

Unreasonable Assumptions in ASB

Please cite as:

Read, S., Sarasvathy, S., Dew, N. and Wiltbank, R. (2015) Unreasonable Assumptions in ASB. Detail of discussion in Read, Sarasvathy, Dew & Wiltbank (2016). Downloaded from www.effectuation.org.

Introduction

In our dialog (Read et al, 2016 AMR forthcoming) with Arend et al. (2015, henceforth ASB), we raise the following issue with respect to assumptions projected onto effectuation by ASB:

“...it guides ASB to create six assumptions (pages 640-642 in ASB) that are either not assumptions at all (#2 non predictive control; #3 means driven action; and #4 affordable loss) or are simply false (#1 unjustified optimism in the abilities of the entrepreneur; #5 value creation; #6 artifact success).” (Read et al, 2016 AMR forthcoming)

Owing to space constraints in our formal dialog piece published in AMR, we did not attempt to offer a point-by-point discussion of each of these assumptions. Instead, we included the following footnote in our AMR dialog piece:

“For example, Sarasvathy (2001), published in this very journal, refuted #6 in her Proposition 1 which stated that effectuation is not likely to reduce the probability of failure, but is likely to reduce the costs and time to failure (2001: 260). That same article also explicitly refuted #1, averring that no assumptions about a priori personality traits are necessary for effectuation theory. In fact, the following quote was used to make the case about optimism in particular: Both optimists and pessimists contribute to successful inventions. The optimist invents the airplane; the pessimist the parachute (2001: 258). This is just one example – a detailed discussion of our claims with regard to each of the 6 assumptions is available on request from the authors.” (Read et al, 2016 AMR forthcoming)

This document serves to provide our detailed responses to the following 6 assumptions put forth by ASB that we find objectionable:

1. Unjustified optimism in the abilities of the entrepreneur
2. Lack of viability of Non predictive control
3. Restrictive rather than creative aspects of Means driven action
 - a. On goals and means
 - b. Prediction and control: Not an all of nothing dichotomy
 - c. On business plans
4. Lack of novelty of the Affordable loss heuristic
5. Unspecified sources of Value creation
6. Assumption rather than explication of Artifact success

We list and discuss two additional assumptions elsewhere in ASB that we also found unacceptable:

7. Trial and error
8. Process Diagram

Each section is titled with the assumption, provides the direct text from ASB in quoted italics, and our response below that, in clear text.

1. Unjustified optimism in the abilities of the entrepreneur

“(i) There exists an unjustified optimism assumed in the abilities of the effectual entrepreneur to: “..build several different types of firms in completely disparate industries..” [Sarasvathy, 2001: 247]; “ .. change his or her goals and even to shape and construct them over time, making use of contingencies as they arise..” [247]; pursue an aspiration and visualize “..a set of actions for transforming the original idea into a firm—not into the particular predetermined or optimal firm..” [249]; proceed “..without any certainties about the existence of a market or a demand curve, let alone a market for his or her product..” [249]; be certain of their three endowments that they can exploit as “..who they are, what they know, and whom they know..” [250]; and, proceed with “..only some means or tools..” that exist at that point in time [251]. We believe that such abilities directly contradict the real cognitive limitations of the focal individuals involved. First, the mental flexibility of entrepreneurs asserted in effectuation seems to be at odds with the many biases (e.g., overconfidence) and heuristics (e.g., representativeness) attributed to entrepreneurs that instead indicate a certain level of mental stubbornness (Busenitz & Barney, 1997). Second, the implied certainty and accuracy of their assessments of their own personal resources – their traits, knowledge corridors, and social networks (which are resources characterized in the originating piece as having significant plasticity) – seems unjustified. Entrepreneurs are often considered self-delusional (de Meza & Southey, 1996; Hmieleski & Baron, 2009; Simon et al., 2000) in their confidence over the quality of their abilities, the quality of their data, and the quality of their networks (e.g., Busenitz & Barney, 1997). Such delusions often lead to ill-advised entry decisions, under-estimation of rival responses, and under-investment in venture assets (e.g., Hayward et al. 2006; Lowe & Ziedonis, 2006; Moore et al., 2008); the latter being evidence that even with limited means, entrepreneurs often do not acknowledge how limited their means truly are. So, the idea that entrepreneurs choose the optimal effects based on their means is unlikely to be true (given optimality would require accurate knowledge of means, and losses, and so on); and, if false, then the logic of the system breaks down. Third, it seems doubtful whether entrepreneurs can calculate what is questionably expected to be calculable in an effectual process, such as in the experimentation approach based on a predetermined level of affordable loss or acceptable risk (Sarasvathy, 2001: 250), which would be difficult in a context of an unpredictable future, as one cannot calculate risk in an essentially ambiguous context (i.e., because states of the future world would be unknown). For example, while one could limit the size of an initial investment, one would not be able to control downside liability in an ambiguous future (e.g., like the size of the downside in a product liability lawsuit, or negligence lawsuit, involving punitive rewards). So, again, if the decision rules cannot necessarily be followed as stated, either the system breaks down or alternative rules need to be considered.” (ASB p.640-641)

Effectuation makes no assumptions about the individual with regard to (over) optimism, abilities, or any other personality traits. Perhaps because research on personality and entrepreneurship has experienced a significant resurgence in recent years, ASB sought to connect effectuation with personality traits. They are not alone. A number of researchers have wondered what the difference is between effectuation and

a personality trait. By way of context, the proposition that traits matter in entrepreneurship can be seen as part of a larger research program of industrial psychologists (Barrick & Mount, 1991). At its heart is the premise that jobs differ, and therefore, it would be surprising if differing job characteristics did not cause individuals to self-select and to be selected for particular jobs based on how well their personality type is perceived to fit with the job requirements. Since the development of the “Big 5” personality factors in psychology, researchers have argued that entry and performance in entrepreneurship might also be related to these dimensions of personality, and meta-analyses by Rauch & Frese (2007) and Zhao & Siebert (2006) lend moderate support to these views.

Even though effectuation may be correlated with certain personality traits, effectuation itself is not a trait; it consists of a set of heuristics that are learnable and teachable. Anyone can learn these tools. Rather than thinking of effectuation as a personality disposition, a better way of thinking about it is to view it the same way as one views medical diagnosis or preparing a legal defense – as ways to use codified knowledge that can be taught. Akin to medicine and law, codifiable knowledge in entrepreneurship includes both a technical toolbox containing tools such as business planning and cash flow management as well as a set of learnable heuristics acquired through experience that identify dominant patterns in the actual decision making process. Effectuation is collection of this latter type of heuristics that can mix and match with the technical toolbox in a contextual fashion.

We have speculated that the expert entrepreneurs we have studied developed these heuristics through deliberate practice in the entrepreneurial domain (Dew, Sarasvathy, Read & Wiltbank, 2009). But now that the heuristics have been extracted and thoroughly conceptualized, they are available for others to learn about them. For example, just as market research techniques can be taught to students in a course predominantly based on causal reasoning, techniques of taking a product to market with virtually zero resources invested, or to negotiate stakeholder pre-commitments without investing in predictions, can and do form part of courses based on effectual reasoning (Read et al., 2011). And by paying attention to partners and their values and aspirations, as well as creatively experimenting with one’s own as well as the group’s capabilities on contingencies as they arise, agents can learn to become effectuators and to improve their outcomes from using effectuation over time. Future empirical tests of this claim, particularly accounting for cultural context, may well offer valuable contributions.

After saying that effectuation is not a personality trait, it is also important to note that neither is it independent of individual differences. Instead, effectuation builds on individual differences. Individual differences matter in effectuation in a very different way than they do in more familiar models from psychology. In effectuation, particular personality traits are not necessary antecedents. Instead, any and all psychological antecedents can be useful inputs into the effectual process. Effectual heuristics consist in ways to leverage and use these inputs, irrespective of what exactly they are in each case. It is in this sense that Sarasvathy (2001) quoted the following, “Both optimists and pessimists can become inventors; the optimist invents the airplane; the pessimist, the parachute.” (Sarasvathy, 2001: 259)

This relates to one last point on the issue of personality traits, which is whether some particular traits might predispose individuals to prefer effectual over causal approaches. Self-efficacy and locus of control are two cases in point; Because of their importance of perceived control in these concepts, it might not be surprising if they are correlated with preferences for effectuation. Based on unpublished data we suspect that there are some relationships between traits and preferences for causal/effectual approaches that may be worth exploring. And while this offers good avenues for future research, we

have no theoretical or empirical basis today for connecting effectuation with any individual trait or ability.

2. Lack of viability of Non predictive control

“(ii) One defining characteristic of effectuation is that non-predictive control is not only possible, but advantageous. However, the assumption that the effectual context entails control without- prediction (Sarasvathy, 2001: 251) appears tenuous. Having control necessarily implies being able to predict the outcomes of the initiated actions that are under control (e.g., one would not say a driver has control over a car if that driver is not constantly and accurately predicting where it is going). Essentially, in the real-world, control requires prediction; to control an outcome requires the knowledge of how an input affects an output, where that knowledge is predictive. If effectuation instead is trying to describe ‘local’ predictability, where the locality is defined by the immediate outcomes from the use of available means, then that is what should have been stated in the theory.” (ASB p.641)

In some articles, the combination of effectuation’s underlying control logic and the nature of its stakeholder partnering heuristic has caused researchers to suggest that the theory is inherently contradictory (McKelvie, Haynie and Gustavsson 2011): On the one hand, it is about the entrepreneur being control focused, and thus preferring to select and exploit things within their control; on the other hand, the stakeholder partnering heuristic is about sharing control or giving up control to those who commit to the entrepreneur’s venture. This issue is important to clarify because it reveals a key misunderstanding about effectuation and also highlights a central feature peculiar to effectuation. The misunderstanding comes from the old habit of thinking of the individual entrepreneur as a lone hero of some sort or co-founders as somehow a priori different from and more crucial than later stakeholders. The effectual process may begin with an individual, but the very first things the effectuator does is start interacting with other people with a view to bringing them on board as stakeholders. Yet, this “bringing on board” is a process of **self-selection** and not necessarily a strategic or targeted salesmanship on the part of effectuators. This self-selection is the central feature peculiar to effectuation that makes it not a contradiction, but an amplification and enhancement of control, through co-creation.

By way of background, the discussion around control without and with other people is a large issue that cuts across many aspects of the social sciences. There are three basic models of control that can be drawn upon: cybernetic, boundary and proxy systems (Dew and Read 2011). Stakeholder partnering is an example of a proxy control issue. There are many and diverse theories related to this issue; what they share is a common problem (how to elicit personal control by acting with and through other people) and where they differ is the mechanisms they propose for the achievement of control. Members of this family of control theories include agency theory (which emphasizes preference alignment and manipulation by incentive provision – Berle & Means, 1932; Jensen & Meckling, 1976), bureaucratic theories of organizational behavior (which emphasize the use of authority systems in gaining conformance from others – Weber, 1911; Salancik and Meindl, 1984), social embeddedness theories (which focus on trust, advice and persuasion – Granovetter, 1985; Coleman, 1990; Caldini 1993), stakeholder theories (which focus on control by managing the overlapping interests of organizational actors – Freeman, 1984); and coordination theories (which emphasize the orchestration of coordination, i.e. non-random selection in or out by others, such as crashing someone’s party or “freezing them out” – Schelling, 1962).

A distinguishing feature of effectuation is the way it posits that stakeholder relationships (proxy control) work on the basis of self-selection by the stakeholder rather than strategic selection of stakeholders by the entrepreneur. The perception of contradiction with effectual control is based on the presumption that control means unilateral control, rather than overlapping control of projects (of the entrepreneur and their stakeholders) or sharing control (because the stakeholders are assumed to be control-focused also). So the crux of the issue is what enables the various parties to tolerate sharing control? Both in overlapping and sharing control, there are two behavioral assumptions at play. First that all parties are boundedly rational and second, that every person is, to varying degrees, persuadable as well as persuasive. Both assumptions have been shown to be realistic in behavioral economics (Sarasvathy & Dew, 2008). This does not mean that everything is negotiable or that persuadability always leads to successful partnering, just that it works enough of the time so that an effectual approach becomes viable and valuable.

The assumption of persuadability is based upon some of Herbert Simon's later work (1993) in which he saw a close connection between bounded rationality and persuasion. Simon argued that because of bounded rationality human beings depend on the "suggestions, recommendations, persuasion and information obtained through social channels as a major basis of choice" (Simon 1993:156). He called this characteristic 'docility' and he showed through an evolutionary model how and why people exhibit this trait in large measure (Simon, 1993). Docility enables entrepreneurship, as well as other social endeavors, to become a co-creational process that involves give-and-take between entrepreneur and stakeholders, rather than a process where either the venture selects and manipulates its stakeholders, or the stakeholders externally dominate and control the venture. Expert entrepreneurs seem to understand this fundamental point – that organizing new firms requires a degree of give-and-take between all the parties involved (call it "wobble room"), i.e. leveraging their own and others' persuadability in order to create and pursue some common goals. Moreover, stakeholders who figure out ways to work together are able to amplify each other's control because the process is multiplicative and even exponential rather than additive.

3. Restrictive rather than creative aspects of Means driven action

"(iii) Another defining assumption of effectuation is means-driven action; however, it appears needlessly restrictive, if not inaccurate. It restricts the entrepreneur's options for paths forward to those based on only immediately-available resources. There is no reason for not attempting to gain access to greater means prior to committing to action per se. Besides the unjustified restriction issue, there is a question of whether human decisions can ever be made without some influence of goals. Even in the original study that spawned effectuation (described in Sarasvathy, 2008: 321), the first line quoted from the example protocol is both predictive and goal-oriented regarding the expected success of the hypothetical firm. It is improbable that pure means-driven decisions exist; there is no proof provided in the effectuation literature (or related studies) that entrepreneurs are not actually influenced, subconsciously or otherwise, by goals." (ASB p.641)

a. On goals and means

It is simply false to state that human decisions can never be made without influence of goals. A variety of eminent psychologists and social philosophers such as Piaget, Vygotsky, Dewey and Joas have also talked about this false assumption that action cannot precede decision and that decision cannot happen without clearly preset goals. Instead there is considerable evidence that even language and meaning

and all of cognition follow rather than precede action (See Lakoff and Johnson's Embodied Mind for a recent comprehensive treatment of the topic). In the case of effectuation, we don't need a strong assumption either way on the precedence or not of goals. The key point with regard to goals in effectuation is not about whether entrepreneurs have them or not. Instead the key point is to note that their choices are more strongly tied to their means rather than to any specific goals they may or may not have yet imagined. In other words, when one starts with a goal, one considers a specific set of possible choices that tend to be very different from the set of choices one sees when one starts with one's means. That is the point of the Curry in a Hurry example in Sarasvathy (2001). Moreover, starting with specific goals immediately focuses actions on the pursuit of means, while remaining closely tied to one's means allows us to imagine goals that are more likely to lead to novelty. The role of constraints as enablers of creativity has been well-studied. In fact, the familiar adage, "Necessity is the mother of invention" has been shown to be empirically valid in the creativity literature. In this sense, the means-driven action heuristic in effectuation is a restrictive assumption at all; it is, instead, a way to unleash novelty into the entrepreneurial process while having the added benefit of lower costs of failure.

b. Prediction and control: Not an all or nothing dichotomy

Given the prevalence of causal strategies which require goal-setting as the starting point followed by the frequently taught business plan, we understand why ASB might want to enjoin these concepts with effectuation. We observe this issue discussed both in the literature (exemplified by Townsend & Hart, 2008, but present in any exposition where causation and effectuation are posited as opposite and incompatible heuristics). We also observe this in many academic as well as practical presentations on the topic, where effectuation is described as the only logic used by entrepreneurs, to the exclusion of all others. We call this the all-or-nothing issue. Effectuation need not be an all-or-nothing issue; especially in practice, it is not about never predicting. Even theoretically, effectuation involves a bias toward decreasing the emphasis on prediction and a preference for increasing the use of non-predictive control mechanisms. Therefore, effectuation is not a wholesale replacement for causal/predictive approaches; instead, it exists in parallel. So although theoretically speaking effectuation is a complete and non-overlapping logic with causation, in practice entrepreneurs do not need to abandon predictive decision approaches and replace them wholesale with effectuation. Indeed, Sarasvathy's initial (2001) work reported that over 63% of the expert entrepreneur subjects used effectuation more than 75% of the time. But the remainder of the decisions were made using alternative logics, including "causal" (based on prediction, or historical data), or Bayesian (based on trial-and-error). Both predictive rationality and effectuation are necessary and valid as guides to decisions and action. However, it is useful to recognize that context and contingency come into play in reality. This means that there are probably theoretically interesting interactions, intersections and interplay between the two (as well as other) reasoning modes. Each is useful in a different problem space and probably emphasized differently at different stages in the lifecycle of a venture. As highlighted by Haynie & Shepherd (2009), the two co-exist, provide different tools to the decision maker and one or the other may be selected based on an entrepreneur's meta-cognitive processes that result in a situation being framed either effectually or causally.

The observation that effectuation is not all-or-nothing raises the question: What contingencies encourage or discourage the use of effectuation? Already some empirical research confirms that effectuation is more likely to be used in highly uncertain situations. In one study, Chandler, DeTienne, McKelvie and Mumford (2011) test measures of causation and effectuation with two samples of

entrepreneurs. They find measures of causation negatively associated with uncertainty, whereas one of the effectual sub-dimensions they term experimentation (please also see point 9) was found to correlate positively with uncertainty. Another study (Brettel et al, 2012) moves effectuation into a corporate R&D context in order to look at what makes for efficient and effective approaches to different kinds of R&D projects. They find causation approaches beneficial for projects with low levels of innovativeness (hence less uncertainty) and effectuation positively related to success in highly innovative (hence more uncertain) projects. To summarize, these studies suggest a different question about causation and effectuation – not whether one is better than the other in an absolute sense, but which is more efficacious under what circumstances, how and why. For example, what are the consequences of framing and reasoning effectually, compared to the consequences of framing and reasoning using predictive rationality.

A second question raised by the all-or-nothing issue is: How are effectuation and predictive reasoning integrated? This is a fruitful area for future empirical work, which could carve out the space and bounds for the use of these two very different modes of reasoning, and contribute a better understanding about how they interact. What are some of the fruitful ways of combining effectual and predictive reasoning? Is it possible to design and implement decision procedures that work in parallel to tackle the different dimensions of different types of decision problems new ventures face, or to iterate between problem-solving approaches in cycles? What are some good ways of switching gears between these different approaches? All these are possible questions for future empirical research at the boundary between effectual and causal reasoning. They are also particularly pertinent to work in corporate and strategic entrepreneurship.

c. On business plans

One specific area where this issue might be investigated is with respect to the business plan. In an attempt to clarify the various disputes, Brinckman, Grichnik & Kapsa (2010) performed a meta-analysis on business planning, showing a significant main effect and several moderators at play. Subsequent work distinguished between the significance in the relationship of the activity of planning with performance, and the lack of significance in the possession of a physical plan and performance (Meyer-Haug et al 2013). Powell (1992) critiqued strategic planning in general for not fulfilling conditions required to generate sustainable competitive advantage – arguing that it is easily imitated. Honig and Karlsson (2004) argued that business planning is largely a symbolic exercise of conformism. And Kirsch, Goldfarb and Gera (2009) showed that venture capitalist (VC) funding decisions are weakly associated with the presence of business plans but this relationship is spurious because VCs acquire information independently of its inclusion in the business planning documents.

Effectuation may relate to business plans in a rather different way from all these critiques. The core effectual critique is pragmatic: business plans are not useful as plans for acting in an uncertain world. From an effectual standpoint, the question is: For what are business plans useful? Not for nothing. Business plans are a means, and effectuation is about how means are used; so it stands to reason that effectuation is not about NOT writing business plans, it is just about not using them as plans, and instead using business plans in other ways that assist the entrepreneur. Or in today's world of large prizes for business plan competitions, as a source of affordable loss for cash-poor students to get started on effectual new venture creation.

Thus, effectuation suggests a more nuanced view of the business plan, one that is also reflected in contemporary research on planning. Examples include the use of plans as marketing tools for stakeholders (bankers, lawyers, customers, suppliers, employees) and plans being used as living documents that the entrepreneur is perfectly willing to change (Dvir and Lechler, 2004). This last point is particularly important. It may be that expert entrepreneurs' preferred alternative to planning based on market research is simply flexibility, embodied in the contingency leveraging heuristic in effectuation (Chandler, DeTienne, McKelvie and Mumford, 2011). High flexibility means entrepreneurs can tolerate more risk (rather than taking more risk) and under high flexibility it makes perfect sense to invest less in market research and business planning (whereas market research and planning both make more sense when the costs and risks are high to make changes in venture design – Thomke, 1997). In sum, the effectual stance toward business plans is realistic, pragmatic and instrumental – if it is useful in some way, for example to get a stakeholder interested or to raise some quick money, do it; if not, don't. It is not good or bad in itself. And it definitely is not a "plan" or blueprint for venture creation.

4. Lack of novelty of the Affordable loss heuristic

"(iv) Yet another defining assumption of effectuation is the use of the affordable loss heuristic where the expert entrepreneur chooses actions that entail minimizing possible losses to herself based on a psychological estimate of the commitment of means in terms of the worst-case scenario of a total loss (Sarasvathy, 2008: 81). Mitigating downsides in volatile environments is not a new approach; it is the logic of options, and one reason for the staging of investments by venture capitalists. That said, options leverage the upside volatility; effectuation does not consider this upside explicitly in the decision-making calculus. In fact, effectuation does not seem to consider other possible aspects of options-thinking (e.g., timing, exercise pricing, nesting, and so on) that could be quite a valuable, and possibly a more realistic description of the way expert entrepreneurs would think. As such, it appears that the current modeling of this decision-making in effectuation is needlessly oversimplified." (ASB p.641)

On this point, we can be quite clear and direct, as we have published a manuscript specific to this particular question (Dew et al 2009). Elaborated in the body of that manuscript, and summarized in Figure 1, we clarify the two issues raised here by ASB. The first is that an affordable loss heuristic (Figure 1c) is indeed fundamentally conceptually different from both NPV and real options logic (Figure 1b).

-----Insert Figure 1 about here-----

As described in the section entitled "Overlaps and differences between NPV, real options and affordable loss" (Dew et al 2009), real options is distinct from affordable loss in the following way:

"The most fundamental difference of course is that affordable loss is firmly grounded in behavioral theory (bounded cognition and psychology) about human reasoning, whereas neoclassical investment theory (expected returns) and real options theory are based on the expected utility model that behavioral economists continually inveigh against. This means the theories are substantially different in terms of their description of the reasoning process itself. It also means these differences, and the consequences implied by them, are empirically testable using standard behavioral economic methods such as experiments." (Dew et al 2009)

More importantly, while both NPV and real options are useful, they are both predictive in their overarching logic. The affordable loss heuristic in effectuation is both non-predictive and co-creative. In

other words, affordable loss overcomes the particular criticisms that scholars have raised about real options logic (Adner & Levinthal 2004). In this sense, affordable loss is not only derived from the actual experience of expert entrepreneurs, it makes a new and unique theoretical contribution in terms of the particular technique it brings to the problem of lowering downside risk.

In response to the second point raised by ASB, in the same article on affordable loss, we (Dew et al 2009) addressed the issue of whether affordable loss considers the upside. Figure 1c illustrates upside in the affordable loss heuristic, and the body text elaborates on how information relating to upside may incentivize the plunge decision. In particular, the figure shows how and the text explains why external predictive information may be less salient in entrepreneurial decisionmaking than considerations relating to affordable loss:

“Thus, consistent with bounded rationality, affordable loss involves using a smaller information set than is required in (normative) expected returns reasoning. By allowing estimates of affordable loss to drive their decisions about which venture they start, entrepreneurs focus on information that is more salient in determining their final choice, and put aside less salient information that does not determine the decision. Again, this does not negate the motivating effect of the upside potential of a venture: our intention is not to minimize the importance of this factor (financial or otherwise, articulated or not). We merely stress that upside data is usually not discriminating and reliable enough to be the key decision criterion that triggers an entrepreneur to take the plunge.” (Dew et al 2009)

Perhaps the most important implication inherent to this ASB assumption is the research question of whether and how entrepreneurs can mix and match these three risk reducing heuristics not only to shore up the downside but to push up the upside. This is a potentially interesting question. And we believe empirical investigations of the affordable loss heuristic can throw useful light on the performance implications of all of these.

5. Unspecified sources of Value creation

“(v) Effectuation lacks a core part of what entrepreneuring has traditionally been defined by – the creation of new value (e.g., as often defined in what constitutes the opportunity in the definition of entrepreneurship – see, for example, Shane & Venkataraman, 2000). There is no explicit explanation for why new value is created in the effectuation literature; it is simply assumed. Traditionally, value-creation arises from innovation, from arbitrage, from responding first to new market needs, from addressing unmet gaps within existing markets, and from improved offerings made to under-served segments (Barringer & Ireland, 2009). However, the explorations of such avenues of value-creation are absent from effectuation; instead, there appears to be an implicit assumption that any offering arising from the imagination of the entrepreneur in an uncertain environment will produce consumer value in excess of production costs. Assuming this rather than explaining this is inadequate for a new proposed theory of entrepreneurship.” (ASB – p.641-642)

Effectuation does not simply assume new value creation. It argues that value creation is embedded through and through in the process because each stakeholder including the entrepreneur self-selects into the process and constantly acts to co-create her own future while transforming and reshaping the environment around her. The issue of “new” value creation is a tricky one. On the one hand, innovations can post-hoc be traced to causes/strategies such as those identified in Barringer and Ireland (2009) cited by ASB. On the other hand, valuable innovations also occur through serendipity (Dew, 2009), exaptation

(Cattani, 2006; Dew et al., 2004), and other mundane, even mundane unintended actions in human history. Furthermore, scholars have even questioned whether there is any such thing as intended radical innovation at all (Sood & Tellis, 2005). In spite of this controversy, Sarasvathy (2001; 2008) have shown how effectuation does lead to a higher likelihood of novelty. Thus ‘new’ value creation is not assumed in effectuation. It is hypothesized as a likely (although not certain) consequence of using effectual heuristics in entrepreneurial decisions, actions and interactions.

Moving beyond our clarification above, we would like to acknowledge that ASB are pointing to a fertile path forward for effectuation research. We agree with them that there are many ways in which effectuation can contribute to new value creation that are yet to be explored in empirical work. However, we suspect that at least part of their criticism here derives from ASB’s incomplete survey of the (empirical) literature relating to effectuation.

-----Insert Table 1 about here-----

In our forthcoming dialog piece (Read et al 2016), we present data from a comprehensive review we conducted of the effectuation literature. One aspect of that review addressed the ASB critique that “Effectuation is a proposed new theory of entrepreneurship, with insufficient empirical testing and critical analysis” (ASB 2015, abstract). Our review revealed 28 published empirical works investigating effectuation that were not included in the ASB review or manuscript. These works, summarized in Table 1, demonstrate the efficacy of effectual heuristics in the creation of everything from fast growing successful ventures (ex: Harms & Schiele 2012; Fiet, Norton & Clouse 2013), product development in larger organizations (ex: Blauth, Mauer & Brettel 2014), high tech firms (ex: Mthanti & Urban 2014; Reyman et al 2015) and social ventures (ex: Schirmer 2013). These evidences spanned methods from survey to case study to experiment, and represent a wide variety of geographical and economic contexts. Such overwhelming and broad-based theoretical evidence highlights that effectual heuristics are indeed capable of resulting in the creation of value.

6. Assumption rather than explication of Artifact success

“(vi) Artifact ‘success’ – assumed as an outcome of effectuation – requires an explanation of the implied sustainability. The only way that entrepreneurial activity can sustain is if it produces an offering with some defensible advantage over existing offerings; that means an activity that entails a differentiated product or a cost advantage or both (Porter, 1980). The analysis of even short-term barriers to imitation (and barriers to opportunism by partners) is currently missing from effectuation theory. The model’s validity is put into question when it fails to consider realworld threats posed by the hazards in fragile unbalanced alliances, and the reactions of other industry forces when a new market is created (Porter, 1980).” (ASB – p.642)

It is rather disappointing that ASB have turned to Porter (1980) to offer up a spurious criticism of a theory that is directly derived from a really careful and rigorous empirical study of entrepreneurial expertise. The real-world experiences of actual entrepreneurs explicitly reject the idea that the standard textbook model (e.g. a Porter analysis) is useful for predicting future threats in a context of Knightian uncertainty. This crucial lesson of the failure of the Porter model has been amply chronicled in a variety of literatures in a variety of ways: on the one hand, lessons learned the hard way (empirically – ask GM) from the unexpected successes of Japanese competitors that supposedly didn’t know or do strategy (Mintzberg & Lampel, 2012; Freedman, 2013); on the other hand the lessons learned the hard way

(empirically – ask Kodak) from technology disruptions (Christensen & Bower, 1996) and “Black Swan” events (Taleb, 2007) that unpredictably upset the status quo in previously stable industries. In sum, these works, including the original conceptualization by Porter point to the usefulness of competitive analysis in extant and established markets and not in new markets subject to Knightian uncertainty. In this effectuation, *empirically* derived from the real life experiences of actual entrepreneurs, is not alone in challenging and even refuting the usefulness of competitive analyses in new venture/new market settings. Instead, effectuation validates and coheres very well with a variety of other streams of empirically sound models of co-operative, ad-hoc and non-predictive decision making, while at the same time, offering, new learnable and teachable techniques of decision making specific to the entrepreneurial process.

Supporting Sarasvathy’s (2001) statement that effectuation is not likely to reduce the probability of failure, but rather is likely to reduce the costs and time to failure (2001: 260), that expectation has been developed both conceptually and empirically. In the context of affordable loss, we projected the impact of using an affordable loss heuristic onto outcomes (Dew et al 2009), work summarized in Figure 2.

-----Insert Figure 2 about here-----

In an empirical investigation of financial returns to early stage angel investors (Wiltbank et al 2009), we showed the same pattern – that more effectual investors suffer no penalty in terms of upside as compared with their more causal counterparts, but that more effectual investors experience fewer and smaller failures (Berends et al 2014; Blauth, Mauer & Brettel 2014).

7. Trial-and-error

“And, follow-on work has drawn on effectuation theory to hypothesize about related creative activity, such as new product development innovation process characteristics (e.g., in the use of mindful trial and error).” (ASB – p.634)

Upon understanding the rationality of effectuation, we often find that people make analogies to trial and error processes, implying some amount of intuition is combined with improvising one’s way forward. Comparisons have been made between effectuation, bricolage and improvisation (Baker, Miner & Eesley 2003). Effectuation is sometimes construed to involve the compression of planning and action in time and trial and error – with iteration on the means at hand until one finds a solution that works. However, in our understanding, effectuation is not restricted to the idea of planning and acting almost simultaneously (as argued in improvisation); nor is it limited to making do with what is readily available (as defined in bricolage). As far as we can tell, bricolage overlaps with only one of the five principles of effectuation and does not involve the logic of non-predictive control that is so central in effectuation. In the interest of outlining what effectuation is not in terms of important views in our field today, we very briefly summarize below what effectuation has been shown to be, thus far.

Effectuation begins with an agent or a decision-maker. Of particular importance are the identity (including value system, beliefs, intentions and aspirations), knowledge base and social network of the individual agent. Almost right away, the individual agent begins interacting with others, but not to test the effects of their intentions on others in the search for what works. Instead, the interactions lead to negotiated commitments to particular partners, contingencies and possibilities. Every such commitment draws and redraws bounds and constraints on who is in and who is out, on which contingencies will be

exploited, and which will be ignored or succumbed to unresistingly. By actively committing to particular strategies and possibilities, the stakeholders who self-select into the process end up creating viable novelties in goals and effects. What drives the choice between possible strategies is not predicted outcomes, but negotiated values and aspirations between particular partners capable of enacting different effects (see Sarasvathy & Dew, 2005, for the detailed interactive dynamics of this process that is also depicted here in Figure 1).

-----Insert Figure 3 about here-----

Case studies on particular strategies and tactics built upon effectuation abound in the history of entrepreneurship (Read, Sarasvathy, Dew, Wiltbank, & Ohlsson, 2011). And these cases illustrate that the paths of effectuation, while building upon contingencies, are not driven by them. Contingencies sometimes constrain and often provide opportunities for effectuation, but do not dictate the course or consequences of effectual decision-making. Although chance and contingency play key roles in effectuation, effectuation itself is a method to use and exploit chance and contingency as resources in the creation of novel and unanticipated effects (Harmeling & Sarasvathy, 2011). As depicted in Figure 1, effectuation is driven by agency and interaction, not by chance and contingency.

Thus, effectuation is an approach in which creativity is constrained rather than randomly generated. It is quite the opposite of anything goes and it ascribes to something else from something rather than something from nothing. Constraint is precisely what makes it a pragmatic approach, whether speaking philosophically or practically. As effectuation develops, we think its prescriptive merit is likely to come from its economizing advantages as much as its psychological realism. It is likely that effectuation is cheaper than predictive rationality in nurturing new firms since effectuation creates information and utilizes information produced by entrepreneurial action in the process of decision making (Wiltbank, Read, Dew, & Sarasvathy, 2009). Effectuating entrepreneurs are therefore likely to develop ventures faster and more cheaply than entrepreneurs utilizing predictive rationality at the early stages of new market creation efforts (Brettel, Mauer, Engelen & Kuepper, 2012). At the macro level, this translates into more attempts and a larger diversity of approaches for creating new markets at a given level of expenditure of resources (Dew et al., 2009).

8. Process diagram

“Figure 1 depicts this process. It begins with the entrepreneur confronting the uncertain and resource-restricted context and deciding whether or not to engage in the effectual process; if the entrepreneur engages, the process ends when a new market artifact – e.g., a successful business – is created. The core process (depicted in the solid right square) starts when a threshold is met where the entrepreneur’s available means are expected to produce effects that are aligned with initial aspirations, with the additional caveat that the potential loss of invested means is tolerable. Decisions are made about specific actions based on what effects are possible given the available means, taking into account recent contingencies and co-creator involvement, drawing on imagination and any changes in aspirations. Actions are taken to produce realized effects. These effects are evaluated to determine whether an acceptable artifact has been produced that meets the entrepreneur’s aspirations; if so, the process ends. The core process also produces feedback (in a secondary, updating, sub-process) to alter available means, co-creator involvement, aspirations, and inputs to the entrepreneur’s imagination and flexibility; these altered factors then influence the next round of the core process.” (ASB – p.631-632)

The process diagram in ASB represents a misconstrual of effectual process logic (Sarasvathy & Dew 2005). Originally presented in Sarasvathy and Dew (2005), reproduced in numerous sources (ex. Read et al 2011), and show in Figure 3 here, the effectual process has seen significant elaboration. As a result, we were surprised to see ASB re-conceptualize the effectual process in their work. Their new process bears additional non-effectual assumptions (e.g. resource limitations) as well as non-effectual paths (e.g. contingency) and states (e.g. do not enter). Their diagram (ASB – p.632), shown in Figure 4, is not accompanied by any theoretical development which explains the modifications ASB have made to the process model, nor any acknowledgment of its diversion from version published more than 10 years ago

-----Insert Figure 4 about here-----

We are certain that there are modifications, enhancements and potentially even corrections that can be made to the effectual process model, and we eagerly await those developments. Those developments, however, must be accompanied by at least the same level of theorizing and articulation that was offered in the original articulation (Sarasvathy and Dew 2005).

In sum

It has become conventional wisdom to expect new theories to consist of a set of necessary if insufficient conditions for improving firm performance. Effectuation offers the inverse: a set of sufficient conditions none of which individually is necessary for performance whether at the individual, firm or societal levels. Simply put, one of the unique aspects of effectuation is the limited number of assumptions it demands. In this it is reminiscent of one of Herb Simon's arguments about Occam's razor having two blades (Simon 1979). Simon argued that you can either have a simple theory built on elaborate assumptions about antecedents such as Rational Expectations theories in economics, or you can have complex, realistic theories that make virtually no prior assumptions such as bounded rationality. Effectuation is clearly in the latter tradition. It does not demand anything heroic of the individual or anything unique of the environment. And it is in this simple and pragmatic light that it offers a useful set of simple heuristics for anyone operating in uncertain circumstances.

TABLE 1: Update to ASB Review of Empirical Effectuation Literature (Read et al 2016)

Effectuation has seen empirical tests using methods that include survey, qualitative in-depth case analysis, meta-analysis, and experiment. Below is a list of 28 empirical studies, not cited by ASB, with the N of the sample and a brief description of the empirics.

N = 352 (Berends et al 2014) event histories in product innovation
N = 219 (Blauth, Mauer & Brettel 2014) product development employees
N = 33 (Chetty et al 2014) longitudinal cross-country case study
N = 18 (Chu & Luke 2012) micro enterprise programs in Vietnam
N = 4 (Dutta & Thornhill 2014) longitudinal entrepreneur case studies
N = 64 (Dew et al 2011) contrast experts and novices
N = 93 (Engel et al 2014) randomized experiment on business students
N = 3 (Evald & Senderovitz 2013) in depth case studies on SMEs
N = 7 (Faiez et al 2012) entrepreneurial networks
N = 10/47 (Fiet, Norton & Clouse 2013) creators (10) of successful ventures (47)
N = 4 (Gabrielsson & Gabrielsson 2013) case studies of growth ventures
N = 2 (Harmeling & Sarasvathy 2013) in depth venture histories
N = 65 (Harms & Schiele 2012) new venture “gazelles”
N = 12 (Hulsink & Koek 2014) entrepreneurs under the age of 25
N = 5 (Kalinic, Sarasvathy & Forza 2014) cases of manufacturing SMEs
N = 2 (Kaufmann 2013) countries, comparison of technology strategy
N = 15 (Liu & Isaak 2011) Chinese entrepreneurs & government officials
N = 9 (Mainela & Puhakka 2009) international joint venture managers
N = 30 (Maine, Soh & Dos Santos 2013) scientist entrepreneur decisions
N = 9 (Mort, Weerawardena & Liesch 2012) cases on born globals
N = 421 (Mthanti & Urban 2014) high technology firms
N = 60 (Murnieks et al 2011) venture capitalists
N = 9 (Reyman et al 2015) high tech firm cases used for inductive study
N = 3 (Nummela et al 2014) startups in three different countries
N = 4 (Schirmer 2013) in depth social entrepreneur case studies
N = 1 (Sitoh, Pan & Yu 2014) case study of game console project
N = 8 (Watson 2013) respondents in an ethnographic study
N = 421 (Werhahn et al 2015) German firms used to build (N = 163) and test (N = 258) effectual orientation scale

FIGURES 1a, b & c: Differences in Theoretical Models Guiding Investments in New Ventures

(Dew et al, 2009)

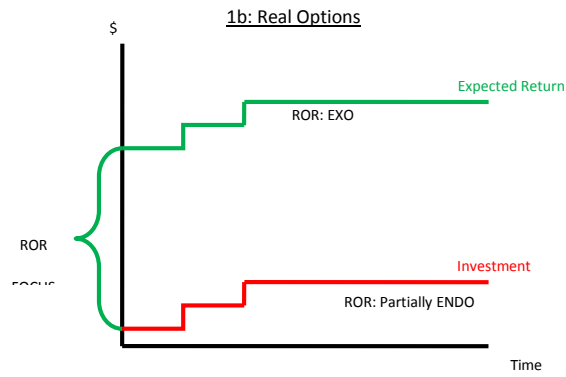
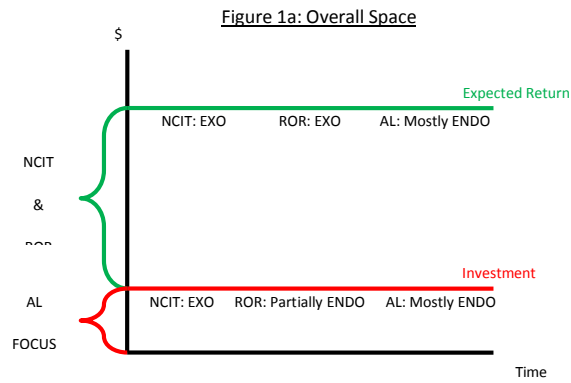


FIGURE 2: Firm Performance: Affordable Loss and Expected Returns Compared
(Dew et al, 2009)

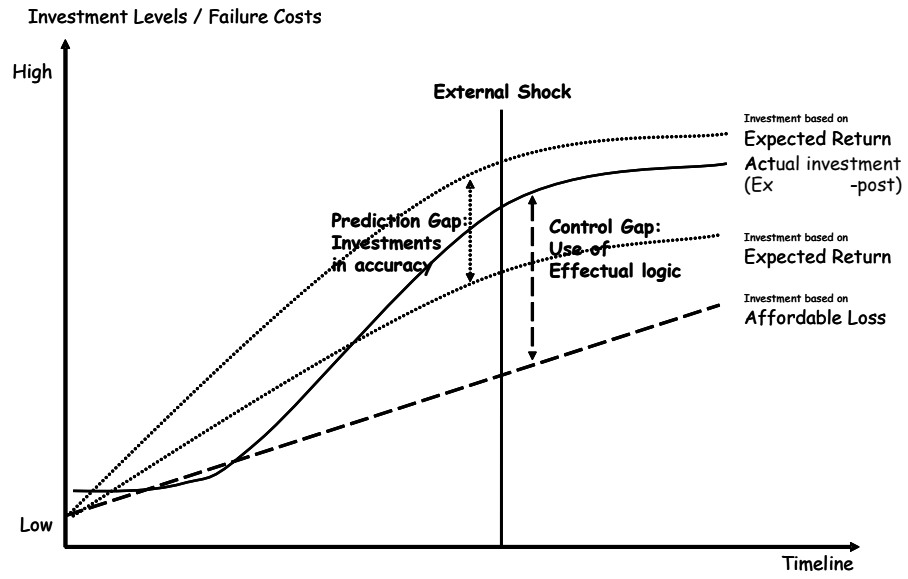


FIGURE 3: THE EFFECTUAL PROCESS

(Sarasvathy and Dew 2005; Read, Dew, Sarasvathy, Song and Wiltbank 2009)

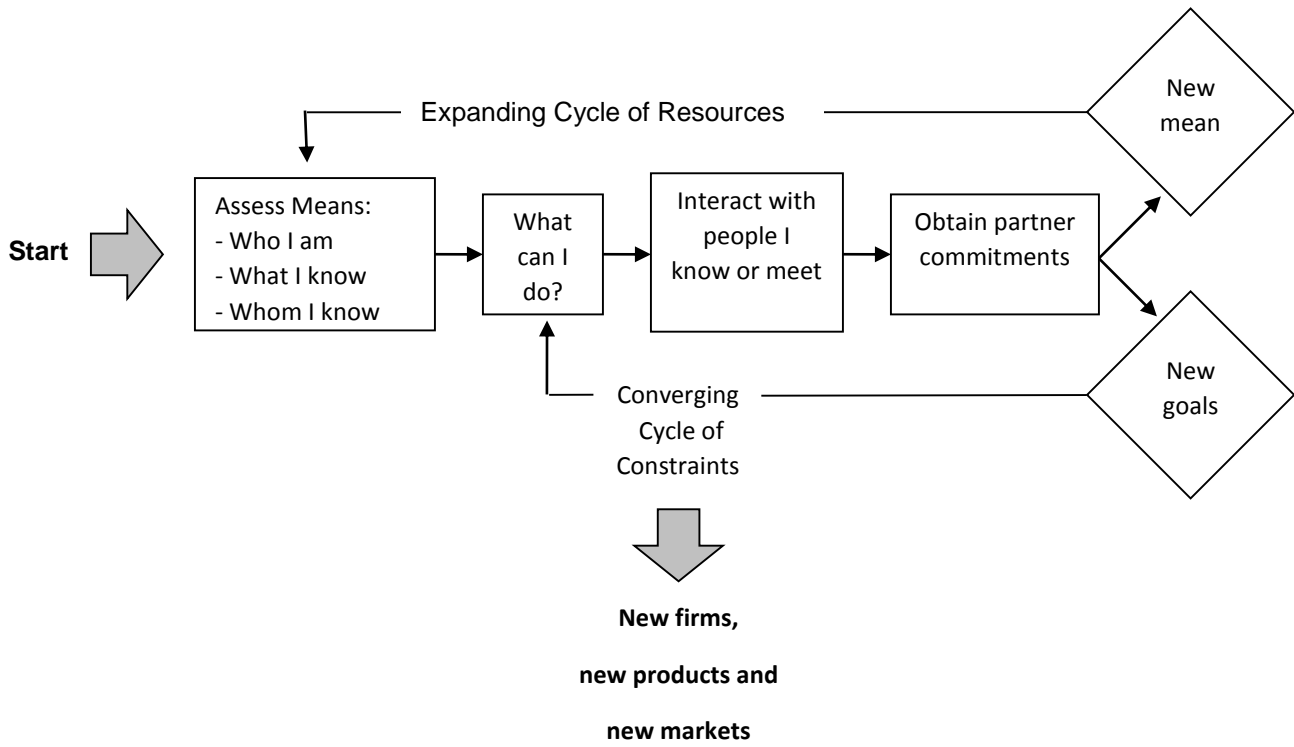
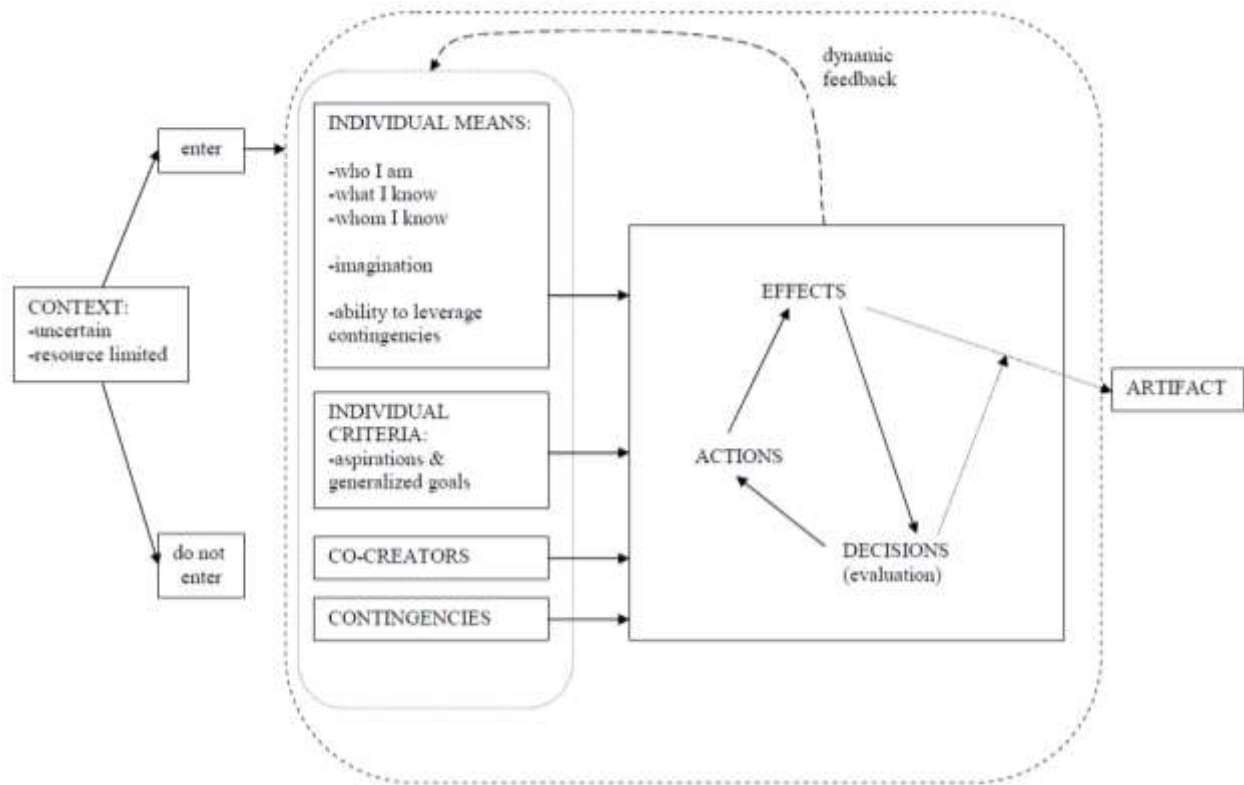


FIGURE 4: Effectuation as a New Proposed Model of Entrepreneurship
(Arend et al, 2015)



References

- Adner, R., & Levinthal, D. A. (2004). What is not a real option: Considering boundaries for the application of real options to business strategy. *Academy of management review*, 29(1), 74-85.
- Arend, R., Sarooghi, H., & Burkemper, A. (2015). Effectuation as Ineffectual? Applying the 3E Theory-Assessment Framework to a Proposed New Theory of Entrepreneurship. *Academy of Management Review*, amr-2014.
- Baker, T., Miner, A. S., & Eesley, D. T. (2003). Improvising firms: Bricolage, account giving and improvisational competencies in the founding process. *Research policy*, 32(2), 255-276.
- Barringer, B. R., & Ireland, D. 2009. *Entrepreneurship: Successfully launching new ventures* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Berends, H., Jelinek, M., Reymen, I., & Stultiëns, R. 2014. Product Innovation Processes in Small Firms: Combining entrepreneurial effectuation and managerial causation. *Journal of Product Innovation Management*, 31(3), 616-635.
- Berle, A.A., Jr. and G.C. Means, 1932. *The modern corporation and private property*. Macmillan, New York.
- Blauth, M., Mauer, R., & Brettel, M. 2014. Fostering Creativity in New Product Development through Entrepreneurial Decision Making. *Creativity and Innovation Management*, 23(4), 495-509.
- Brandenburger, A. M., & Nalebuff, B. J. (2011). *Co-opetition*. Crown Business.
- Brettel, M., Mauer, R., Engelen, A., & Küpper, D. (2012). Corporate effectuation: Entrepreneurial action and its impact on R&D project performance. *Journal of Business Venturing*, 27(2), 167-184.
- Brinckmann, J., Grichnik, D., & Kapsa, D. (2010). Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning–performance relationship in small firms. *Journal of Business Venturing*, 25(1), 24-40.
- Busenitz, L. W., & Barney, J. B. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of business venturing*, 12(1), 9-30.
- Cattani, G. (2006), 'Technological pre-adaptation, speciation, and emergence of new technologies: how Corning invented and developed fiber optics,' *Industrial and Corporate Change*, 15(2), 285–318.
- Chandler, Gaylen N., Dawn R. DeTienne, Alexander McKelvie, Troy V. Mumford 2011 Causation and effectuation processes: A validation study. *Journal of Business Venturing*, 26:3, 375-390.
- Chetty, Sylvie K.; Partanen, Jukka; Rasmussen, Erik S.; Servais, Per. 2014. Contextualising case studies in entrepreneurship: A tandem approach to conducting a longitudinal cross-country case study. *International Small Business Journal*. 32:7, 818-829.
- Christensen, C. M., & Bower, J. L. (1996). Customer power, strategic investment, and the failure of leading firms. *Strategic management journal*, 17(3), 197-218.

- Chu, V., & Luke, B. (2012). Mission Drift or Strategic Shift? Group Formation Strategies Within MEPS. *Journal of International Development*. Volume 24:8, 1042–1045.
- Cialdini, R. B. (1993). *Influence: The psychology of persuasion*. New York: Morrow.
- Coleman, J. S. (1994). *Foundations of social theory*. Harvard university press.
- De Meza, D., & Southey, C. (1996). The borrower's curse: optimism, finance and entrepreneurship. *The Economic Journal*, 375-386.
- Dew, N. (2009). Serendipity in entrepreneurship. *Organization Studies*, 30(7), 735-753.
- Dew, N. and Read, S. (2011) The concept of effectual control, framing and errors. Working paper.
- Dew, N., S. Read, S. D Sarasvathy, R. Wiltbank (2009) Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing*. Jul 2009. Vol. 24, Iss. 4; p. 287
- Dew, N., S. Sarasvathy, S. Read and R. Wiltbank 2009 Affordable Loss: Behavioral Economic Aspects of the Plunge Decision. *Strategic Entrepreneurship Journal* sister journal to *Strategic Management Journal*, Volume 3 Issue 2, p.105 – 126.
- Dew, N., Sarasvathy, S. D. and Venkataraman, S. 2004. Economic Implications of Exaptation. *Journal of Evolutionary Economics*. 14: 69-84.
- Dvir, D., & Lechler, T. (2004). Plans are nothing, changing plans is everything: the impact of changes on project success. *Research policy*, 33(1), 1-15.
- Engel, Y., Dimitrova, N. G., Khapova, S. N., & Elfring, T. 2014. Uncertain but able: Entrepreneurial self-efficacy and novices' use of expert decision-logic under uncertainty. *Journal of Business Venturing Insights*, 1, 12-17.
- Evald, M. R., & Senderovitz, M. 2013. Exploring internal corporate venturing in SMEs: Effectuation at Work in a new context. *Journal of Enterprising Culture*, 2103, 275-299.
- Faiez, Ghorbel, Younes, Boujelbène 2012 A cognitive approach for analyzing the influence of effectual network on entrepreneurs actions. *Interdisciplinary Journal of Contemporary Research In Business* 39: 1409-1431.
- Fiet, J. O., Norton, W. I., & Clouse, V. G. 2013. Search and discovery by repeatedly successful entrepreneurs. *International Small Business Journal*, 318, 890-913.
- Freedman, L. (2013). *Strategy: a history*. Oxford University Press.
- Freeman, R. E. 1984. *Strategic management: A stakeholder approach*. Boston: Pitman.
- Gabrielsson, P., & Gabrielsson, M. 2013. A dynamic model of growth phases and survival in international business-to-business new ventures: The moderating effect of decision-making logic. *Industrial Marketing Management*, 428, 1357-1373.
- Granovetter, M. (1985). Economic action and social structure: the problem of embeddedness. *American journal of sociology*, 481-510.

- Harmeling, S. S., & Sarasvathy, S. D. 2013. When Contingency Is a Resource: Educating Entrepreneurs in the Balkans, the Bronx, and Beyond. *Entrepreneurship Theory and Practice*, 37:4, 713-744.
- Harms, R., & Schiele, H. 2012. Antecedents and consequences of effectuation and causation in the international new venture creation process. *Journal of International Entrepreneurship*, 1-22.
- Haynie, J. M., Shepherd, D. A., & McMullen, J. S. (2009). An opportunity for me? The role of resources in opportunity evaluation decisions. *Journal of Management studies*, 46(3), 337-361.
- Hayward, M. L., Shepherd, D. A., & Griffin, D. (2006). A hubris theory of entrepreneurship. *Management Science*, 52(2), 160-172.
- Hmieleski, K. M., & Baron, R. A. (2009). Entrepreneurs' optimism and new venture performance: A social cognitive perspective. *Academy of management Journal*, 52(3), 473-488.
- Honig, B., & Karlsson, T. (2004). Institutional forces and the written business plan. *Journal of Management*, 30(1), 29-48.
- Hulsink, W., & Koek, D. 2014. The young, the fast and the furious: a study about the triggers and impediments of youth entrepreneurship. *International Journal of Entrepreneurship and Innovation Management*, 182, 182-209.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, 3(4), 305-360.
- Kalinic, I., Sarasvathy, S. D., & Forza, C. 2014. 'Expect the unexpected': Implications of effectual logic on the internationalization process. *International Business Review*, 233, 635-647.
- Kaufmann, D. 2013. The influence of causation and effectuation logics on targeted policies: the cases of Singapore and Israel. *Technology Analysis & Strategic Management*, 257, 853-870.
- Kirsch, D., Goldfarb, B. D., & Gera, A. (2009). Form or substance: the role of business plans in venture capital decision making. Robert H. Smith School Research Paper No. RHS, 06-108.
- Liu, Y.P. and Issak, A. (2011) Linking Effectuation to Causation in Chinese High-Tech Entrepreneurship: Strategic Framing Based on Culture, Cognition and Institutional Context. In: RENT XXV - RESEARCH IN ENTREPRENEURSHIP AND SMALL BUSINESS - 25TH ANNIVERSARY CONFERENCE , 16th to 18th November 2011, Bodo, Norway.
- Lowe, R. A., & Ziedonis, A. A. (2006). Overoptimism and the performance of entrepreneurial firms. *Management Science*, 52(2), 173-186.
- Maine, E., Soh, P. H., & Dos Santos, N. 2014 The role of entrepreneurial decision-making in opportunity creation and recognition. *Technovation*, in press.
- Mainela, T., & Puhakka, V. 2009. Organising new business in a turbulent context: Opportunity discovery and effectuation for IJV development in transition markets. *Journal of International Entrepreneurship*, 72, 111-134.
- Mayer-Haug, K., Read, S., Brinckmann, J., Dew, N., & Grichnik, D. (2013). Entrepreneurial talent and venture performance: A meta-analytic investigation of SMEs. *Research Policy*, 42(6), 1251-1273.

- McKelvie, A., Haynie, J. M., & Gustavsson, V. (2011). Unpacking the uncertainty construct: Implications for entrepreneurial action. *Journal of Business Venturing*, 26(3), 273-292.
- Mintzberg, H., & Lampel, J. (2012). Reflecting on the strategy process. *MIT Sloan Management Review*.
- Moore, D. A., & Healy, P. J. (2008). The trouble with overconfidence. *Psychological review*, 115(2), 502. (Barrick & Mount, 1991).
- Mort, G. S., Weerawardena, J., & Liesch, P. 2012. Advancing entrepreneurial marketing: Evidence from born global firms. *European Journal of Marketing*, 46(3/4), 542-561.
- Mthanti, T. S., & Urban, B. 2014. Effectuation and entrepreneurial orientation in high-technology firms. *Technology Analysis & Strategic Management*, 26(2), 121-133.
- Murnieks, C. Y., Haynie, J. M., Wiltbank, R. E., & Harting, T. 2011. 'I Like How You Think': Similarity as an Interaction Bias in the Investor–Entrepreneur Dyad. *Journal of Management Studies*, 48(7): 1533-1561.
- Nummela, N., Saarenketo, S., Jokela, P., & Loane, S. 2014. Strategic Decision-Making of a Born Global: A Comparative Study From Three Small Open Economies. *Management International Review*, 54(4), 527-550.
- Porter, M. E. (1980). *Competitive strategy: Techniques for analyzing industries and competition*. New York, 300.
- Powell, T. C. (1992). Strategic planning as competitive advantage. *Strategic Management Journal*, 13(7), 551.
- Rauch, A., & Frese, M. (2007). Born to be an entrepreneur? Revisiting the personality approach to entrepreneurship. *The psychology of entrepreneurship*, 41-65.
- Read, S., and S. D. Sarasvathy (2005) Knowing what to do and doing what you know: Entrepreneurship as a form of expertise *The Journal of Private Equity* Vol. 9, Iss. 1; p. 45
- Read, S., Dew N. and Sarasvathy, S.D., Song, M. and Wiltbank, R., 2009. "Marketing under uncertainty: a knock at the door." *Journal of Marketing* 73(3):1-18.
- Read, S., Sarasvathy, S., Dew, N. and Wiltbank, R. (2016) Response to Arend et al: Co-Creating Effectual Entrepreneurship Research. *Academy of Management Review*. Published online before print October 30, 2015, doi: 10.5465/amr.2015.0180.
- Read, S., Sarasvathy, S., Dew, N., Wiltbank, R., & Ohlsson, A. V. 2011. *Effectual entrepreneurship*. Taylor & Francis.
- Reymen, I., Andries, P., Berends, H., Mauer, R., & Stephan, U. (2015). Understanding dynamics of strategic decision-making in venture creation: A process study of effectuation and causation. *Strategic entrepreneurship journal*.
- Salancik, G. R., & Meindl, J. R. (1984). Corporate attributions as strategic illusions of management control. *Administrative science quarterly*, 238-254.

- Sarasvathy, S. D. 2001. Causation and Effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency, *Academy of Management Review*, 26(2): 243-288.
- Sarasvathy, S. D. 2008. *Effectuation: Elements of Entrepreneurial Expertise*. Edward Elgar, New Horizons in Entrepreneurship Series. (Nominated for Terry Book Award, Academy of Management)
- Sarasvathy, S. D. and Dew, N. 2009. Without judgment: An empirically-based entrepreneurial theory of the firm. *Review of Austrian Economics*, forthcoming 2010.
- Sarasvathy, S. D., and Dew N. New market creation as transformation. 2005. *Journal of Evolutionary Economics* 15(5): 533-565.
- Sarasvathy, S. D., and Dew, N., 2008. Is Effectuation Lachmannian? A Response to Chiles, Bluedorn, and Gupta (2007), *Organization Studies* 29(2): 239-245
- Schelling, T. C. (1960). *The strategy of conflict*. Harvard university press.
- Schirmer, H. 2013. Partnership Steering Wheels. *Journal of Corporate Citizenship*, (50).
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of management review*, 25(1), 217-226.
- Simon, H. A. (1979). Rational decision making in business organizations. *The American economic review*, 493-513.
- Simon, H. A. (1993). Altruism and economics. *The American Economic Review*, 156-161.
- Simon, M., Houghton, S. M., & Aquino, K. (2000). Cognitive biases, risk perception, and venture formation: How individuals decide to start companies. *Journal of business venturing*, 15(2), 113-134.
- Sitoh, M. K., Pan, S. L., & Yu, C. Y. 2014. Business Models and Tactics in New Product Creation: The Interplay of Effectuation and Causation Processes. *IEEE TRANSACTIONS ON ENGINEERING MANAGEMENT*, 61(2), 213.
- Sood, A., & Tellis, G. J. (2005). Technological evolution and radical innovation. *Journal of Marketing*, 69(3), 152-168.
- Sood, A., & Tellis, G. J. (2005). Technological evolution and radical innovation. *Journal of Marketing*, 69(3), 152-168.
- Taleb, N. N. (2007). *The black swan: the impact of the highly improbable*. Random House.
- Thomke, S. H. (1997). The role of flexibility in the development of new products: An empirical study. *Research policy*, 26(1), 105-119.
- Townsend, D. M., & Hart, T. A. (2008). Perceived institutional ambiguity and the choice of organizational form in social entrepreneurial ventures. *Entrepreneurship Theory and Practice*, 32(4), 685-700.
- Watson, T. J. (2013). Entrepreneurship in action: bringing together the individual, organizational and institutional dimensions of entrepreneurial action. *Entrepreneurship & Regional Development*, 25(5-6), 404-422.

- Weber, M. (1911/2002). *The Protestant Ethic and the Spirit of Capitalism: and other writings*. Penguin.
- Werhahn, D., Mauer, R., Flatten, T. C., & Brettel, M. (2015). Validating effectual orientation as strategic direction in the corporate context. *European Management Journal*.
- Wiltbank, R., N. Dew, S. D. Sarasvathy and S. Read (2006) What to do next? The case for non-predictive strategy *Strategic Management Journal*. Vol. 27, Iss. 10; p. 16
- Wiltbank, R., S. Read, N. Dew and S. D Sarasvathy (2009) Prediction and Control Under Uncertainty: Strategy in Angel Investing. *Journal of Business Venturing*. Vol. 24, Iss. 2; p. 116
- Zhao, H., & Seibert, S. E. (2006). The big five personality dimensions and entrepreneurial status: a meta-analytical review. *Journal of Applied Psychology*, 91(2), 259.