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Sarasvathy, Saras D.; Dew, Nicholas; Read, Stuart; Wiltbank, Robert

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Saras D. Sarasvathy, Nicholas Dew, Stuart Read and Robert Wiltbank

Saras D. Sarasvathy
Darden Graduate
School of Business
Administration,
Virginia, USA

Nicholas Dew
Naval Postgraduate
School, Monterey,
California, USA

Stuart Read
IMD, Lausanne,
Switzerland

Robert Wiltbank
Atkinson Graduate
School of
Management,
Willamette
University, Oregon,
USA

Abstract

Human artifacts lie on the interface between their inner environments and their outer environments. Organizations, therefore, are apt subjects to be studied through a *science of the artificial*. Furthermore, organizational design happens at two interfaces: first, at the interface between organizational founder(s) and the firms they design, and second, between the firms and the environments in which they operate. We use recent developments in the study of entrepreneurial expertise to show why an *effectual* logic of design is necessary at the first interface, and what its consequences are for designing at the second. In particular, we use the exemplar case of Starbucks to codify three key characteristics of the design problem at the first interface — namely, Knightian uncertainty, goal ambiguity and environmental isotropy. We then use an 'alternate histories' method to trace four strategic options — namely, planning, adaptation, vision and transformation — for designing at the second interface. In the final analysis, organizational design is important because effectuators using transformational approaches not only design organizations, but concurrently end up designing the environments we live in.

Keywords: science of the artificial, effectuation, isotropy, uncertainty, goal ambiguity, Starbucks

In 1969, Simon had suggested a new class of sciences called 'sciences of the artificial' where the notion of *design* would be central to our academic endeavors. In 1981, in a bold polemic that challenged the abdication of prescriptive theorizing by management scholars, Starbuck and Nystrom made a case for 'why the world needs organizational design' (Starbuck and Nystrom 1981). The latter called for, as a pressing need, what the former had suggested as an interesting and viable option. This paper is an attempt to contribute to the continuing efforts by scholars in this tradition (Boland and Collopy 2004; Dunbar and Starbuck 2006; Romme 2003).

A science of the artificial (or an artifactual science) studies some subset of human artifacts. An artifactual science of entrepreneurship, therefore, would include the study of new organizations, new markets and new institutions as *artifacts* fabricated by human beings. In this regard, we posit effectuation as an entrepreneurial logic for designing artifacts, consisting of a coherent set of principles grounded in expert entrepreneurial practice (Sarasvathy 2001). Very much in keeping with the tradition of good design science approaches to organization

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studies, the principles we present in this paper are drawn from extensive empirical work (Thomas and Tymon 1982; Van Aken 2004). In particular our exposition draws upon two studies of entrepreneurial expertise, one investigating the formation of new firms (Sarasvathy 1998) and the other that of new markets (Dew 2003). Together they show how the designers of organizations end up designing the world we live in.

The upshot of our argument may be captured in two contrasting metaphors about the formation of new firms and new markets. Most strategic management and organizational studies take the environment or market as given and then examine the actions and responses of managers and organizations within these. Even entrepreneurship research, for the most part, takes markets and market opportunities as given and seeks to explain how and why certain entrepreneurs are able to find these and build successful firms based upon these (Shane and Venkataraman 2000). The dominant paradigm here evokes decision theories that use a causal logic focussed on prediction, where the task is that of uncovering the billion-dollar opportunity in the jigsaw puzzle of the environment. In the jigsaw puzzle metaphor the market opportunity already exists and the role of entrepreneurship is primarily one of discovering and combining the right pieces — to design to *fit* rather than to design to *transform* existing environments. Yet studies of expert entrepreneurs and early histories of new firms and new markets show that, irrespective of whether they saw themselves as discoverers or visionaries, the designers of these artifacts did not in actual fact behave as though the picture were already there.[1] Instead, they proceeded more like an accomplished quilter. Quilting differs from solving the jigsaw puzzle in at least three ways. First, the quilter has wider latitude in putting together the initial pattern. Even when she begins with a basket of random patches handed to her, she can choose colors and juxtapositions that she personally finds pleasing and meaningful. Second, large quilting projects are usually communal; a good quilter works with others who bring their own baskets of patches and tastes and talents; in the process she has to manage various problems of coordination as well as deal with unexpected contingencies. Finally, the quilt not only has to be pleasing and meaningful to the quilters engaged in the enterprise, it has to be useful in the world — to keep human bodies warm. The contrasting metaphor of the patchwork quilt with that of a jigsaw puzzle captures in essence the difference between an effectual logic of *transformational* design as opposed to a causal logic of *predictive* and *adaptive* design.

The paper proceeds as follows. We begin by summarizing Simon's prescriptions for a science of the artificial. In particular, we will focus on his statement that the artifact lies on the interface between its inner environment and its outer environment, and highlight his point that good design reshapes the two environments in ways that work well and create value in the world. The third section examines the nature of the entrepreneurial design situation, articulated through the example of Starbucks. We then describe how the logic of effectuation accomplishes the design of artifacts. Then we compare the effectual process with three alternatives — predictive, adaptive and visionary — by constructing alternative (imagined) histories for Starbucks. The final section closes with research implications.

The Centrality of Design in a Science of the Artificial

Simon included in the sciences of the artificial the study of those 'objects and phenomena in which human purpose as well as natural law are embodied'. (Simon 1996: 6). He defined the boundaries for sciences of the artificial as follows (Simon 1996):

1 Artificial things are synthesized (though not always or usually with full forethought) by humans.
2 Artificial things may imitate appearances in natural things while lacking, in one or many respects, the reality of the latter.
3 Artificial things can be characterized in terms of functions, goals, adaptation.
4 Artificial things are often discussed, particularly when they are being designed, in terms of imperatives as well as descriptives.

In short, artifacts are fabrications, they exhibit behavior, and they are often described, rightly or wrongly, in intentional terms. He also defined an artifact as a boundary (interface) between an inner environment and an outer one:

'An artifact can be thought of as a meeting point — an "interface" in today's terms, between an "inner" environment and an "outer" environment, the surroundings in which it operates. Notice that this way of viewing artifacts applies equally well to many things that are not man-made — to all things in fact that can be regarded as adapted to some situation; and in particular it applies to the living systems that have evolved through the forces of organic evolution' (Simon 1996: 9).

There are two key elements in Simon's conception of an artifactual science. The first is that the interest is in *human* artifacts. It is for this reason that a field such as myrmecology (the study of ants) is not an artifactual science, even though ants build artifacts, namely, ant heaps. The second element has to do with the relationship between artifacts and natural laws. Simon repeatedly emphasized that natural laws constrain, but *do not dictate*, the fabrication of artifacts. That is, it is possible to *design* artifacts. The general thrust of this argument inspired a generation of scholars who have built on this Simonian tradition (Boland and Collopy 2004; Dunbar and Starbuck 2006; Nelson and Stolterman 2003; Romme 2003).

The social sciences often cope with the wild complexity of human behavior, by denying both the relevance and reality of natural laws that are *embodied* in human behavior as well as the importance of the human handprint in *making* the world. Such coping mechanisms take a variety of forms. Some theories distance themselves from the annoying human element. For example, Behaviorism, in its fundamentalist incarnations, denies the relevance of human purpose in understanding human behavior. Similarly, 'Pure Sociology' dreams of a theory characterized by the 'presence of several absences: ideology, teleology, psychology, and people' (Black 2000). Other theories undervalue the constraints imposed by natural laws. For example, standard rationality models in neoclassical economics ignore the limitations biology imposes on human cognition. Then there are

theories that attempt to reduce *all* aspects of human action to natural laws. For example, sociobiology (Wilson 1980) and structuralism (Mayhew 1980) in sociology, and automaticity (Kirsch and Lynn 1999; Wegner 2003) in psychology come to mind. It is not uncommon to justify the lack of realism by *as-if* arguments. (See the very influential essay by Friedman (1953), Simon (1959) for a rebuttal, and Vaihinger (1925) for other as-if arguments.)

Consequently, every social science lives under the threat of potential subsumption by some other more 'physical' science. Thus, anthropology in the Durkeim/Geertz tradition is under attack from evolutionary psychology (Tooby and Cosmides 1992), psychology awaits subsumption by neuroscience (LeDoux 1996; Horgan 1999), political science is threatened with models from economics (Friedman 1953), and neoclassical economics faces the onslaught of 'econophysics' (Mantegna and Stanley 2000) and 'neuroeconomics' (Glimcher 2003).

In a prescient comment, Simon suggests that the problem has a deeper cause:

'The previous chapters have shown that a science of artificial phenomena is always in imminent danger of dissolving and vanishing. The peculiar properties of the artifact lie on the thin interface between the natural laws within it and the natural laws without. What can we say about it? What is there to study besides the boundary sciences — those that govern the means and the task environment?' (Simon 1996: 113)

The question is a rhetorical one. Simon's answer is that:

'The proper study of those who are concerned with the artificial is the way in which that adaptation of means to environments is brought about — and central to that is the process of design itself.' (Simon 1996: 113)

Simon's shift in emphasis from the complexities of human behavior to design is a shift from *as-if* models to *even-if* models. Thus, *even-if* human behavior is complex, the design principles (if any) behind artifacts may well be simple; *even-if* the future may be unpredictable, the logic for designing organizations may be systematic; and so on. His prescience in this regard has recently been borne out in studies of how entrepreneurs transform extant realities to create new firms and new markets (Sarasvathy 1998; Dew 2003). However, before articulating the results of these studies, it will be useful to focus on the design problem in greater detail.

The Design Problem for Entrepreneurs

'Rational choice involves two guesses,' wrote Jim March in the *Bell Journal of Economics* (March 1978: 587), 'a guess about uncertain future consequences, and a guess about uncertain future preferences.' The first 'guess' has been widely studied in the area of decision making under uncertainty; and Jim March and others have examined the second 'guess' through studies of goal ambiguity (March 1982). But the design problem for entrepreneurs also involves a third dimension — environmental *isotropy* (no a priori limit to what information is relevant to it) — that needs further elaboration, particularly in light of organizational design.

Given the unpredictability of the future and in the absence of pre-existent goals, one explanation that has been proposed for the creation of successful innovating firms is through natural selection, the action of the independent environment in selecting among random variations in the behaviors of firms (Hannan and Freeman 1977; Nelson and Winter 1982). But the existence of an independent selection mechanism such as the market has also been questioned by a variety of scholars, including Weick (1979) and Child (1972). These three problem elements constitute the central question formulated by Sarasvathy and Simon (2000):

'Where do we find rationality when the environment does not independently influence outcomes or even rules of the game (Weick 1979), the future is truly unpredictable (Knight 1921), and the decision maker is unsure of his/her own preferences (March 1982)?'

The Origins of Starbucks

Take the case of Starbucks. Using some of the prevailing theoretical lenses to analyze the origins of Starbucks, we could tell a story somewhat as Koehn (Koehn 2001) tells it:

- Howard Schultz built Starbucks into a nationally known brand name. How did he do that?
- He recognized that baby boomers began rejecting processed and pre-packaged foods in favor of more 'natural' and higher quality foods and beverages.
- Americans were becoming more interested in a higher level of service than was generally available in most retail outlets.
- Schultz used this understanding of the changing demand side — in tandem with a range of operating policies — to develop premium coffee products and appealing retail environments.

However, her own narrative, as Koehn reports the details of the case, suggests a more complex reality than a visionary entrepreneur who *recognizes* a great opportunity and exploits it with ruthless efficiency. Instead, consider the following:

- By the 1980s, per capita coffee consumption in the United States, which was based largely on supermarket sales of one-pound cans from Maxwell House and other mass marketers, had been declining for 20 years.
- The original Starbucks was founded in 1971 by Gordon Bowker, Jerry Baldwin and Zev Siegl. It consisted of a shop in Seattle's Pike Place Market that sold roasted quality beans, along with tea, spices and supplies; it did not sell coffee by the cup.
- As Schultz himself states, 'But the founders of Starbucks were not studying market trends. They were filling a need — their own need — for quality coffee.' Koehn agrees with this.

- Even Bowker et al. were not the first to 'discover' the specialty coffee market — Alfred Peet, the Dutch coffee connoisseur, had been at it since 1966. And it appears likely there may have been others before him.
- Schultz, unlike Peet or Bowker et al., was not a coffee aficionado. As Koehn (Koehn 2001: 219) puts it, 'Like most Americans in the early 1980s, he had grown up thinking of coffee as a commodity purchased along the inner aisles of supermarkets.' He was an executive with the housewares supplier, Hammerplast, whose clients included the original Starbucks company.

Based on the above facts, how can we theoretically understand the development of the specialty coffee market, or the creation of Starbucks as we know it today, either in terms of current theories such as opportunity recognition, institutional entrepreneurship, or evolutionary/co-evolutionary processes? How can we understand the micro-foundations, i.e. the decisions and actions at the entrepreneurial level, that drive the processes of organizational design?

Was there a market for Starbucks irrespective of Schultz's actions? Taking into account the data available in 1981, could Schultz have reasonably predicted the emergence of the speciality coffee market? It seems not. Here is data on 'market feedback' that suggests otherwise:

'During the next two decades [1960s and 1970s], the large roasters continued to spend huge advertising budgets fighting for shares in a shrinking market. Per capita coffee consumption began to fall in the mid-1960s, declining from a postwar peak of 3.1 cups per day in 1963 to less than 2 cups in the mid-1980s. Americans, especially teenagers who had historically drunk coffee, increasingly consumed other beverages, especially soft drinks such as Coke and Pepsi. By the late 1980s, about half the US population over the age of ten did not consume coffee. Long the nation's number one beverage (excluding tap water), coffee had dropped to a distant second behind soft drinks.' (Koehn 2001: 213)

Yet at the same time, other data exist that presents a different picture. Consider how Schultz actually built his first coffee bar, *Il Giornale,* which was later merged with the original Starbucks in 1987:

'The entrepreneur and his team listened carefully to patrons and each other in the months after Il Giornale opened. Consumers, they discovered, did not like nonstop opera music. Those interested in lingering in the store desired chairs. Some asked for flavored coffee. A menu printed primarily in Italian was not accessible to many people. The baristas' bow ties were uncomfortable to wear and difficult to keep looking neat after hours in front of the espresso machine.

'Schultz considered each of these issues. He wanted to please consumers. But he had to do so in a way that was consistent with the offerings and distinct identity that he was trying to create. He adjusted many operating policies in response to customer and employee feedback. Il Giornale began providing chairs and playing more varied music. The baristas stopped wearing ties. "We fixed a lot of mistakes," Schultz said. But he decided not to honor some requests. For example, although the larger market for vanilla, hazelnut, and other artificially flavored beans was growing rapidly, the company consistently refused to sell coffee brewed from them. Schultz believed the practice would compromise his organization's commitment to selling an authentic, high-quality product and thus its brand's developing image.' (Koehn 2001)

So the story of Starbucks, like the story of many enterprises, is full of feedback from the so-called 'market' that, from an *ex post* perspective, may or may not have

proved useful or wise *ex ante*. The confusion inherent in the information available to Schultz does not consist only in the profusion of market feedback. It extends to feedback from other stakeholders including investors, employees and strategic partners. For example, while the founders of the original Starbucks would not agree to convert their enterprise into an Italian-style coffee bar business, they did offer him seed money and advice to found *Il Giornale*. Similarly, of the 242 men and women he approached for funding, 217 decided not to fund the venture, but quite a few did purchase equity. Here again we see that the overwhelming picture is one of mixed information that may or may not be relevant, a concept known as 'isotropy'.

Isotropy refers to the fact that in decisions and actions involving uncertain future consequences it is not always clear *ex ante* which pieces of information are worth paying attention to and which are not. The problem has been studied by cognitive scientists, roboticists and philosophers of mind. The *Stanford Encyclopedia of Philosophy* explains Fodor's definition of the problem as follows: 'For the difficulty now is one of determining what is and isn't relevant. Fodor's claim is that when it comes to circumscribing the consequences of an action, just as in the business of theory confirmation in science, anything could be relevant' (Fodor 1983: 105). There are no *a priori* limits to the properties of the ongoing situation that might come into play.

Isotropy is a problem even when the future is relatively predictable and the goals are clear. When they are not, as is often the case in design projects such as startup enterprises, isotropy is a truly vexing problem as we saw in the details of designing Starbucks.

Three Elements of the Entrepreneurial Design Space

In sum, three elements constitute the design space for entrepreneurs:

1 Knightian uncertainty: it is impossible to calculate probabilities for future consequences.
2 Goal ambiguity: preferences are neither given nor well ordered.
3 Isotropy: it is not clear what elements of the environment to pay attention to and what to ignore.

Let us re-examine Schultz's decisions and actions in designing Starbucks in terms of the three elements above.

1 How could he calculate the probabilities for the outcomes of his actions?
2 Did he really know what he wanted to achieve? If so, were his goals clear?
3 How could he know which elements of feedback from customers and others to pay attention to and which to ignore?

We have already accumulated facts from the case to show that (1) and (3) were real problems in his case. How about (2)? In many places, both in Koehn's exposition and his own words, Schultz comes across as the quintessential visionary

— someone who knew exactly what he wanted, had the vision to perceive the enormous opportunity Starbucks offered and went after it and made it happen. But even if we accept it as fact that from day one he 'saw' *an* opportunity and was clear he wanted to build a national business of some sort, it still was not clear whether it would be a chain of retail stores that sell specialty coffee, or coffee-houses in the restaurant model, or something in between for which there were as yet no clear models. The list of isotropic problems goes on. Should he build Starbucks as a franchise or not? Should he retain the name Il Giornale or Starbucks? And the farther we go back into the origins of the enterprise, to the decisions/actions that drive the so-called 'opportunity recognition' process, the more uncertain, ambiguous and isotropic the problem space appears.

Schultz's own description of his initial decision to leave Hammerplast and go to work for the original Starbucks evokes a Marchian tapestry — i.e. a throng of preferences and passions jostling on the mental trading floor — rather than a well-ordered army marching to the command of goal clarity (Schultz and Yang 1997: 36–37):

'On the five-hour plane trip back to New York the next day, I couldn't stop thinking about Starbucks. It was like a shining jewel. I took one sip of the watery airline coffee and pushed it away. Reaching into my briefcase, I pulled out the bag of Sumatra beans, opened the top, and sniffed. I leaned back, and my mind started wandering.

'I believe in destiny. In Yiddish, they call it *bashert*. At that moment, flying 35,000 feet above the earth, I could feel the tug of Starbucks. There was something about it, a passion and authenticity I had never experienced in business.

'Maybe, just maybe, I could be part of that magic. Maybe I could help it grow. How would it feel to build a business? How would it feel to own equity, not just collect a paycheck? What could I bring to Starbucks that could make it even better than it was? The opportunities seemed as wide open as the land I was flying over.'

The story he tells is, of course, subject to retrospective bias. It may or may not be apocryphal. But the fact remains that he did quit Hammerplast and join Starbucks. Even if his vision were in actual fact any *less* clear than he reports, that would only strengthen our argument about goal ambiguity. And if it were any *more* clear, there is no reason why he would not report it that way; he appears to have no problem asserting his 'vision' in other places.

It is also important to note that Starbucks, ultimately, is a success story. So there is a tendency both for the subject involved (Schultz) and the scholars reporting on him, to retrospectively describe his actions as prescient, resolute and discerning. If it had turned out that he failed in his venture, we would be tempted to describe those same actions as reckless, stubborn and foolish. And this is exactly the problem *ex ante*, both for designers of organizations and those of us studying them.

What advice can we give someone faced with a problem space characterized by Knightian uncertainty, goal ambiguity and isotropy? It might appear that all we can tell them is to make their best guess about future events, use trial and error, have faith in their vision or trust their intuition to persist with the opportunity they perceive, and build charismatic leadership skills that enable them to convince others to follow through to eventual success. But is this really the best we can do?

An Effectual Logic

Could there be a way to act within the design space identified above that is neither 'rational' in the traditional sense nor a 'deviation' from rational behavior? What is required is a way to pluralize the concept of rationality with a logic of action that is appropriate in the space of Knightian uncertainty, goal ambiguity and environmental isotropy. It is clear that such a logic has to be non-predictive (i.e. not taking the event space for probabilities as given and immutable), non-teleological (i.e. not taking preferences and goals as pre-existent or unchangeable) and non-adaptive (i.e. not taking the environment as exogenous or as something to respond to and 'fit' with).

Effectuation has been posed as one logic that 'works' in this space (Sarasvathy 2001). It might be thought of as a set of design rules that are appropriate for this situation (Van Aken 2004; Romme 2003). Several studies have outlined the key elements of effectuation in detail (Sarasvathy and Dew 2005a, b; Sarasvathy, 2007). Here we limit ourselves to a condensed summary.

Effectuation starts from the position that the future is contingent upon actions by willful agents intersubjectively seeking to reshape the world and fabricate new ones. The essential characteristic of the future, in this view, is its unpredictability. Environments can be made stable and predictable for limited periods of time in certain areas. But these periods of stability tend to be 'artificial' exceptions designed by human action rather than the 'natural' regularity of a causal universe (Carney and Gedajlovic 2002). Normatively speaking, therefore, human action should seek to leverage both regularities and contingencies to create novelty through effectual interaction.

Effectuation begins with means available to the effectuators. There are three categories of means available to all human beings and can be simply described as: (1) Who I am (the stable traits, abilities and attributes of the effectuator); (2) What I know (his/her education, experience and expertise); (3) Whom I know (his/her social networks). The effectuator's pool of resources (i.e. 'What I have') can be computed as a function of these three categories of means. The fundamental agenda for the effectuator then becomes: What effects can I create, given who I am, what I know, and whom I know? The effectuator begins by imagining several possible courses of action, the consequences of which are for the most part unpredictable. Courses of action are typically co-determined by stakeholders who are willing to commit resources to particular actions (Sarasvathy and Dew 2005b). In general, stakeholders not only provide resources, they also set immediate agendas and generate new sub-goals for the venture. The focus of the entire decision-making process for each individual involved is on *what can be done*, given who s/he is, what s/he knows, and whom s/he knows. This approach highlights the positive potential of surprises, the 'Aha!' feeling that the creativity literature talks about (Wallace and Gruber 1992). Effectual artifacts (whether firm or market or organization or institution) may take on shapes that are unanticipated and sometimes even unimagined by the stakeholders whose commitments engender it (Hagedoorn and Duysters 2002).

Since outcomes to novelty are by definition unpredictable, commitments by entrepreneur and stakeholders have to be determined not by calculating the

potential of opportunities provided by the environment, but by concrete assess-ments of affordable loss in pursuit of vaguely promising courses of action to fabricate new opportunities. As one cannot avoid negative surprises in the pur-suit of positive ones, one key to effectual action consists in *failure management.* The effectuator seeks to design intelligent failures that can be locally contained and contribute to his/her learning, and continually pushes forward a series of small successes that can be cumulated over time.

Effectuators act as though the environment were largely endogenous to their actions. While fully acknowledging external constraints on their actions, effectua-tors divide the event space into controllable and uncontrollable parts. They then focus on what they can control to reshape the environment. They do not assume opportunities to be pre-existent in the environment; instead they seek to fabricate them. They also tend to ignore searching for pre-existent competitive threats, because they themselves do not know which markets or event spaces they will end up constructing. Organism and environment are inextricably intertwined in this worldview and the focus always is on creating new possibilities with extant means at any given instant.

What Difference Does an Effectual Approach Make?

What difference does it make that organizations are designed using an effec-tual logic that keeps in focus the concurrent designing of the environment? Furthermore, as a new organization transforms extant realities into new mar-kets, in what ways can it continue or change its stance toward the environ-ment? A review of the literature on strategic management and organizational design shows that there are three prevailing approaches to design problems: *planning*, *adaptive* and *visionary*. These underlying approaches differ in whether and how they address uncertainty, goal ambiguity and isotropy that characterize the organizational design space for a firm like Starbucks. Figure 1 from Wiltbank et al. (2006) arranges these approaches based on their ori-entation toward two underlying variables — prediction and control — and shows where an effectual/transformative approach differs in its logical orientation from the other three.

According to Figure 1, organizational designers have four logical options:

1   They can assume the environment is beyond their control and predictable, investing in predictive techniques that allow them to design an organization favorably positioned for the future: we call these planning approaches.
2   They can assume the environment is unpredictable, shorten their planning horizons and invest in flexible organizational designs that effectively respond to changes in the environment: we call these adaptive approaches.
3   They can assume that the environment is predictable but malleable and impose their vision of the future, shaping the environment to achieve their desired outcomes: we call these visionary approaches.
4   They can assume future environmental factors are contingent on human action and design, and seek to create them through interactions with others

Figure 1.
A Framework of
Prediction and
Control (Wiltbank
et al. 2006: 983)
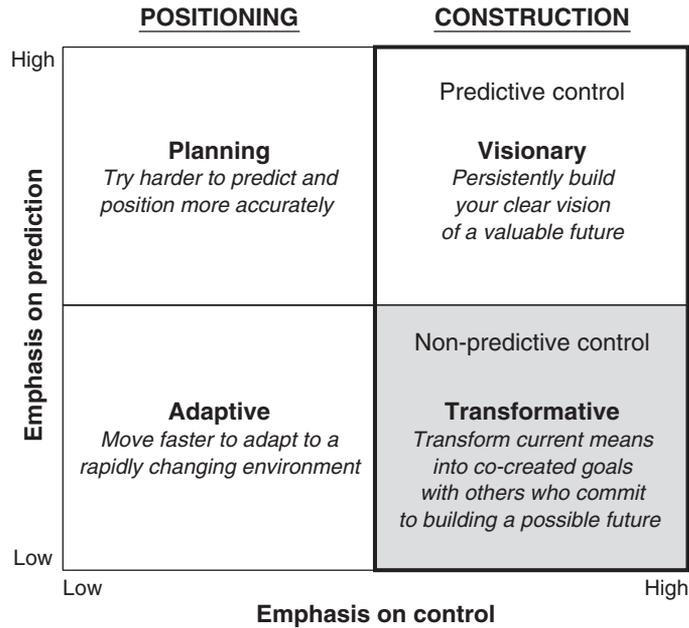
including committing to imagined new futures viable out of current means:
we call this effectual transformation.

The purpose of the framework in Figure 1 is to help us investigate the crucial
question of *what difference it makes* that the design of organizations also
involves the design of environments. We undertake this investigation by com-
paring and contrasting the four design approaches by constructing alternative
(imagined) histories for Starbucks. The notion of alternative histories is a rela-
tively new analytical tool, but it has deep roots both in the philosophical tradi-
tion of using thought experiments and in mathematical simulation techniques
(Folger and Turillo 1999). Simon (1998: 244–5) too urged economists to use
alternate histories (à la 'What would have happened had Cleopatra's nose been
a quarter-inch longer?') to develop and test time-dependent theories, as opposed
to time-invariant 'laws' of economics. The basic idea of alternative histories is
that the actual history of an organization such as Starbucks is one of many pos-
sible histories: it is a 'sample' existence that can be considered in comparison
with other alternative histories that Starbucks might have lived out. So, if we go
back in time, and pick any one moment, we can construct alternatives to the
actual history Starbucks experienced. Consider, for instance, the moment
Horward Schultz acquired Starbucks in 1987.

The acquisition of Starbucks by Howard Schultz (with the assistance of his
trusted lawyer, Scott Greenburg; more on that in a moment) was a key juncture
in Starbucks' history. Schultz acquired Starbucks for $4 million and combined
it with his then current venture, Il Giornale, resulting in a coffee bean and
beverage provider with nine retail outlets. Atop reliable demand for premium

coffee and beans in the Seattle area, the business plan articulated growth to 125 stores within five years for the new combined venture. Starbucks brought Schultz new means beyond additional retail presence: a coffee roasting plant, a mail order catalog for the distribution of coffee beans and related infrastructure. In Schultz's own words:

'Scott placed on the table between us the business plan, a hundred page confidential document we had used for the private placement. On its cover were the two logos of Il Giornale and Starbucks. We had written it with meticulous care, spelling out clearly everything I intended to do with Starbucks once Il Giornale bought it. The plans had been our bible for months, and now it had come to life. It was a thrilling moment, the kind you can't believe you are living through. Scott lifted his coffee cup in a toast, his eyes sparkling. "We did it," we said at the same time.' (Schultz and Yang 1997: 100)

This moment when Howard and Scott agreed, 'We did it', is the moment we use to separate out the actual future of Starbucks into our four imagined histories based on the framework in Figure 1. The following four narratives illustrate four hypothetical histories.

Alternate History #1 Based on a Planning (or Causal) Logic

The US market for gourmet coffee was a $400 million niche in 1987. Projections placed market size at $1 billion by 1994. The planning approach to design suggests meticulous implementation of infrastructure and expansion organized to meet the projected growth in demand in order to capture additional share of the premium coffee market. A planning orientation would not question the necessity of targeting the premium coffee market. Any refinements to the model would manifest at a more specific level. What management skills are necessary for Starbucks to mirror or outpace the projected market growth? What internal information systems and physical infrastructure will be necessary, and at what specific points in the growth cycle? How can Starbucks more efficiently deliver premium coffee to an ever-larger customer base? Such questions would consume the team in a planning approach to Starbucks.

This brings us to what kind of an organization a Starbucks designed under a planning logic might look like. Optimized for a specific predicted future, a planning approach should outperform other approaches, given the predictions are correct; but such a design strategy risks expensive failure if the predictions turn out wrong. As the planning organization constantly designs for market growth in the gourmet coffee business, it stands ready to capitalize on the growth when it comes. But what if an unexpected contingency had dramatically affected the US premium coffee market? Imagine, for example, that a new variety of tea from Korea took the US beverage market by storm, siphoning off much of the demand growth for premium coffee; or perhaps McDonald's acquires Peet's, emerging as the dominant competitor in the premium coffee market; or, that a health scare concerning the widespread emergence of coffee-related health problems destroys the growth prospects of the coffee industry? With a myopic focus on gourmet coffee projections, Starbucks might have planned itself into a corner, leading to a potentially catastrophic failure.

Alternate History #2 Based on an Adaptive Logic

The vast majority of coffee consumed in the US market in 1987 was instant coffee or inexpensive canned ground coffee. Based on an adaptive approach, questions driving organization design would revolve around how the firm can reactively position itself within an established but changing environment. Where do consumers buy coffee today? How do consumers prepare coffee today? Who are the current and expected players in the competitive landscape for beans and beverages, and how can we win additional market share from them? The adaptive version of Starbucks' history would produce an artifact dramatically different from the one we know today. What customers wanted in 1987 was premium instant Starbucks coffee on the shelves in grocery stores. An adaptive approach would have given them that. It would have resulted in Starbucks refocussing its business around grocery sales, not retail outlets. The key question an adaptive history draws us to is whether the premium coffee market we know today would have come to exist at all if Starbucks had designed its organization to be adaptive. This results in an interesting revision to one of the most famous arguments for the learning benefits of adaptation, which Mintzberg drew from Pascale's Honda story (Mintzberg 1996; Pascale 1996). According to Mintzberg, Honda planned badly, but learned well. The result was a new market in the US for small motorcycles. But what if Starbucks had learned well? What if Starbucks was well managed with regard to adaptation? The premium coffee market as we know it today would probably not exist.

Alternate History #3 Based on a Visionary Logic

Even prior to Howard Schultz joining or later buying Starbucks, the product vision for Starbucks was to deliver the rich, dark-roasted European coffee experience to the US market. Starbucks designed exclusively to a visionary strategy would be a purist institution. A long list of questions would not even be open to conversation among Starbucks managers under a visionary design approach; they would simply be rejected by an organization designed to strictly fulfill Schultz's original vision. Would Starbucks offer non-coffee products? No. If this was the case then Starbucks' successful joint venture with Dreyer's into Starbucks-branded ice cream products would have never occurred. Would Starbucks have experimented with new beverages that did not meet the vision of the management team? No. Then the firm's astonishingly successful joint venture with Pepsico to produce and market iced Frappuccino drinks (which proved wildly popular in the US and parts of Asia) would have never been brought to fruition. Would Starbucks have allowed individuals other than Starbucks 'partners' to prepare and dispense Starbucks products and more generally the Starbucks experience? No. Then Starbucks coffees would not be available in US grocery stores, thus denying the firm economies of scale and scope in its sourcing, roasting and distribution operations.

Starbucks would not be available in airports, hotels or anywhere else where the company could not directly manage the store operation (these sites are licensed to master franchisees globally). Starbucks still would not offer flavored syrup in coffee, or any low-fat alternatives to whole milk, let alone soy products or chai

(Schultz and Yang 1997). Under this visionary scenario, Starbucks might have a higher satisfaction rating with a hardcore customer niche. The brand might be more exclusive but probably a lot less valuable. And thus the firm's market environment would be notably different because many recent innovations in the US coffee market have been *results* of Starbuck's enterprise, and not its *drivers.*

Alternate History #4 Based on a Transformative (or Effectual) Logic

At inception, Starbucks was created with a transformative approach. While isolated specialty providers of premium coffee existed prior to Starbucks, reliable demand for premium coffee in Seattle had not been established. But once the model proved repeatable, Schultz and his associates were able to take their results to investors and attract money for expansion. What would Starbucks have looked like had Shultz adopted a thoroughgoing transformative approach to organization design? He would have begun by assessing his means. On the date of the merger, new means of expert roasters, bean roasting equipment, additional retail outlets, a new brand, additional people all with expertise, and sheer critical mass all became newly available. Using a transforming approach, he and his team would have begun asking different questions — predominantly, what else can we do with the means now available to us? What can we do today that we could not do yesterday? How might our means be combined in new ways to create new artifacts? What potential partners are knocking on the door to expand our set of means and our opportunity set? And more generally, how can we impact the future in ways valuable to our stakeholders and what they care about?

The imagined history of a transforming Starbucks would include even more creativity than the firm has exhibited in the 'real' history we know. More experiments, some of which fail, but none of which fail at a magnitude that threatens the organization; and others, successful, but taking the organization in some completely different directions. Artifacts created through these questions could range from the mundane to the amazing. Jerry Baldwin, a founder of Starbucks, was also a founder of the Red Hook Microbrewery. Perhaps Starbucks would have created alcoholic coffees and liquors. Given the Italian connection with Il Giornale, Starbucks might have become an importer of other Italian lifestyle products such as kitchenware and household furniture. Starbucks might even have gotten into the music business as a result of customer attraction to the atmosphere created in the retail outlets. Perhaps it would have launched other ventures to leverage consumer attractiveness of 'third places' (Oldenburg 2002), ending up as the largest chain of bars in the US.

Back to the Actual History of Starbucks

The Starbucks we see today is an artifact of organizational design that includes varying degrees of all four elements. Planning was an important element, but so was transformation. In fact, in Starbucks today, coffee liquor, Italian pottery and kitchen utensils, and a variety of jazz, acoustic and custom-designed CDs, *are* all part of the business mix.

The major assumption driving the four hypothetical accounts above is that Starbucks and its environment do, and did, interact with *each other* in important ways. Therefore, different Starbucks designs result in different organizational environments. Organization and environment roll backwards and forwards into each other in an interactive and iterative process, with the 'visible' artifact design being constantly refined and redefined at the interface between its inner environment and its external environment. Alternate histories conspicuously highlight the interaction between different organizational designs and different market designs. By exploring these alternatives, we can see that it mattered how Starbucks chose to approach organization design.

Research Implications

Several authors in the field of organization design have suggested that the field should be more concerned with practice-relevant construction principles and design rules and less concerned with descriptive theory-building. Effectuation represents one such set of principles 'field-tested and grounded' in the practice of entrepreneurial expertise (Van Aken 2004: 219). This bundle of rules specifically deals with emergence, i.e. work in generating new possibilities (Garud et al. 2006: 277). Effectuation may be called a logic because it is a coherent system of principles that are inherently interrelated, internally consistent and collectively independent (i.e. do not rely on ad hoc outside assumptions). It fits in spirit with Romme and Endenburg's (2006: 287) argument in favor of coherent systems of construction principles, and Brusoni and Prencipe's (2006) emphasis on design rules as principles that define and allocate various functions within systems of modules. And finally, it exemplifies Worren et al.'s (2002) notion of *pragmatic validity* in that the principles of effectuation have been found by expert entrepreneurs to pass the test of 'will it work?' rather than just whether it is valid or true in a theoretical sense only (Romme 2003: 558). In sum, effectuation is not merely a *theory*, i.e. a statement about the truth or otherwise of a phenomenon in the world. It is also an internally consistent set of ideas that forms a clear basis for action upon the world.

The ideas we have presented in this paper present several opportunities for future research, both in organizational studies and in design science methods. There is at least one major avenue for synthesis between effectual entrepreneurial practice and findings in organizational design studies. And that has to do with the 'lock-in' effect discussed by Boland and Collopy (2004) in terms of liquid and crystallized states. Romme and Endenburg (2006) found evidence of this in their study of circular design. We suspect a similar moment of crystallization occurs in the development of a new venture into a large and bureaucratic organization, in other words a 'successful' company. The term 'lock-in' refers to the fact that early choices in the design process end up constraining later possibilities in the development of the project or venture. The history of entrepreneurship abounds with anecdotal evidence of this lock-in effect. It is argued, for example, that most high-potential new ventures fail not due to mismanagement or lack of resources or market changes, but due to a falling out

between founding partners. Early partnership agreements often create boundaries that limit later growth possibilities. Venture capitalists therefore end up firing founders in the attempt to break out of these boundaries. It would be interesting to compare venture capital practice with management practices in design projects similarly struggling with lock-in effects.

Another modest contribution we hope to have made through this paper has to do with the use of alternate history methodology in the organizational design setting. We believe that the very notion of 'design' lends itself naturally to the use of alternate history as a research tool. Since design invariably has to do with open-ended possibilities rather than choice between pre-set alternatives, design can almost always be operationalized as the crook from which the tree of history can branch out in a wide variety of ways. Tracing out relevant paths not traversed instead of confining research to the one 'true' history that actually happened could be a very useful tool in developing valuable design criteria and to connect them in meaningful ways to relevant consequences of interest both in theory development and practice. Sometimes, the dog that did not bark is the most valuable clue in solving the mystery.

Scholars embracing a design science approach to organizational studies recognize the importance of putting together organizational 'science' with organizational 'practice' in a rigorous yet useful manner. Our effort in this paper has been to provide an instance of such a fertile collaboration in the new venture setting. It turns out here that the designers of entrepreneurial artifacts not only design new firms, they also design new environments. And when they succeed as designers of lasting ventures, they often end up designing the very environments we live in. And through the design principles they employ they sometimes rebuild the very coordinates of our existence: who we are and who we can become; what we know and what we can learn; whom we interact with and whom we can find no time for.

A design approach to organizational science in this setting, therefore, is particularly crucial not only in highlighting current practice, but also in helping formulate pedagogical endeavors to shape the future of designs and designers alike.

Notes

1   We are grateful to an anonymous reviewer for pointing to the distinction between effectuation and the concept of abduction, which is widely used in the literature on design (Warfield 1994; Margolin and Buchanan 1995). Abduction is inference to the best explanation of a set of facts (Josephson and Josephson 1994; Walton 2005). We think abduction is a cognitive operation that may be related in some ways to the literature on entrepreneurial discovery (Kirzner 1997). Effectuation, on the other hand, is fundamentally premised on action: it is a logic for a stream of actions the entrepreneur undertakes.

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Saras D. Sarasvathy

Saras D. Sarasvathy, Ph.D. is an Associate Professor at the Darden Graduate School of Business Administration. She teaches courses in entrepreneurship and ethics in Darden's MBA and doctoral programs. Her research focuses on the cognitive basis for high-performance entrepreneurship. She has published in various scholarly journals, including the *Academy of Management Review*, *Strategic Management Journal*, *Journal of Business Venturing* and *Journal of Evolutionary Economics*. Her first book, Effectuation: Elements of Entrepreneurial Expertise is being published by Edward Elgar.
Address: Darden Graduate School of Business Administration, University of Virginia, PO Box 6550, Charlottesville, VA 22906, USA.
Email: sarasvathys@darden.edu

Nicholas Dew

Nicholas Dew is an Assistant Professor of Strategic Management at the Naval Postgraduate School, Monterey, CA. His research focuses on entrepreneurial cognition and industry evolution. He has a Ph.D. in Management from the University of Virginia and an MBA from Darden. Before entering academia, he spent eight years working internationally in the oil industry. His work has been published in several academic journals, including *Strategic Management Journal*, *Journal of Business Venturing, Entrepreneurship Theory and Practice*, *Journal of Economic Behavior and Organization*, *Journal of Business Ethics*, *Journal of Evolutionary Economics, Industrial and Corporate Change,* and *Organization Studies*.
Address: Naval Postgraduate School, University Circle, Monterey, CA 93943 USA.
Email: ndew@nps.edu

Stuart Read   Stuart Read is a Professor of Marketing at IMD in Lausanne, Switzerland. His academic credentials include a Ph.D. in Marketing from the University of Washington and a Bachelor's degree in Computer Science from Harvard University. He has nearly 20 years of industry experience, having participated in the creation of six high technology start-up firms. Four of those firms were acquired by industry leaders including Sun Microsystems and Lotus Development Corporation, and two are publicly traded. Stuart also spent 6 years with enterprise database software provider, Oracle Corporation. Stuart's research interests revolve around new ventures and innovation, specifically investigating expertise in the entrepreneurial domain, marketing of innovations with net-work externalities, and non-predictive strategies that enable managers to effectively make decisions in situations of true uncertainty.
Address: IMD, Chemin de Bellerive 23, P.O. Box 915, CH-1001 Lausanne, Switzerland.
Email: Stuart.Read@imd.ch

Robert Wiltbank   Robert Wiltbank is Assistant Professor of Strategic Management for the Atkinson Graduate School of Management at Willamette University. His research focuses on strategy making under uncertainty, particularly as it relates to venture development. He has published research on top management teams in *Organization Science*, on non-predictive control strategy in the *Strategic Management Journal*, and on formal venture capital practices among angel investors in *Venture Capital*. He holds as Ph.D. in Strategic Management from the University of Washington, and a degree in Finance and Accounting from Oregon State University.
Address: Willamette University Atkinson Graduate School of Management, Salem, OR 97301, USA.
Email: Wiltbank@Willamette.edu