrepreneurship based on creativity. While they did so from a questionable and esoteric metaphysical basis, others did it through a select-sample lab experiment inductive basis (Sarasvathy 2001), or from an old conceptual basis (e.g., bricolage—Levi-Strauss 1966). All promised ways to magically generate something from nothing—mostly by leveraging existing (read free, or mistakenly represented as costless) factors (both physical and social) that somehow all rival parties had missed. However, none explained either resource heterogeneity or the underlying market failures involved (e.g., Arend et al. 2015; Beugré 2017; Guo et al. 2018). Below, we consider these weaknesses and failures in more detail.

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[1] The RBV has also been proposed as a new theory of the firm (Conner 1991). Additionally, as with most recent theories, the RBV has received its share of critical analyses over time, across both fundamental empirical and logical issues. Critiques exist questioning how the RBV has been empirically tested. These suggest that the RBV has never been tested in its proposed complete form, but has only found support in loose and convenient statistically significant correlations between specific internal factors and performance outcomes (e.g., Arend 2006; Arend and Levesque 2010; Newbert 2007). Critiques also exist questioning its logic. These include concerns over the tautological nature of the value characteristic that defines focal RBV resources, a characteristic that has neither an independent definition nor a convincing origin story (Priem and Butler 2001).

[2] We use the term 'product' here in the broadest sense as an 'output' of entrepreneurial action—e.g., as a consumable product, as a new process, as a new business model, as a new form of organization, as a means to identify a new factor market, and so on. is exposed through entrepreneurial actions oriented by either discovery or creativity (e.g., Alvarez and Barney 2007)[3].

Table 1. Critical issues with dominant entrepreneurial decision-making approaches.

Issue Approach	Lack of Originality	Characteristics	Weaknesses	Failures	Something from Nothing	Uncertainty	Prescriptions
Creativity School	Venkataraman described opportunity creation and origins of one opportunity-generating market failure. RBV's inherit vs. build schools mirror discover vs. create schools. Discovery vs. invent debate ongoing in metaphysics for decades. Creativity school in entrepreneurship described by Bijkers in 1980s.	Based on contrast to a self-servingly narrowly defined 'discovery' school. A 'hook' of social constructivism—making an opportunity from nothing but belief. Timed to a spike in entrepreneurial activity and a disappointment with formal processes.	Ambiguous opportunity construct. Inapplicable to real entrepreneurs who see socially constructed (but socially objective) items, like money, as real, rather than something that they can influence others to believe in or not. Amoral—all selling is good (e.g., Theranos).	No explanation for origins of a market failure-producing opportunity. No explanation why creativity is harder than discovery. No explanation for origins for factor heterogeneity. No citing of previous metaphysics work on epistemologies involved. No citing of Bakelite case describing the creativity school	Effort, spunk, imagination and social manipulation alone can manufacture a profitable opportunity (even while others with more than that try to do the same).	Besides specifying Knightian uncertainty as a context, nothing more about which type or why it exists, is provided.	Training in social influence rather than in search and alertness.
Subjective Objectivity	Montuschi defines epistemological objectivity 13 years prior. Not cited, nor the relevant work of other metaphysics scholars.	Highly supportive of the creativity school. Tries to meet the need for social constructivists to find a measure of objectivity.	Prediction about un-hindering theorizing already proven wrong, given concepts needed to do so had existed for 13 years.			Knightian, without further specification (like that others facing it can be exploited).	Training in social influence/selling.
Effectuation	Experimentation, risk-sharing, bricolage, flexibility, arbitrage, and control already exist as concepts prior to their collection under this label.	Based on contrast to oddly-defined 'causation' logic. A 'hook' of sufficient constructivism—making value from any existing means. Timed to a spike in entrepreneurial activity and a disappointment with business planning.	Implicitly requires expertise (e.g., in who to partner with) to not be potentially detrimental. Five-part logic never holds holistically under testing.	Not a full theory (as argued previously). The core premise of means over goals, and a defining directive to not predict, are each contradicted by neuroscience Fails to explain how to be creative. Fails to prove that anyone can be an entrepreneur	Implies that any individual can be a successful entrepreneur, given the means they have, in a competitive marketplace, by following five rules that summarize what 27 experts did in a lab.	Implied Knightian, given the unpredictability assumption, but yet is a type one can locally control, can diversify through partnering, and can react to better than others.	Training in leveraging available means and control; in risk-sharing; in conservative investment; in pivoting, rather than in planning.

3. Assessing the Creativity School's Approach

The first example of dominant work involves the creativity school of entrepreneurial activity (Alvarez and Barney 2007). Its thesis is that many opportunities are not discovered through physical search but created through social construction (i.e., where people work together to create artifacts). The contrast is to the pre-existing (economics-oriented) discovery approach based on scientific realism (i.e., the view that the universe is objective and mind-independent). Its prescriptions involve training entrepreneurs in selling their ideas in order to build (partner-based) upstream supply (of resources and funds) and downstream demand (from customers) related to their new products or services. The basis hook for this approach is metaphysical—based on the epistemology (i.e., the study of knowledge) and ontology (i.e., the study of reality) of social constructivism where what is known, if not what is real, about the opportunity is generated through interactions with other human beings.

This approach to entrepreneurial decision-making entails several weaknesses, starting with the opportunity construct they use. Alvarez, Barney, and Anderson (Alvarez et al. 2013, p. 302) define it in the following way: " ... an opportunity exists when competitive imperfections exist in product or factor markets". That definition is based on Venkataraman (1997, p. 121) weak premise of entrepreneurship—which is his observation that there exist opportunities to enhance individual wealth by exploiting market inefficiencies that exist most of the time in most societies. Therefore, the definition is imprecise because opportunities exist almost always. Venkataraman (1997, p. 122) provides a better definition one page later—that opportunities exist because information is dispersed; however, the creativity school does not use it. Their chosen definition also imprecise because it does not actually state what an opportunity is but instead refers to when it exists. Furthermore, this approach offers no explanation for why the market imperfection exists; and, that matters because the source of that market failure (e.g., whether it be market power, an externality, a public good, technological infeasibility, or something else) does make a difference as to how, or even if, the market-failure-as-opportunity can be exploited at that time.

Besides being based on an imprecise definition of the core construct of opportunity, the approach is also based on a questionable contrast to a newly-labeled 'discovery' school. Like their definition of opportunities, Alvarez and Barney (2010) also source this label from Venkataraman (1997)[4]. Discovered opportunities involve relatively less effort and less path dependence than those that are 'created'. The main difference translates into the idea that 'discovery' implies that any venture lucky enough to stumble upon the market imperfection can exploit it, whereas 'creativity' implies that there are only a few ventures that could follow the unique path in that stumbling. The dividing assumption appears to be simply that discovery provides less protection from rivals than creativity. We question whether such a defining assumption is worthy of the dominance of this approach.

The creativity school fails to answer the origin questions of a strategic factor[5] (SF) or its value, although that is seemingly its main purpose. It simply kicks those questions down the 'regress road' by newly labeling the under-specified actions in factor markets from the RBV as being the behaviors of those following this school of entrepreneurial activity (Arend 2015). In that school, Alvarez and Barney (2007) provide descriptions of self-evident conditions relating to those behaviors (e.g., that path dependence is harder to imitate; that an uncertain context is harder to decide in than a risky one;

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[4] While Venkataraman (1997) does state that opportunities can be discovered or created (Venkataraman 1997, p. 122), he also states that they are discovered and created (Venkataraman 1997, p. 136) or discovered, created and exploited (Venkataraman 1997, p. 120). However, given he does not detail the difference in discovery versus creation, the implication appears to be more likely that all opportunities are discovered and then must be acted upon through creation to be exploited, a process which does not actually suggest this dichotomy.

[5] We use the term 'strategic factor' to include any resource, capability, asset, routine, organizational form or otherwise firm-accessible or—owned 'thing' that has the potential to provide the organization with a competitive advantage (i.e., if exploited efficiently, it is a source of SCA [super-normal economic rents]). Such strategic factors have been described in the RBV as having a particular set of characteristics often termed VRIO or VRIN—standing for Valuable, Rare, Inimitable, Organizationally appropriable, and Non-substitutable (Barney 1986).

and, so on) instead of addressing the focal origin story. The main origin explanation remains as the RBV's endowment story (i.e., the SF is a windfall found in a factor or production market). In other words, there is no new prescriptive value or potential for insight in their answer to the question of the origins of those heterogeneous resources[6] that can leverage opportunities.

The creativity school is unoriginal. It not only borrows heavily from the RBV but also from historic metaphysical debates, and without sufficient reference to the latter. To the former, the RBV also has two schools—inherit and build (Barney 1986, 1989, 1991; Peteraf 1993; Wernerfelt 1984). The inherit school describes auditing the firm for its discoverable SFs, but mostly focuses on the efficient leverage of them into competitive advantage. The build school describes actively participating in factor markets to arbitrage and generate the SFs that provide advantage in the product market (e.g., Barney 1986; Peteraf 1993). Such activity presumably entails social interactions where suppliers are underpaid for factors and partners and customers are then influenced and sold on the new value of those same factors [that may or may not have been newly combined or refined]. Essentially, the discovery school is the inherit school and the creativity school is the build school (Alvarez and Barney 2007).

These dichotomized schools are based on optimistic narratives. The first narrative, representing the inherit/discover school, involves a newly recognized windfall (e.g., identified through being alert—Kirzner 1973) that is easy to monetize. Often, it is a recent inventorying or enlightenment that detects factors (e.g., private information) that can be used to arbitrage a market in relatively few and relatively certain, well-understood steps (e.g., Wernerfelt 1984). The second narrative, representing the build/create school, involves a spark-like windfall that is hard to monetize (e.g., Alvarez et al. 2013). Often, it is in the form of an inspiration (or curiosity, or feeling, or insight) that leads to actionable beliefs that can be taken towards, in the best cases, uncovering further sparks to further actions that require many steps, many players, and many negotiations in order to build something that did not seem to be there (in that form) before, that now others value (e.g., Alvarez and Barney 2007). Additionally, that valuable thing can then be monetized in a process requiring relatively many steps that have less certainty (e.g., steps that are less proven, involving less confidence, less experience, and with more that can go wrong and also be more costly). In other words, there is not much new here; it is the RBV 2.0 (and 20 years on) with new language about epistemology and uncertainty added.

The added uncertainty, though, is poorly explained and also poorly supported. The creativity school bases itself on the notion of Knightian (Knight 1921) uncertainty and explicitly promotes that opportunities pursued under it must be done creatively, in the social constructivist manner. However, simple arbitrage does fulfill the definition of entrepreneurial action under Knightian uncertainty and is often conducted through what its most famous practitioners would describe as discovery activity focused on ontologically real entities. Furthermore, regarding the creation school's missing explanations of the precise uncertainties it involves, nowhere does it explain the role of uncertainty

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[6] It is realistic to acknowledge heterogeneity in entrepreneurship and strategic management: *all* firms and contexts do differ from each other (in space and time), and often in non-trivial ways. That said, it is common to assume homogeneity over most firm factors when theorizing in order to simplify the competitive context, as that allows more focus on the main drivers of performance (e.g., Bain 1954; Porter 1980; Venkataraman 1997). Homogenization is also done in practice so that heterogeneous factors can made to serve standardized functions in order to be of use in the firm's business model (e.g., unique people are trained to operate a welder on a mass assembly line). That homogenization provides several benefits, including improved skill applicability, larger scalability, greater share-ability, easier training, and more effective internal communication and coordination. Those benefits, in turn, generate higher production consistency, quality, and predictability. While heterogeneity is often homogenized so that the firm can do its business efficiently, heterogeneity is also often leveraged to protect how it does that business so that it is not imitated through external homogenization. That said, it is important to note that most heterogeneous firm factors are not potential sources of advantage (e.g., the heterogeneity of factors is usually not useful, or it is difficult to commercialize, or it is easy to imitate or to substitute for). Identifying what is and what is not a potentially advantageous heterogeneity is not a trivial exercise, and one that many firms do not attempt proactively for many reasons (including the difficulties in predicting uncertain possible futures—Hirschman 1958). We note that the creativity school does not identify either where advantageous heterogeneity originates or even how to identify any endowment of it. Instead, it implicitly assumes that the heterogeneity is there and that a plucky entrepreneur can take steps to identify and exploit its inherent potential value.

versus ambiguity versus ignorance in what an opportunity is, or in the origins of heterogeneous resources, or in how to be a more successful entrepreneur in practice.

The metaphysics hook used in the creation school is also borrowed. To be clear, metaphysics is its own field, with its own experts and its own history. Therefore, borrowing from it should be done in ways that honor its expertise and its record of research. That would include the acknowledgement that the discovery versus invention debate is well-trodden in metaphysics, and yet it appears to be the basis of the discovery versus creation dichotomy born in the mid-2000s. That original debate between scientific realists and social constructivists has been going on for a long time in the metaphysics field (see Bell 1994; Hacking 1999; and Winner, Simon, Kant, Nietzsche, and Plato for work decades and centuries before that). It has been a subject of the 'science wars' (Sokal 1996). A fantastic account of the creativity school appears in Bijker (1987) piece on Bakelite (which is uncited by the original entrepreneurship creation school authors some 20 years later). Yet, the idea that some entrepreneurial scholars newly invented such metaphysical concepts at the core of this school continues to this day.

4. Assessing the Metaphysics behind the Approaches

The same metaphysical hook is relied upon by both currently dominant approaches. Each relied upon social constructivism to contrast to the scientific realism that preceded it (e.g., the predictive-planning perspective prior to effectuation and in an alertness-search perspective prior to the creation school). We critique that hook by assessing a current example by authors in the creativity school now[7]. In their metaphysics-centered paper, McBride and Wuebker (2020) state that they untangle "the opportunity debate because there are now criteria for what makes an opportunity (or any social phenomena) objective" (p. 22); indeed, they claim that they have just provided "a novel perspective" that delivers a uniquely "clear understanding of social entities" (pp. 2–3) by newly defining the concept of epistemological objectivity. That is the new core contribution that they argue. However, unfortunately, previous metaphysics research had defined the same concept more than a decade prior.

Montuschi (2007, p. 177): "A philosophical distinction is normally referred to between two concepts of objectivity: an ontological concept . . . and an epistemological concept (objectivity is a property of the content of mental states and acts) . . . epistemological objectivity can be assessed in its own terms, that is the objectivity of our beliefs can be established by reference to other beliefs which may provide justifiable, coherent, intelligible, rational support . . . it is indeed on the basis of notions such as 'the way reality appears to us' . . . that epistemological objectivity can be at all ascertained." Clearly, the originally uncited Montuschi paper had already defined the criteria for what makes a social phenomenon objective.

They go on to predict that once entrepreneurship (as well as any other social science field) has seen their 'unique' answer to 'what is social objectivity' then the floodgates will open to significant advances in theorizing. They state "that getting the answer to the question about what makes any social phenomena objective might be the single most important piece of the foundation for the future success of the social sciences", so much so that the lack of that answer has hindered "advances in entrepreneurship theory" (p. 23) until just now. Unfortunately, given that answer has existed for over a decade, they not only have admitted that the creation school itself did not un-hinder entrepreneurial decision-making theoretical progress but they have also made the case that adding a 'core' metaphysical conceptualization has not either. This is all the more impactful because it comes from supporters of

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[7] Editorial discretion appears as one of the reasons for the persistence of these dominant models. When authors of these schools also act as editors for their co-author's and co-faculty's pieces that support and cite that work then several apparent conflicts of interest arise that should be, but are not, checked by our journals and our academies even when these appear to violate our ethics codes and the blindness in our reviewing processes that lies at the core of the legitimacy of the quality of research in our field.

the creation school and its social constructivist, subjective reality. This is why this example paper was chosen.

That is not to say that metaphysics is unimportant to research. Metaphysics provides the premises that act as the platform for theory-building (e.g., Dubin 1969). It does so by defining reality and knowledge together as a primary set of facts from which deduction can proceed and for how rational logic can work through induction. Theory-building abstracts from real phenomena, providing a small world model to capture its most important relationships in order to increase understanding, prediction and control of future similar events. However, the practice of entrepreneurship is a real and large world phenomenon involving many complexities, dynamics and, as with most social science targets, non-stationary relationships. It is quite far removed from the tiny world of metaphysics. Therefore, it should not be surprising that actual entrepreneurs do not care about the metaphysical arguments that money is socially constructed or not ontologically real; they conduct business as if it were, just as the academics studying them do.

Regardless of that tenuous connection between the tiny and large worlds related to entrepreneurial decision-making, supporters of the two dominant approaches argue for both a direct (through pedagogy) and an indirect (through the small world) influence of metaphysics (e.g., Sarasvathy 2001; McBride and Wuebker 2020). The direct influence involves the question of how best to teach entrepreneurs to obtain and exploit opportunities. Should they be taught to search for physically real objects (e.g., a new oil deposit) or to sell potential stakeholders on the mind-dependent objects that they make (e.g., a new social media platform)? However, this appears to be a forced choice on its face as all serious entrepreneurship textbooks embrace the requirement to cover both search skills (e.g., market research; reengineering) and creation skills (e.g., brainstorming; prototyping; sales and negotiations; team-building), either separately or through their explicit combination (e.g., in design thinking—Liedtka and Ogilvie 2011).

The indirect influence is via the small world, and accomplished by using the explicit modeling of the entrepreneurial process as the mediator. The argued premise is that the study of that process has to be conducted from one of two philosophies—scientific realism or social constructivism (Alvarez and Barney 2010). Most entrepreneurship scholars would absolutely disagree, given the very few studies that have ever referred to their epistemological choice, and the even fewer entrepreneurs who have raised it as an issue[8]. However, even when such a grand concept as epistemological objectivity is (re)discovered as it was in 2020, it is not used to provide new insights into the defining characteristics of entrepreneurial activity like uncertainties and the causes of the underlying market failures or, specifically, how to improve entrepreneurial decision-making[9]. Additionally, its impacts on even basic concepts like entrepreneurial opportunity also appear unclear, partly because such concepts themselves suffer from ongoing definitional disputes (e.g., Davidsson 2015). In fact, this metaphysics-based entrepreneurship stream provides no proof that specific gaps or mistakes in practitioner behaviors exist due to some lack of ontological or epistemological understanding by new venture founders or operators. While it is hard to deny that reality (ontology) and truthful knowledge (epistemology) do very much matter in today's unusual informational landscape, the final arbiters of how such issues affect innovation will not be the philosophers but instead will be the entrepreneurs who are on the ground finding ways to better satisfy human needs—both tangible and intangible[10].

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[8] It is worthwhile to note that all social science phenomena confront this metaphysical debate. Most have recognized it and moved on in the practice of *wissenschaft* in their fields where even the mind-dependent objects and events can be (and have been successfully) scientifically studied in the empirical and experimental traditions (Daston 2000).

[9] Consider the entrepreneurial activity of Warren Buffett: he represents the epitome of a Knightian entrepreneur despite the fact that he is squarely in the discovery school, searching for mispricing and exploiting it for profit, rather than creating anything new. He represents a blatant counter-example to the core metaphysical premises of the creation school. This is because even though he supposedly deals in that realm—as the entities he deals with are mostly mind-dependent, the uncertainties 'beyond risk', and the market failures mainly informational asymmetries—his data and models do not focus on any score of social objectivity but yet remain highly successful.

[10] Additionally, it remains unclear what social value there is to (re)defining epistemological objectivity alone. Prescribing greater attention be paid by entrepreneurs to selling the sizzle without any explicit assessment of quality of the steak is to

5. Assessing the Effectuation Logic

The other dominant model of entrepreneurial decision-making is effectuation logic (Sarasvathy 2001). While this model has been effectively critiqued elsewhere (e.g., Arend et al. 2015, 2016), it persists in its influence. Therefore, rather than repeating an analysis of its past exposed weaknesses, we will focus more on other issues.

We allege that effectuation's prescriptions have been shown to be detrimental to non-expert entrepreneurs (Baron 2009; Günzel-Jensen and Robinson 2017). Effectuation is based on a small set of (27) experts' observed behaviors in their entrepreneurial process as captured artificially in a lab setting with no new product created and nothing at stake. The obvious problem with any selective study—any study that selects subjects based on one common criterion—is that the criterion may be a necessary prerequisite for the behaviors to work properly. Therefore, it may well be that entrepreneurial expertise is a necessary attribute for successfully carrying out effectuation logic's prescriptions. Without such expertise, it may well be difficult to know what affordable loss is or whom to co-create with; in fact, it may well be that following the prescriptions as a novice may make outcomes worse (e.g., without expertise it is more likely that pursuing partners will result in the entrepreneur being taken advantage of).

We allege further concerns about effectuation related to its corruption of not only pre-existing ideas (e.g., bricolage, experimentation, ambidexterity) but also pre-existing words (e.g., causation). Such verbal re-definitions may have been an effective marketing move (Mehrpouya and Willmott 2018), but they raise concerns. Managerially important words like effectuate, causation, control, contingency, and isotropy[11] were suddenly redefined; and, seemingly without scientific justification. Not only did these established terms take on completely new meanings, over time somehow several became keyword choices for journal submission. We believe that doing so created unnecessary confusion for the field. It also appears a bad precedent to allow a proposed logic to so heavily draw on standard business tactics without fully crediting those who observed, analyzed and described those years prior. For example, effectuation's leveraging of existing means is akin to bricolage (Levi-Strauss 1966). Its risk-reduction strategies include then-known tactics such as staying local, experimenting cheaply, and beg-borrow-and-stealing (e.g., acting within affordable losses), and finding partners (e.g., co-creating). Expert entrepreneurs did not invent these behaviors, nor did effectuation newly generate them from lab observations. Therefore, it seems disingenuous to suggest otherwise. It also does nothing to improve entrepreneurial decision-making.

Further harms have occurred because effectuation's five-part logic has been distorted and those distortions have been exploited to offer empirical support. The metaphors in the effectuation's story have since been reengineered into a set of empirical measures. For example, while the story is presented as a holistic multi-part logic, the set of measures has not been supported as a consistent holistic construct empirically (Arend et al. 2015; Chandler et al. 2011; Welter et al. 2016). The distorted testing extends to where the story is assessed as well. The logic has most often been tested in less-than-chaotic contexts, where prediction is possible, and where the new ventures are not so new, nor the entrepreneurs so expert (Baron 2009; Skeat and Perry 2008). However, one issue with the distorted measures appears

promote the next Theranos or Madoff. Making others believe deeper and wider about an idea does not alone make it worthy of pursuit let alone of social benefit.

[11] The dictionary definitions of these established words are clear, and clearly not what effectuation went on to cast them as: effectuate—to bring about, to cause to happen, to accomplish, to achieve (from latin, and having nothing to do with the five characteristics of the 'logic' described); causation—the action of producing, anything that produces an effect (from latin, and having nothing to do with the opposite of the 'logic', given causing and effectuating mean the same thing); control—to exercise restraint or direction over, to manage, to operate (from middle English, and having nothing to do with a lack of prediction or planning); contingency—dependence on chance or on the fulfillment of a condition (from 1560s English, and not being the 'opposite of knowledge'); isotropy—uniformity in all orientations (from Greek, and not being a type of real-world decision context because individual reality is not homogeneous given practical path-dependencies and neurobiological functioning). There is no scientific justification for re-defining existing words rather than naming possible new constructs that have very different meanings relative to those words. If terms have changeable meanings, involving changes that are not corrections, then any version of science allowing that is unsound.

to be a direct consequence of the way in which the original story was presented—as a relative logic. The logic relied on contrasts for definition as did the operationalizations that followed. But that has led to problems, as many of the contrasting characteristics do not define an opposite end of the given dimension. For example, prediction is not the opposite of control, chaos is. Goals are not the opposite of means, scarcity is. Market share is not the opposite of partnering, fighting is (which is more than simply competing). Contingency is not the opposite of knowledge, ignorance is. Additionally, there is no specification for what the opposite of affordable loss is to contrast to; however, it is certainly not maximizing expected value. Yet, these are the construct scales upon which rests whatever empirical support the logic has (Chandler et al. 2011; Perry et al. 2012). Worse, these scales are internally incongruous. Leveraging knowledge is consistent with leveraging existing means, and not inconsistent with leveraging contingencies given one needs knowledge to do so. Survey-style empirical studies have revealed that inconsistency (Chandler et al. 2011).

A flawed model that persists mainly based on distorted testing is not helpful for improving entrepreneurial decision-making. Furthermore, its core premise is simply wrong[12], and that is significant. Because, if we accept and advocate a logic that is factually wrong in its premises, then we really do not care about the science of business, but only the business of science.

Like the creativity school, effectuation has also persisted by offering a contrast to the overextended models that existed prior (e.g., those based on business planning), by offering a version of the entrepreneur as heroic and active, by exploiting social constructivism, by appropriating past ideas, and by offering (but not delivering on) some kind of new access to creativity (Arend et al. 2015). While it may have been refreshing to see such contrasting perspectives when they were first published well over a decade ago, the dominance of these models needs to end for our field to progress in understanding and improvement upon entrepreneurial decision-making[13].

6. Alternative Approaches

We have argued that the two dominant approaches to entrepreneurial decision-making should fade; but what should replace them? Scientific progress demands suggestions for new alternative approaches, approaches that can address the weaknesses exposed or explore new ground. These alternatives should also build on strengths. To that end, we outline three such alternative approaches below. We briefly describe the managerial, policy, and theoretical implications for each after their respective outlining.

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[12] Neuroscience-based experiments prove that effectuation's core premise is wrong. It is wrong to assert that the brain works without predicting the future regardless of uncertainties. It is wrong to assert that the brain makes decisions without goals, including immediate ones. Non-predictive control does not exist. Ignoring threats like competition does not happen. The brain is a 'real-world simulation' machine (e.g., Barrett 2017) that continuously predicts, in order to fulfill goals, considering available means, losses, risks, contingencies, and interactions with others.

[13] Each currently dominant approach enjoyed good timing, offering something different from the rational, planned, computed, search-optimizing, probability-based world of micro-economics that dominated previously. Effectuation and the creativity school promised a shift to divergent thinking as a contrast to the previous focus on analytical convergent thinking. However, neither substantively fulfilled that promise, and that is not surprising. If creativity could be boiled down to a repeatable and trainable process, it would not be creativity any more. Nowhere does effectuation actually explain how to be more creative; it is just supposed to occur at the right time and within the right budget. That promise of solving creativity is the core of the creation school, as well as many of its predecessors, like bricolage (e.g., Baker and Nelson 2005). These approaches push the idea that ex nihilo invention is possible. However, to be absolutely clear, at any metaphysical level, only nothing arises from nothing, period (Brecht 1978). Physical inventions are created from existing physical objects (by discovering new properties and uses). New beliefs are based on existing beliefs (even admitted to in the definition of subjective objectivity above). In other words, there is no way to generate something from nothing, regardless of one's metaphysical stance.
Each dominant approach also appeared to promise something like a full theory would emerge. In neither case has it. For example, effectuation remains a logic, or a process description, or some pragmatic advice, and does not rise to what it has proposed to be—a theory. Effectuation simply fails to meet the common standards for explanatory models, as has been explained in detail elsewhere (Arend et al. 2015, 2016). Despite references to ontology and epistemology, the creativity school is also not a theory, but instead simply an inconsistent and incomplete story involving social construction. In the end, neither provides a complete theory, nor new prescriptions for entrepreneurs. New prescriptions simply do not arise from only being descriptive of how real entrepreneurs were already not acting in accordance to the dominant models prior.

The first alternative approach we describe accepts the idea that the ultimate origins of heterogeneous resources are not identifiable and instead moves forward by analyzing them as windfalls that occur at different stages of the process to different possible effects. That acceptance addresses a weakness in both dominant approaches. This provides a role for entrepreneur-managers to identify those resources and then use them appropriately. This builds on the strong underlying logics for very actively leveraging such endowed heterogeneity recognized in the currently dominant approaches. Our second alternative approach also treats the heterogeneous factors as windfalls, but explicitly recognizes that other firms are also endowed with them, and that that should lead to progress through co-evolutionary action. This alternative provides more outward-facing roles for managers and more meaning for institutional-policy effects to support entrepreneurial decision-making. It addresses weaknesses in the dominant approaches related to what creativity is (i.e., it is luck- and learning-based in this alternative) and in social influencing (i.e., it is more co-evolving than unilateral in this alternative). Our third alternative takes a different starting point. It is aimed at the premises of the formal theories (e.g., the RBV) that underlie the currently dominant approaches. Two formal theories are analyzed to explore what occurs when their assumptions are broken in order to identify new entrepreneurial paths to economic value-creation, often based on viewing the venture not as one firm but instead as one part of a system of firms.

7. Alternative Approach No. 1—Focusing on Different Relevant Windfalls

Neither of the two dominant approaches identifies the ultimate origins of the SFs. In this alternative, that unidentifiability is explicitly acknowledged and such origins are simply taken as lucky windfalls. However, these windfall endowments can differ in ways that provide new insight. Here, we differentiate them by when they occur in the entrepreneurial process, and what they signify at those times, and that provides new implications for managers and researchers.

To proceed, it is worth revisiting the RBV as the current standard story of how heterogeneous factors (SFs) translate into possible SCA (Dyer and Singh 1998) given that story underlies each currently dominant approach. In the RBV, the SF is either given at the product market stage or it is obtained through factor markets just prior to the product market stage (e.g., Barney 1986; Peteraf 1993). There is a further heterogeneity assumption over whether the firm can efficiently and effectively leverage the SF in order to realize CA. This question over an execution endowment provides one explanation for why some firms with a product market SF can fail nonetheless, which allows the RBV to survive non-significant empirical results in testing. To those possible endowments of resources and capabilities, we add the one more possible windfall—that of a new opportunity.

Table 2 details the six cases of interest for entrepreneurial decision-making, comprised of the combinations of the four types of factor heterogeneity endowments identified above. An endowed pre-SF (e.g., a windfall of private information about a future technological breakthrough), occurring in the factor market, gives the firm the ability to identify a new opportunity, which then provides the value for the SF in that opportunity's product market. An endowed opportunity (e.g., as a windfall of being in the right place at the right time to spot a market failure, as in Airbnb's story of realizing a disconnected supply and demand for couch-surfing) gives the firm the ability to buy temporarily underpriced SFs prior to revealing the opportunity to the product market. An endowed SF in the product market (e.g., discovered in the firm's inventory as a dormant patent or managerial skill or social network connection that has unexploited value in a given product market, like for the rights for a particular piece of code or design feature or access to a newly important politician) gives the firm the ability to be more profitable in its current market. Additionally, an endowment of execution competence (e.g., emerging from a set of trusted employees based on a unique and fortunate path dependence) gives the firm the ability to realize any potential sources of value as SCA. We depict this entrepreneurial process as linear, proceeding naturally from a possible pre-SF to opportunity identification (where the value of the SF is defined) to a readily-exploitable product market SF to

execution on that to the attainment of CA. We leave for future work any feedback loops, as in where a product market SF creates a new opportunity for a different SF, and so forth.

New insights that can be gleaned from this alternative approach include the identification of the managerial skills needed to complement the different windfall types, and the meaning of what each windfall type has to entrepreneurship and RBV theories (e.g., in terms of what empirical support is expected for their logics). The skills the entrepreneur requires to be profitable under the endowment possibilities have some commonalities and differences. The main commonality is the necessity for SF exploitation skills in the product markets (e.g., efficient supply chain operations). The main differences arise from the type of endowment. With a pre-SF endowment, the focal skill concerns fully exploiting that advantage through identifying a new opportunity that adds new value to the product market SF (built on that pre-SF). Search skills (e.g., on where to apply the advantage), invention skills (e.g., on how the advantage can be combined with other factors), and sales skills (e.g., on getting partners to back investments in applications of the advantage) would all be important. With an opportunity endowment, the focal skill concerns arbitraging that knowledge to buy up then-underpriced to-be-SFs in the eventual associated product markets, especially those at bottlenecks and with the main technological complementarities (Teece 1986). Search skills, negotiation skills, signal-control/ informational-management skills, and prediction skills would all be important. With a product market SF endowment, the focal skill is about exploiting that advantage in the primary market and extending it through possible related diversification, tie-ins, and long-term supply-chain contracting.

Table 2. Cases implied by a deconstructed RBV-based on three endowment types.

	Opportunity Identification	Origin of SF (in Product Market)	Execution Competence	Expected Profitability	Implication for Observation/Policy
Pre-SF is endowed, guaranteeing an opportunity, and the value for the SF in the product market.	An opportunity is identified by actions (including search and social interaction) that leverage the pre-SF. That identifies the value of the SF.	SF emerges from the pre-SF endowment (it is indirectly endowed). It has value in the opportunity identified.	Assumed competent at execution of monetizing SF.	Guaranteed longer-term profitability (SCA).	Pre-SF and new opportunity related to SCA; invest in such firms.
			Assumed not competent at monetizing SF.	Profitability not guaranteed; inefficiencies reduce any realized advantage.	Weak, if any, link between pre-SF and CA; have policy to increase execution abilities.
Pre-SF is not endowed, allowing any or no firm to identify an opportunity.	Opportunity is endowed, guaranteeing an SF (through arbitrage—purchasing the undervalued factor prior to revealing its higher value in the opportunity).	SF emerges from arbitraging the endowed opportunity (it is indirectly endowed). It has value in the opportunity identified.	Assumed competent at execution of monetizing SF.	Guaranteed longer-term profitability (SCA).	New opportunity with SF related to SCA; invest in such firms.
			Assumed not competent at monetizing SF.	Profitability not guaranteed; inefficiencies reduce any realized advantage.	Weak, if any, link between opportunity (or SF) and CA; have policy to increase execution abilities.
	Opportunity is not endowed. Either the firm can identify it, a rival can, or no firm does.	SF is directly endowed. It has value in the firm's existing product market (not in any new opportunity).	Assumed competent at execution of monetizing SF.	Guaranteed profitability (CA).	SF related to CA; invest in such firms, encourage exploration activities longer-term.
			Assumed not competent at monetizing SF.	Profitability not guaranteed; inefficiencies reduce any realized advantage.	Weak, if any, link between SF and CA; policy to increase execution abilities.

The cases depicted range from providing expectedly strong to relatively weak to non-existent support of this RBV-based entrepreneurship process story. In the best cases, there is a consistent story moving from pre-SF endowment through to rent realization execution. However, in many cases, the profitability is not guaranteed, and the likely observations are not very supportive (nor may be the related policy recommendations very clear). That said, the cases indicate some new possibilities for which entrepreneurial decision-making skills to teach when.

From an academic perspective, this alternative highlights a challenge for the RBV and its effects on entrepreneurial activity. Market failures bracket the RBV (Peteraf 1993). That bracketing implies a

cycling through an extended sequence of opportunity-to-exploitation-to-new-opportunity. The RBV begins with an ex ante failure in the factor market, and we newly propose that that market imperfection can be the opportunity that potentially establishes the focal SF's value[14]. The RBV ends with an ex post failure in the product market that guarantees the potential appropriability of the SF's value because it ensures that its supply is restrict-able at a level below that of demand (Peteraf 1993). But, such a market failure also then identifies an opportunity for other firms to address via some form of activity (e.g., a dynamic activity—Teece et al. 1997; an entrepreneurial activity—Venkataraman 1997; a political activity—Arnold and Lange 2004; or, a disruptive activity—Christensen and Bower 1996).

This raises the question of whether those market failures arising from the RBV process differ from other competitive-market-imperfections-as-opportunities. If so, it is likely that each type of market failure should to be addressed differently (e.g., as some will likely be defended by current-SF-endowed firms and some will not). However, the creation school does not explicitly account for such issues like the attack and defense of those imperfections. That further weakness provides another reason to move on from it and consider alternatives that do address such issues. Furthermore, given the now-explicit daisy-chaining of the last market failure of the RBV process as being a source of opportunity for entrepreneurial activity (as implied by the definition used by Alvarez and Barney themselves Alvarez and Barney 2007), the RBV should no longer be considered as a finished theory. It is no longer a separable package, but instead only defines a waystation along a self-sustaining process that very much more puts into question the defendability of any realized competitive advantage theorized in the RBV[15].

8. Alternative Approach No. 2—A Co-Evolutionary Story

In this alternative, we also assume that the ultimate origins of SFs are unidentifiable and so model them simply as lucky endowments. The difference here is that we explicitly consider more types of such windfalls as well as more recipients of them. Instead of focusing solely inward at one specific firm, in this alternative we focus on the path to CA outwardly, arising through learning-based co-evolution (e.g., Abatecola et al. 2020; Breslin and Jones 2012).

This alternative shifts from the common RBV-based story of lucky endowments + super-rational decision-making + idealized supporting markets = competitive advantage for one firm to a new story of endowed variation + selection + retention = expected improvements in profitability and continuous new opportunity identification in an industry. Our new story is based on the assumption that firms can not only be endowed with SFs but also with other important heterogeneous factors and characteristics like a greater motivation-to-act (or more optimistic priors for acting), or a greater ability to observe the actions to other firms, or with a greater ability to learn from observations, and so on. Together, these items can generate a Darwinian evolution-like process (e.g., Breslin 2008) where the diversity of endowed (heterogeneous) 'stuff'—including motivations-to-act—are distributed in the population so as to get a (non-empty) subset of actors who do try to exploit their given factors in business ventures

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[14] We newly propose a connection of the RBV's definitional VRIO characteristics to the opportunity's definitional market failure by having the opportunity define the SF's value (i.e., the SF is valuable because it can be used to exploit a current competitive market imperfection). Therefore, a SF's value is no longer tautologically defined as being 'in demand' (Priem and Butler 2001), but instead arises from the potential of the SF to address an existing market failure (a condition that differs from simple demand).

[15] We believe that the future of the RBV-related decision-making research lies along several paths: One path separates out cases of certainty versus risk versus (forms of) uncertainty in specific, relevant decisions involving any firm factor-related path to competitive advantage. Another path separates out cases involving standard operating procedures versus tacit knowledge versus luck in specific, relevant process steps. Yet another path separates out ways to address asymmetric information for specific cases of arbitrage versus of legitimization versus of market creation. By focusing on understanding the constituent pieces of the RBV in terms of their separate possibilities, it will be easier to connect the SF-identification-exploitation-defense process backwards (e.g., to opportunities and new venture creation), forwards (e.g., to dynamic failure or reconstruction of past factor-based advantages), and sideways (e.g., to relation- or knowledge-based issues (Dyer and Singh 1998)). These connections can then be explained more clearly in what are likely to be behavior-focused, specific variants of an entrepreneurial RBV process.

(whether those turn out to actually be ex post SFs or not). When that occurs, even under the expectation that some firms will succeed and others will fail, as long as a sufficient number of others see those actions and outcomes and learn from them, then progress should be made towards new value creation by firms in an industry as a whole.

This alternative's story provides a more realistic way of getting from one state of business to a better state. In this story, the industry has firms that have been distributed with windfalls that may be initially hidden (or may involve sufficient uncertainty in their ultimate value) so as to stop an average firm manager's action to exploit it. However, that barrier can be broken when that average decision-maker can update her understanding of what the value of her endowment is and what the process to exploit it is, so as to gain the confidence to try acting on it; and that updating is made possible by other entrepreneurs acting first. Therefore, when the endowments also include differences in beliefs and motivations, others will indeed act first, and the rest will learn (e.g., updating their priors and their capabilities) so that the next set of firms then also act (with greater information), and so on towards better and better use of their endowments (e.g., Abatecola 2014; Abatecola et al. 2018; Cristofaro 2020).

As with the other alternative approaches, there are new implications for entrepreneurial decision-making, in terms of skills recommended, in terms of supporting policies and in terms of possible follow-on work. This alternative highlights the benefit of managerial skills in observation, in learning, in updating of beliefs, in increasing absorptive capacity (Cohen and Levinthal 1990), as well as in partnering to combine windfalls and shared alertness (Kirzner 1973, 1979). This alternative implies policies should be strengthened to increase diversity (e.g., policies that incentivize people to gain unique experiences, and to build on their varied endowments), to increase awareness of their inventories, and to increase action (e.g., policies that provide supporting micro-bets to make actions that are visible) in order to prime the relevant evolutionary machine's pump for entrepreneurial progress. The ideas in this alternative can be fleshed out in follow-on work, such as in computer simulations that test different model conditions (e.g., learning rates; visibility of success and failure), in human-subjects lab experiments (with different treatments of endowments and learning conditions), and in case studies of the co-evolution that occurred or is occurring in specific industries.

9. Alternative Approach No. 3—Breaking Theoretical Assumptions

The third alternative approach we outline takes a step back from entrepreneurial decision-making details (e.g., about endowment types and the mechanisms for their exploitation) to focus on the core assumptions underlying the theories in the currently dominant approaches in entrepreneurship and strategic management. In this alternative, we explore what occurs when the assumptions of a theory are broken, often because new technologies allow it, in order to discover new ways for ventures, often acting as a part of a system, to perform better in specific contexts.

Here we focus on two core theories—the RBV and transaction costs economics (TCE—Coase 1937; Williamson 1975, 1979, 1985). The difference in the premises of these two theories provides a way to break either one's assumptions in reasonable ways—we simply look to the other theory for alternative assumptions and for mechanisms that can break existing assumptions. Then we explore what occurs (for entrepreneurs) when we break each theory's assumptions. This approach provides new challenges for entrepreneurial decision-making, including the possibility for off-the-books (i.e., non-taxed) value to be leveraged among system partners (e.g., through bartering information, identity, contacts, and so on).

There are three main possibilities for 'assumption breaking' here. The first possibility involves TCE mechanisms breaking RBV premises. For example, the Relational View of the firm (Dyer and Singh 1998) proposes a hybrid transactional form that creates a unique joint capability that partners deploy to generate CA. A transaction creates a new resource across partners as with the VISA network, effectively breaking the assumption in the RBV that the focal factor is owned by only one firm. The second possibility involves RBV mechanisms breaking the TCE premises. For example, a firm's unique IT capability provides a new way to transact with customers (e.g., Priceline's patented reverse auction method). The third possibility involves the possible co-evolution of mechanisms and assumption-breaking

in the RBV and TCE, where each break affects the other's premise over time (e.g., where resources influence transaction options that influence new resource acquisitions, and so on).

The TCE and the RBV each provide a unique explanation for CA. TCE advantages involve governance choice and are efficiency-based, whereas RBV advantages involve scarce factor leveraging and are Ricardian-based. Figure 1 depicts how the theories and concepts fit together, with the TCE focused on the transactions, the RBV on the resources, and the relational view focused on the simplest system of resources–transactions–partners. Because choices over organizational forms, over partners, and over factor investments and uses are often interdependent, it is worthwhile to consider how CA can emerge through these choices collectively (as depicted in figure as a system-of-firms approach).

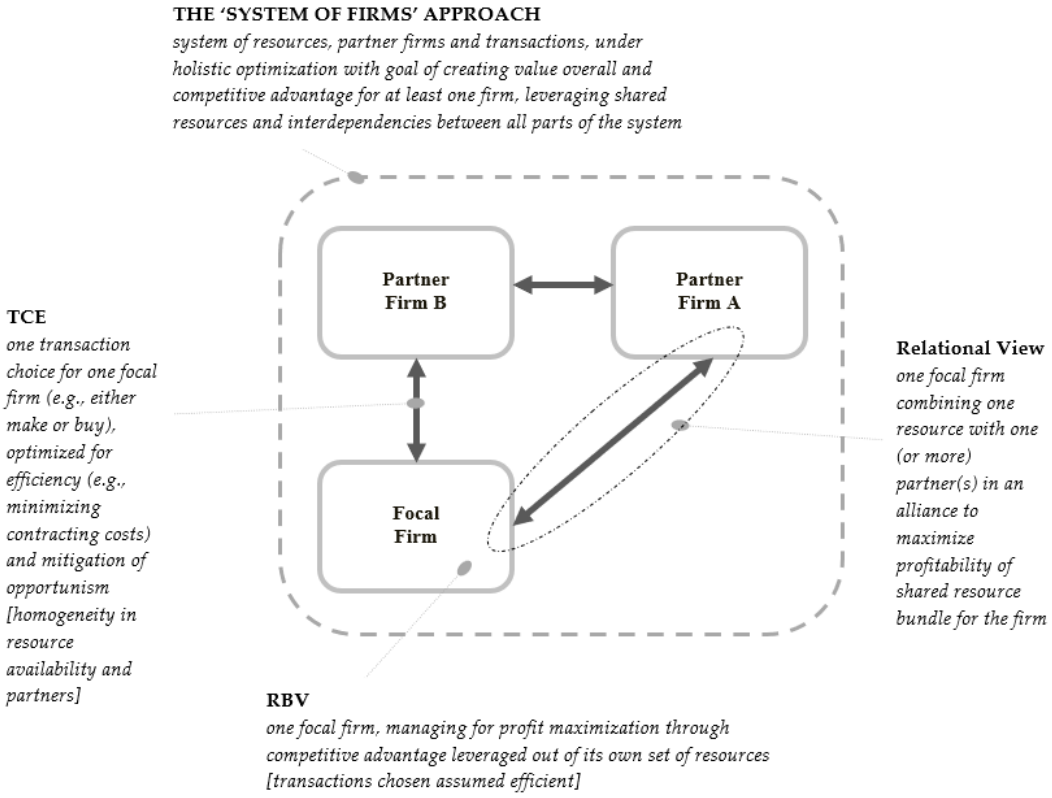

Figure 1. Domains of the relevant concepts and theories.

Resource- and Transactional-View Interdependence—As described above, this third alternative approach involves phenomena where the assumptions of one theory (RBV or TCE) are broken through the other theory's mechanisms. For example, the capabilities held by a firm can influence the availability or costs of the transactions it confronts. In this alternative, the effects of the two views are non-separable (i.e., the effects of some set of one theory's factors are interdependent on some set of the other theory's factors). For example, unique capabilities are created by an alliance, or a unique transaction form is created by one or more firm capabilities, or the capability and transaction forms co-evolve. This integration of the two theories assumes that the choice of organizational form that mitigates opportunism and economizes on incomplete contracting does influence the process of creating and exploiting capabilities, and that the capabilities that can generate competitive advantage do affect the choice of transactional forms (e.g., through the co-specialization of such capabilities with the factors made available through the transaction options).

In this alternative approach, the interdependence between the two theories involves TCE influencing RBV and RBV influencing TCE, sequentially or simultaneously. The first (TCE→RBV) has been addressed in the relational view (Dyer and Singh 1998). That view parallels the RBV, but focuses on factors as not being unique to a focal firm but instead being unique to a *set* of transacting firms.

In the relational view, there exist unique strategic capabilities that are only created by the combination of otherwise separate organizations. These capabilities then provide sustained competitive advantage to the organizations involved. In other words, the multi-firm organizational form directly affects the creation and exploitation of capabilities influencing each firm's performance; capabilities that would *not* otherwise be available in such valuable, rare and appropriable form to the partner firms independently. The other interdependencies (e.g., RBV→TCE) have not enjoyed such formal analyses. Such possible interdependencies involve new value creation with combinations of shared resources across often-novel transactional structures.

Therefore, what are the assumptions that can be broken by the factors in each view? In TCE, such assumptions include: the homogeneity of the firms involved (e.g., along their production mixes, and bargaining power over contracts); the homogeneity of the transaction options available; those options' costs and benefits and risks; and, that such governance choices are separable (both at a point in time, and across time). In the RBV, such assumptions include: that all firms choose optimal transaction forms for exploiting each resource; that firms know the value of all resources; that each firm needs to defend against the erosion of the value, rarity, inimitability (and non-substitutability); and the appropriability of its special resource base. Additionally, both the TCE and RBV assume optimization choices are separable. Table 3 depicts the assumptions of each theory that can be broken by the characteristics of the other theory.

Table 3. TCE-RBV interactions for systems and assumption breakings.

TCE Assumptions	**Examples of Assumption-Breaking Effects of RBV**
• Homogeneity of firms (along product mix, bargaining power, and so on) • Homogeneity of transaction options available (to each firm) • Homogeneity of each transaction option's characteristics (costs, benefits, and risks) for each firm • Separability of transaction choices (over time, space)	• technological capabilities affect the types of resources than can be exchanged • technological capabilities affect the information available to mitigate opportunism (e.g., through cheap monitoring) • technological capabilities affect the property rights available and enforceable • technological capabilities affect the ability to choose transactions that can mutually reinforce each other (e.g., in terms of cost synergies across a tight supply chain—JIT) • technological capabilities affect the types of transactions (e.g., oblique, based on data from customers) that are available to potential (new types of) partners (e.g., advertisers) • technological capabilities affect the homogeneity of transactions—making it easier to separate out partners and processes through real-time tracking, measurement of externalities, reduction of bounded rationality, minimization of contracting costs, automation of contract iteration, and new reputation-in-community based ways to address opportunism • technological and lobbying capabilities affect the market frictions to open up new markets to transact in • lobbying capabilities affect the types of transactions possible (through deregulation and changes to anti-trust law)
RBV Assumptions	**Examples of Assumption-Breaking Effects of TCE**
• Optimal choice of transaction to exploit each resource • Value of each resource is known, and is measured in monetary terms • Each firm needs to defend against VRIO erosion	• in a closed, stable system of partners, barter-transacting of valuable alternative resources (like access to consumers, and data) can occur without taxation • as in the relational view, new shared resources can be created through transactions • new property rights can be discovered through transacting • new VRIO protections can be based on transactions (e.g., with more parties defending those resources, and more causal ambiguity due to having more parties involved) • more accurate and complete valuation of resources can be possible through greater transactional activity
TCE-RBV Assumption	**Issue**
• Choices concerning transactions and resources are independent and separable	• in reality, resources and transactions are linked—cannot monetize without transacting, and cannot transact without resources being exchanged • resources are not homogeneous; transactions are not homogeneous

While the story of how the TCE can affect the RBV has been formally described in the relational view, the story of how the RBV can affect the TCE has not. Consider some of the ways it can involve managerial design capabilities that can generate new value for ventures. For example, such capabilities

could provide: cost-saving innovations in property rights (Alchian 1977); cost-saving innovation networking (Hagedoorn et al. 2006); reformulated property rights that generate new value (Barzel 1997; Foss and Foss 2005); a set of transactions that mutually reinforce each other (rather than where each transaction is handled separately—Nickerson 1997); a basis for a relationship strategy (Fuller and Lewis 2002); or simply a means to more effectively align production with supply (Brown and Cousins 2004).

It is not just that the RBV can break the TCE assumptions in theory, but it is that those assumptions are breakable in reality, as evidenced by the creation of new transaction forms (e.g., in hybrid governance forms, like virtual firms). New transaction form options can emerge from lobbying capabilities that result in the legislation for such new options to legally exist (e.g., through deregulation or changes to the anti-trust code). For example, the focal firm may then be able to access alternative suppliers in a newly opened market, or be able to consider options of alliances with newly available larger partner firms. New transactions may also emerge from new technological capabilities that allow new hybrid forms to become economically feasible (e.g., models based on web 2.0+ social-network knowledge transfers). For example, the focal firm may be able to use new internet community-based open-sourcing and crowd-sourcing transaction models. Or, the firm may exploit models that are based on users' content generation, or on free customer access subsidized through third-party advertising support, or on reverse auction mechanisms that leveraging real-time data, or on free brokerage across first and second parties but subsidized by third-party access to their information, and so on.

More specifically, RBV factors can break TCE assumptions related to the information asymmetries among transacting parties, the un-observability of agent actions, the risk aversion by agents, the externalities, the under-defined property rights, the vested interests, the bounded rationality, the uncertainty, the asset specificity, and the contracting costs involved in transactions. Asset specificity can be reduced by applying capabilities in asset construction (Jacobides et al. 2006). Information asymmetries can be reduced by applying capabilities in measuring and monitoring that are aimed at specific uncertainties and risks (e.g., capabilities like the managerial expertise for understanding hazards in complex environments described by Barney and Hansen 1994). Property rights and externalities of existing assets can be affected by applying capabilities in creating new goods from the by-products of assets being currently used. The bounded rationality in decision-making can be made less bounded by applying enhanced computing capabilities. Opportunism can be reduced by applying capabilities in human resource monitoring and incentivizing, or by applying capabilities that increase trust for supporting relational governance over formal contracting (e.g., Gulati 1995). The frequency of contracting can be reduced by applying capabilities that affect the length of transactions. Contracting costs may be decreased by applying capabilities that reduce hazards (e.g., the hazard-mitigating capabilities for market contracting of Delios and Henisz 2000). Risks for agents may be better insured and spread by applying capabilities in pooling and option-making. For example, Reuer, Zollo, and Singh's (Reuer et al. 2002) experience-based contracting capabilities may even alter the costs of transacting enough to open up new strategic transaction possibilities for the firms wielding them.

In this third alternative, the level of analysis switches to the unique set of resource-transaction combinations that create new value (e.g., through risk reduction; through the creation of new property rights for assets, and the associated discovery of their new uses; through product differentiation due to the uniqueness in the transaction; and so on). The mechanisms that preserve any value-creation advantages are drawn from the RBV and include: inherent heterogeneity, causal ambiguity (due to the complexity of, and art in, the combinations involved), time compression diseconomies, partner scarcity, resource indivisibility, resource scarcity, property rights, and asset stock interconnectedness.

In this third alternative, the entrepreneur's venture is part of a system of firms. The design of each system not only involves structuring each transaction, but also the portfolio of them, which involves choices of the partners and of the factors exchanged and their timing. Transactions are not just vertical (e.g., in the supply-chain) or horizontal (e.g., in lobbying alliances), but even oblique (e.g., with advertisers in a broadcast model, with complementors, and so on). The outcome is a unique system of partners–transactions–resources that may be based on one or more of the market,

hierarchical, alliance, or hybrid governance forms allowing the flow and use of shared synergistic resources from which the partners can gain value over others.

This alternative approach matters for two main reasons: (i) because it forms the basis of a theory of a system-of-firms; and, (ii) because it involves significant differences as a structure for doing business. In the TCE, the firm is a viable alternative structure to the spot market for transacting. In the RBV, the firm is a viable alternative structure for generating rents. In the relational view, the alliance is also a viable alternative structure to both the spot market and the firm for some transactions—transactions that are trust-based, more-than-temporary, and involve incomplete contracts (e.g., where parties exchange more than one item). Continuing such logic through combination and further extension to a system of firms, we argue that the system is a viable alternative structure for transactions and for rent generation for specific opportunities.

A system exists when it outperforms alternative forms of doing business. This system defines a structure entailing three differentiated characteristics. The first is the advantage from holistic optimization in the system. The second is the advantage from an ability to open up new markets by using the system and its shared capabilities in order to solve previously failed markets that were closed to alternative structures. The third is the advantage from an ability to exploit underregulated opportunities, where the system is ahead of policy-makers who have not yet addressed the complexities of system structures transacting in novel ways (e.g., Uber, Airbnb, and other brokers). Optimizing the whole system likely involves different decisions than optimizing each of its underlying pieces and connections. Such an approach builds upon the systemic and holistic thinking espoused by Zott and Amit (2010) and others. Such an approach also entails dealing with greater complexity, which may lead to new capabilities and new barriers to imitation, as well as new value. The new value emerges from the system's economies of scope (and variety), cross-synergies, cross-fertilization of ideas, added insights from the wider experiences across partners and from the holistic exposure itself. The system also entails an increase in complexity because it involves a network of more than one type of firm, exchange of more than one type resource, and the use of more than one type of role of the partner (e.g., where customer is also the supplier, in a community system like eBay or eHarmony). It is a shift to influencing the game that is played through interdependent choices. Such a challenge necessitates the use of a meta-level capability—where it is not just the firm's operations that need to managed, but also the system's, and further, doing that over time by knowing how to change how those are managed. Even further, the capability has to extend to using non-traditional influences (e.g., soft pressures) and to exchanging items of value (e.g., information; access to others) through barter, all under evolving issues of security and privacy.

This system approach is also unique in its potential to solve market failures that have closed markets to less-complex entities in the past, because such a system can represent more parties, can access more diverse resources and information, and can leverage an internal market that deals in non-monetary goods. Such a system is more likely to be able to alter regulations (e.g., to open up protected markets, or to open up new partner access), to be able to bring new types of partners together (e.g., casual, sporadic suppliers like Uber drivers), to be able to remove cost-prohibitive barriers in monitoring and enforcement through shared information, and so on. Once a new market is opened up, there emerges an unusual challenge to sustain the system's place in it, and even the system itself. That type of durability is required to compensate for the large up-front investment in making the right choices and piecing together carefully the right synergistic resources, across the right partners, with the right transactions, over time.

The goal is to create new value across the system in order to retain the (vertical, horizontal, and oblique) partners, pay the resource-holders at a rate above their opportunity costs, and minimize governance costs, all while protecting the system, and providing sufficient appropriation across stakeholders (in the payment forms that each values), while others are trying to do the same. Additionally, there is a need to do so while accounting for the type of value created (e.g., with value less embodied in physical and more in informational goods) and how that affects speed, feedback, scope,

globalization, data availability, and potential for leveraging those process characteristics. As such, entrepreneur-managers will need to be taught not just how to put themselves in their rival's shoes, but to be in several other shoes at the same time, the owners of which may take on conditionally competitive and cooperative roles as co-creators of new value-spaces[16]. Such an approach opens up several distinct paths of follow-on research that the dominant approaches have not while retaining the underlying logic they share in new value creation through the best use of available means, including those accessible from others.

10. Conclusions

We have used this forum to provoke because we care about the progress in our field. We believe that we need more debates over dominant approaches because challenges to long-standing models are simply not as prevalent as they should be (Renwick et al. 2019). Unchallenged dominance should not exist because it often turns theorizing into a business. To be a better field, we need the maintenance of its idea inventory to be as strong as initial gatekeeping. We should not require a fully-formed better model to displace a bad or outdated model; such an artificial hurdle simply stifles new ideas that are not yet fleshed out. We need to be better decision-makers ourselves in order to provide continuously improving and self-critical understandings of entrepreneurial decision-making so that those real entrepreneurs can also improve. Additionally, we need to more aggressively and more actively research rather than simply being content with reporting on what appear to be divergent or leading-edge behaviors.

Science requires the critique of dominant models. Such critiques offer the basis to identify places for improvement, to argue for proposed specific improvements, and to warn of concerns from applying prescriptions that rely on those models' current weaknesses and flaws. Such post-publication gate-keeping is crucial for a young field like entrepreneurship. We gate-keep to restrict the ideas that our field publishes, legitimizes, and hopes will positively influence practice. We do so because we believe that no benefit arises from accepting ideas that are unproven, false, misleading, incoherent, amoral, illogical, insufficient, poorly-explained, poorly-structured, trivial, repetitive, obvious, or useless. Unfortunately, we do not have a good (post-publication) mechanism for mitigating harms that could come from adhering to once-accepted ideas[17]. We have no formal process for 'theory removal' (and whatever it is that does exist is severely broken due to conflicts of interest—Arend 2019).

We have taken this opportunity to move our science forward by first critiquing two dominant approaches, and then by outlining three different alternative approaches (all of which that do what the dominant approaches do not while retaining the common underlying logic of differentiated value-creation). There are many further alternatives worth exploring that deserve the journal pages and follow-on testing and analysis more than the two approaches that have dominated over the last two

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[16] We suggest that the best way to manage the meta-challenges described is to: first, break it down into recognizable pieces—i.e., the resources, partners and transactions; second, consider these pieces in combinations, optimizing, and evaluating them as possible (and interdependent) sub-systems; and, third, do this over several possible dynamic, evolving future scenarios, where sequencing has effects.

[17] Failing to attend to the maintenance of the knowledge base of our field (e.g., by never removing ineffective or detrimental ideas) seems antithetical to a field's health, let alone its legitimacy. In fact, it is illegitimate for a younger field that has been improving its research quality to be rejecting new papers that do not live up to that higher quality while retaining old papers that also do not. The failure to put any effort into maintenance of the field's ideas is hypocritical given how very much effort we put into initial gatekeeping of ideas. We give peer editors and reviewers incredible power despite the potential conflicts of interest involved, despite the inexplicable utter lack of transparency involved (e.g., in how reviewers are assigned), despite an imperfect double-blind basis, and most often despite no guarantee that any underlying empirical data is valid (as most of it is primary and proprietary). We tolerate the standards imposed by the gatekeepers, regardless of the full knowledge that papers that should not have been accepted are and papers that should have been accepted are not. Yet, we balk at the mere suggestion that some entity should be responsible for correcting such errors or that peers should be held accountable for allowing them. Instead, we hold to the idea that the market will make the corrections naturally, even while we study a phenomenon that is only made possible due to market failures (Venkataraman 1997). Let us be clear, our 'market for ideas' is beset with failure. Call it Arend's Law—*that every self-regulated market will eventually drift towards corruption; and, that drift will accelerate as the market expands* (in the number of participants and the size of the stakes involved).

decades, and that remain flawed and incomplete. Our hope is that our peers, editors, and audiences interested in entrepreneurial decision-making research will push harder to realize that that diversity of thought is what makes us stronger.

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