

# Marketing Under Uncertainty: The Logic of an Effectual Approach

How do people approach marketing in the face of uncertainty, when the product, the market, and the traditional details involved in market research are unknowable *ex ante*? The authors use protocol analysis to evaluate how 27 expert entrepreneurs approach such a problem compared with 37 managers with little entrepreneurial expertise (all 64 participants are asked to think aloud as they make marketing decisions in exactly the same unpredictable situation). The hypotheses are drawn from literature in cognitive science on (1) expertise in general and (2) entrepreneurial expertise in particular. The results show significant differences in heuristics used by the two groups. While those without entrepreneurial expertise rely primarily on predictive techniques, expert entrepreneurs tend to invert these. In particular, they use an effectual or nonpredictive logic to tackle uncertain market elements and to coconstruct novel markets with committed stakeholders.

**Keywords:** effectuation, uncertainty, expertise, service-dominant logic, cocreation

[Service-dominant] logic suggests that organizations exist because the entrepreneur, with his or her bundle of skills, is able to (1) envision service that people want and will pay to obtain and (2) integrate together microspecialists to offer and provide this service. In this sense one of the most important operant resources in society and the economy is the entrepreneurial spirit, and mental skills of the individual entrepreneurs and their collectivity. (Vargo and Lusch 2006, p. 53)

Consider the following scenario: A knock on the door. “Good morning, Professor. I was in your modeling course. I just got a job offer to run marketing for a startup. Though uncertain, it looks like an exciting opportunity, and I hope you can introduce me to some best marketing practices in this setting because I haven’t done anything like it before.”

There is little theoretical foundation for a normative articulation of how marketing strategy decisions should be

made in situations of uncertainty.<sup>1</sup> Uncertainty is an attribute not only of entrepreneurial settings but also of virtually every environment in which marketing occurs today. Drivers of this trend toward market volatility and uncertainty include market fragmentation, competitive pressures, and new customer tastes (e.g., various kinds of ideological concerns, such as those for “green” products and services).<sup>2</sup> The traditional market definition and segmentation using market research, based on what Vargo and Lusch (2006) call goods-dominant logic, is problematic when the market is nebulous and the data are anecdotal. Although their alternative paradigm, service-dominant logic, is extremely optimistic about the role of the entrepreneur (as evidenced in the opening quotation of this article), it offers little normative guidance as to how to *do* marketing in the face of uncertainty.

In this article, we begin to fill the gap between existing marketing tools and the needs of managers who face uncertainty by giving a representative task to people with related real-world expertise and comparing their strategies with those without such experience. The theoretical lens we use to focus our research design comes from entrepreneurship—in particular, a cognitive science-based logic of entrepreneurial expertise called “effectuation.” Effectuation has substantial overlaps and synergies with recent developments in marketing theory as represented in the conversations (e.g., Levy 2006) stemming from Vargo and Lusch’s (2004, 2008a, b) exposition of service-dominant logic. Throughout this article, we strive to clarify and connect key themes from both effectuation and service-dominant logic, with a view to cocreating value in the contribution of each to the history of ideas and the practice of marketing.

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<sup>1</sup>However, there is useful “practitioner” literature on this topic (see, e.g., Jagpal 1998).

<sup>2</sup>We thank a reviewer for pointing out the more general applicability of marketing under uncertainty.

We begin by introducing effectuation (Sarasvathy 2001a) as a specific logic under the larger umbrella of decision making under uncertainty. We also trace effectuation's roots in the general literature on cognitive expertise and then outline its particular implications for marketing under uncertainty. We do this first through a review of psychological research on expertise, followed by the development of hypotheses related to marketing under uncertainty, which we then empirically test against a contrasting sample of (1) managers with little entrepreneurial experience but training in normative marketing research and (2) expert entrepreneurs with significant new venture experience.

The crux of our conceptualization of "uncertainty" consists of Knight's (1921) demarcation of it into known, unknown, and unknowable distributions. The known and the unknown, both in theory and in practice, are conventionally tackled using predictive techniques. Recent literature on entrepreneurial expertise (Read and Sarasvathy 2005) has claimed that the unknowable can be tackled using effectual logic, which eschews prediction. Our aim is to take a first step toward applying this nonpredictive logic to marketing in any firm—large or small, new or old—faced with making marketing decisions under uncertain, unknowable conditions. Therefore, we derive a set of propositions on how expert entrepreneurs using effectual logic and managers schooled in contrasting predictive techniques differentially solve marketing problems in uncertain situations.

We use comparative verbal protocol analysis to test our propositions (Ericsson 2006; Ericsson and Simon 1993). This method involves presenting expert entrepreneurs and a comparison sample of managers who have little entrepreneurial expertise with a hypothetical business scenario in which they think aloud continuously as they (1) envision products/services that people might pay for and (2) make specific marketing decisions, such as selection of target segments, channels, and pricing. The results show that while managers follow the predictive techniques presented in traditional marketing textbooks, expert entrepreneurs often invert these techniques through effectual logic. The fundamental difference in the way the two groups make decisions is embodied in a set of heuristics that is internally consistent and thus provides a clear, normative logic for making marketing decisions under uncertainty. Moreover, this logic has much in common with the evolution of a new paradigm in the discipline of marketing.

## Literature Review

### ***Effectuation: A Logic of Entrepreneurial Expertise***

Developed as a baseline against which to evaluate entrepreneurial expertise, effectuation inverts several principles that are central to normative theories of predictive rationality. Particularly in the second half of the twentieth century, predictive rationality had been questioned. Simon's (1991) assault on its empirical validity, based on the cognitive bounds of the human mind, inspired research on heuristics and biases that deviated from rationality. Effectuation research was inspired by Simon's work and was developed in close collaboration with him (Sarasvathy 2002; Saras-

vathy and Simon 2000). While bounded rationality has been construed by some researchers as a subset of predictive rationality, and the vast literature on heuristics and biases is considered a set of deviations from rationality, effectuation is an inversion of predictive rationality. In short, as Sarasvathy and Simon (2000, p. 5) note, effectuation turns predictive rationality upside down to answer the following question: "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)?"

A static outline of the theory can be found in Sarasvathy's (2001a, b) work, and its dynamics have been worked out by Sarasvathy and Dew (2005a). Applications of an effectual logic to firm strategy are examined in Wiltbank and colleagues' (2006) work, and a book-length exposition can be found in Sarasvathy's (2008) work. For the purposes of our study, we begin with a concise summary of effectuation, including five key constructs that differentiate it from normative theories on the basis of predictive rationality (see Table 1).

Effectuation inverts the fundamental principles, solution process, and overall logic of predictive rationality. Predictive rationality rests on a logic of foresight—that is, to the extent that people can predict the future, they can control it. Effectuation rests on a logic of nonpredictive control—that is, to the extent that people can control the future, they do not need to predict it. Predictive rationality takes the environment as largely outside the control of the decision maker, who therefore attempts to predict and adapt to changes in it. In an effectual view, the environment is endogenous to the actions of effectuators, who therefore attempt to cocreate it through commitments with a network of partner, investor, and customer stakeholders. Effectuation also specifies three types of intangible resources with which the effectuator cocreates new ends (i.e., new firms, products/services, and markets) through an iterative and interactive process of stakeholder acquisition. Figure 1 graphically presents this process, and we describe it in more detail in the next section. The point to note is that, as with service-dominant logic, effectual logic is "focused on intangible resources, the co-creation of value, and relationships" (Vargo and Lusch 2004, p. 1). Before we describe other overlaps and distinctions between effectuation and predictive logic, we provide empirical examples to illustrate our theoretical exposition.

### ***Predictive Rationality and Effectuation: Empirical Examples***

In Table 1, we present a series of constructs from predictive rationality that are inverted in effectuation. A major thread of research in entrepreneurship sets out a predictive process that begins with the identification, recognition, or discovery of an opportunity, followed by a series of tasks that include (1) developing a business plan based on (2) extensive market research and (3) detailed competitive analyses, followed by (4) the acquisition of resources and stakeholders for implementing the plan, and then (5) adapting to the environment as it changes over time with a view to (6) creating

**TABLE 1**  
**Differences Between Predictive and Effectual Thought**

Issue	Fundamental Principles		Solution Process
	Predictive Approach	Effectual Approach	Key Managerial Questions Under Uncertainty
View of the future	Predictive: Predictive logic casts the future as a continuation of the past. Accurate prediction is both necessary and useful.	Creative: The future is cocreated (at least in part) by willful agents, which may include investors, partners, and customers who “precommit” to the venture.	<i>Is your environment stable enough that you can reliably base future actions on data from the past?</i> If the answer is no, concentrate your effort on actions that will create an environment in which your firm will have an inherent advantage or a leadership position, instead of building elaborate forecasts.
Basis for taking action	Goal oriented: Goals, even when constrained by limited means, determine subgoals and actions.	Means oriented: Goals emerge by imagining courses of action that begin from available means.	<i>Have you made an inventory of your means?</i> This is the starting point for taking action under uncertainty, so list what you have, what you know, and who you know and put these assets to work.
View of risk and resources	Expected return: Pursue new opportunities based on the (risk-adjusted) expected value. The focus is on the upside potential.	Affordable loss: Pursue satisfactory opportunities without investing more resources than stakeholders can afford to lose. Limit downside potential.	<i>Have you examined the worst-case scenario and considered mechanisms to outlive it?</i> Failure is likely in uncertainty. Make small bets, so when you fail, it is not catastrophic, and you can incorporate the learning into the next iteration of the opportunity instead of having to terminate the project.
Attitude toward outsiders	Competitive analysis: Protect what you have and maximize your share of the opportunity.	Partnerships: Share what you have with committed partners because relationships (particularly with shared rewards) shape the trajectory of the opportunity.	<i>Who can and will create this opportunity with you?</i> And how can you gain their commitment? This means finding partners with complementary skills or assets and being willing to share in the upside with them so they will engage to create the opportunity with you.
Attitude toward unexpected events	Avoid: Surprise is bad. Prediction, planning, and focus enable the firm to minimize the impact of unexpected events.	Leverage: Surprise is good. Imaginative rethinking of possibilities transforms the unexpected into new opportunities.	<i>Are you looking for positive surprises?</i> Look at surprises not from the perspective of how they upset your existing plans but rather how you can shift actions so that you are, or will be, the beneficiary of a surprise.

Source: Sarasvathy and Dew (2005a).

and sustaining a competitive advantage (Gartner 1985; Varadarajan and Jayachandran 1999). In this predictive view, if a manager with little entrepreneurial expertise wanted to open a restaurant, he or she would begin by identifying a high-potential location, analyzing the competition in the area, identifying particular target segments, developing marketing strategies to fit the targets, obtaining necessary funding, hiring the appropriate chef to develop the right menu, and then opening the doors to the restaurant.

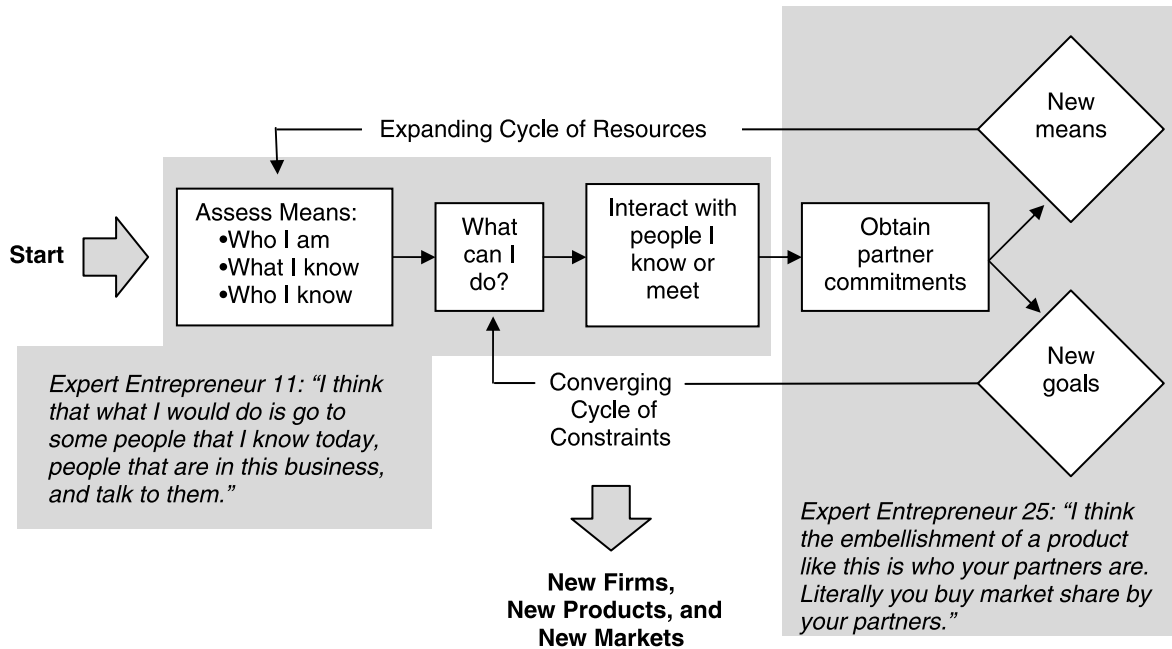
In contrast, as Figure 1 shows, effectuators would begin with the means available. According to who they are, what they know, and who they know, they would begin with a list of things they can afford to do. In the restaurant example, the effectual entrepreneur may or may not begin with a location; this would depend on who the effectuator is. If the effectuator is a cook, he or she may forgo identifying high-potential locations and just hire him- or herself out as a chef who does house calls—it depends on what the chef can afford to invest in terms of money, time, and emotion. He or

she would start by calling people he or she knows and putting together commitments from partners. For example, if the chef knew a grocery store owner, he or she might make dishes for the deli, or if the chef knew someone in the popular media, he or she might produce cooking videos, and so on. The nature of the venture depends on which stakeholders come on board and the contingencies that occur along the way. Using this stakeholder-dependent process, the effectuator sets in motion two contrasting cycles. The first is an expanding cycle that increases the resources available to the venture, and the second accretes constraints on the venture that converge into specific goals over time.

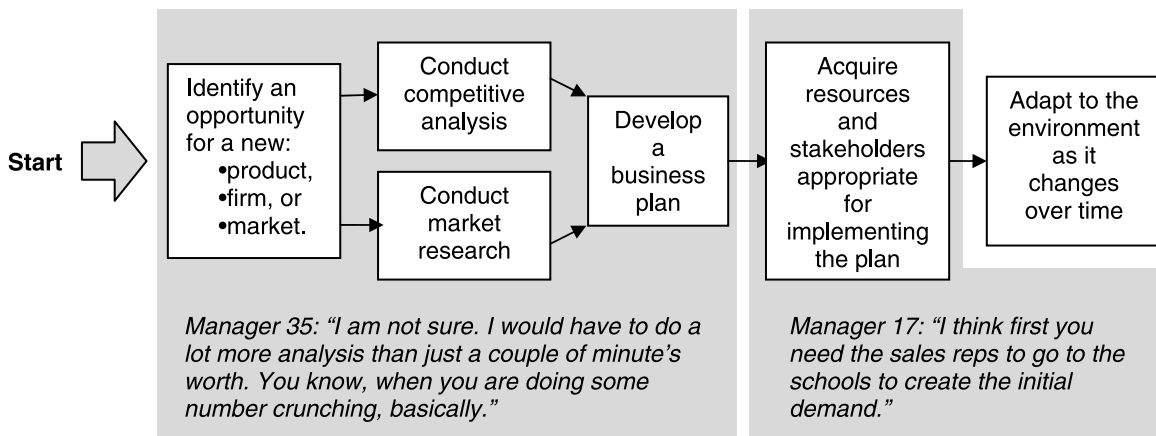
The result of the predictive process is determined by the initial “opportunity” identified and the adaptive changes made in marketing strategy over time to fit a preselected “market” and/or “vision.” The end product in effectuation is fundamentally unpredictable at the beginning of the process. Indeed, the opportunity and even the market itself

**FIGURE 1**  
**The Effectual Process (Sarasvathy and Dew 2005b) Contrasted with the Predictive Process (Adapted from Gartner 1985) Illustrated with Select Transcript Quotes**

**A: The Effectual Process**



**B: The Predictive Process**



can be an outcome of and generated through the very process of effectuation. In other words, both market and opportunity are contingent on who comes on board and the actions and goals they enable and constrain; initial goals and visions of an opportunity seldom determine who comes on board or what resources are gathered under an effectual approach.

The exaggerated dichotomy we describe here creates a powerful theoretical separation between effectuation and predictive rationality. Empirically, both predictive and effectual processes may be at work in tandem. Therefore,

we expect the data to contain decisions and actions that confound the two. Yet preliminary investigations in expert entrepreneurial decision making (Sarasvathy 2001b) and early-stage investing (Wiltbank et al. 2009) indicate that strong patterns of effectual and predictive decisions can be isolated. In the current study, we apply these principles of effectual expertise to specific marketing problems under uncertainty. To do this, we need to grasp the methodological roots of effectuation in the larger literature on cognitive expertise and trace its theoretical connections to conceptions of uncertainty. We turn to these tasks next.

## **Expertise**

Investigation of expertise using modern approaches began approximately 30 years ago, focusing on understanding chess masters (Chase and Simon 1973).<sup>3</sup> Despite expectations to the contrary, early studies of expert chess players concluded that intelligence had no correlation with chess mastery (Doll and Mayr 1987). Expert players had learned unique ways of storing information (Butterworth 2006), perceiving problems, and generating solutions (Gobet and Charness 2006; Greeno and Simon 1988). While early empirical efforts focused on chess, subsequent work has validated and expanded these findings to more dynamic and complex settings, such as medicine (Norman et al. 2006; Rikers et al. 2002), fire fighting (Klein 1998), software development (Sonnentag, Niessen, and Volmer 2006), and consumer decision making (Alba and Hutchinson 1987). Experience alone does not develop the unique decision-making heuristics observed in experts (Camerer and Johnson 1991). Evidence of superior performance is also necessary, and though expert intelligence is not subject to age-related decline (Masunaga and Horn 2001), expert decision-making heuristics can be negatively affected by biases, particularly those involving prediction of outcomes (Shanteau 1992).

## **Managerial Expertise in Marketing**

Scholarship in marketing has largely ignored the role of managerial expertise. In the earliest piece identified in our search, Larreche and Moinpour (1983, p. 119) show that experts “provide significantly better estimates than those obtained by other approaches,” but they go on to lament that “the relevant issue, of course, is identifying ‘experts.’” Given the strength of their findings, we were surprised to locate only four subsequent pieces on the topic. In chronological order, Sujian, Sujian, and Bettman (1988) demonstrate more sophisticated knowledge structures in expert salespeople than in those with less experience. Perkins and Rao (1990) show that higher levels of uncertainty surrounding a problem increase the positive impact of experience on performance. Spence and Brucks (1997) argue that the greatest difference between expert and novice performance exists when a task is ill-structured but that performance is reasonably similar for well-structured and completely unstructured tasks. The most recent work we found on marketing expertise argues that entrepreneurs with more experience are better able to make use of information inputs, such as marketing data and marketing management support systems, than their peers with less experience (VanBruggen, Smidts, and Wierenga 2001).

## **Entrepreneurial Expertise in Uncertainty**

According to Hebert and Link (1988), since the earliest history of economic thought on entrepreneurship, it has been inextricably intertwined with uncertainty. In short, entrepreneurial expertise equals expertise in uncertainty. The canon-

ical thesis on this equality can be found in Knight’s (1921) seminal work on the relationship between profit and unpredictability. “Knightian” uncertainty removes the assumption that phenomena can be modeled and predictions can be accurately made based on historical data. Situations in which the past is not a reliable predictor of the future are where our work finds its home because effectuation provides heuristics that use the nonpredictive techniques that are characteristic of expert decision making in entrepreneurial settings. To apply effectuation to marketing under uncertainty, we need to connect both its roots in expertise and its branches in heuristics to hypothesize how to overcome uncertainty in explicit marketing decisions. We take up this task in the next section.

# **Propositions**

## **Effectuation, Expertise, and Marketing Strategy**

The central concept in effectuation is the logic of nonpredictive control. Therefore, our central proposition based on effectuation is related to the use of predictive information:

Expert entrepreneurs are likely to ignore or underweight predictive information in making marketing decisions in the new venture setting, instead relying on strategies that enable them to directly control, cocreate, and transform situations toward positive outcomes.

Merely on the basis of symmetry, we can argue that managers without entrepreneurial expertise would do the opposite—that is, rely on predictive information to make marketing decisions. This argument is also borne out by common sense and published evidence. Normative work, offered in textbooks (Kotler and Armstrong 1999) and popular literature (Ries and Trout 1985), has largely followed the old dominant logic in marketing. This has meant applying predictive approaches based on market research and competitive analysis to the development and execution of marketing strategies to achieve the highest possible returns and market share for existing and new ventures.

As Vargo and Lusch (2004) describe, at least part of the reason for the way concepts and theories in marketing have developed over the twentieth century is rooted in the macroeconomics of exchange of physical and manufactured goods and the microeconomics of profit maximization by the firm. Understandably, the empirical bases for this theoretical evolution are studies of large and/or established corporations operating within well-defined or mature markets. Despite rising discontent in the last decade of the twentieth century, evidenced in calls for a new paradigm (Achrol 1991; Day and Montgomery 1999; Sheth and Parvatiyar 2000; Webster 1992), most basic marketing courses in business schools continue to emphasize the four Ps (price, product, promotion, and placement) and various tools designed to predict demand better and analytically capture predetermined markets instead of the cocreation of both through innovative deployments of operant resources in ongoing relationships between marketing stakeholders.

In summary, although we cannot be sure what the average person on the street, utterly unschooled in marketing, might do when faced with a marketing decision, we can

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<sup>3</sup>De Groot ([1946] 1978) began sporadic work on the topic as early as 1946.

expect that the manager who is trained in normative marketing (whether acquired formally in a business school or through the popular press) but does not possess entrepreneurial expertise is likely to take predictive information seriously and invest in it heavily.

As our next task, we attempt to provide sturdy legs to support this broad central hypothesis, legs consisting of particular heuristics that are relevant to marketing decisions under uncertainty. We draw from both the larger literature on general expertise and the more specific literature on entrepreneurial expertise. The first four propositions stem from an integration of effectuation with the expertise literature. The final three relate effectuation heuristics to predictive principles of marketing. After we describe the data, analysis, and results involved in testing these hypotheses, we turn to an in-depth discussion of how an alternative set of prescriptions for marketing under uncertainty based on effectual logic may cohere and cumulate with recent new developments, including Vargo and Lusch's (2004) notion of a service-dominant logic, Hunt and Morgan's (1997) resource-based arguments, Jaworski and Kohli's (2006) cocreation perspective, Rust, Lemon, and Zeithaml's (2004) conceptualization of customer equity, and Berthon and John's (2006) seven value dimensions of interactions as perceived by clients.

### **Hypotheses Based on Expertise in General**

*Market research.* The first proposition stems directly from our central hypothesis based on effectuation; namely, expert entrepreneurs likely ignore predictive information. This proposition is reinforced by the literature on expertise in general. Experience and deliberate practice are the sources from which experts develop much of their knowledge (Ericsson 2006). In contrast, those without experience rehearse skills in the context of "classroom" or practice problems, divorced from the actual domain of decision making (Schenk, Vitalari, and Davis 1998). This distinction is critical. Managers with limited exposure to real-world problem solving have little of the episodic knowledge that is at the disposal of expert entrepreneurs, resulting in distinctly different problem-solving approaches.

Because expert entrepreneurs spend more time trying to understand decision problems and have refined perceptual abilities based on intensive practice and familiarization in their domain (Hutton and Klein 1999), they are more likely to define carefully the relevant features of decision problems and, consequently, are less likely to rely on predictive information. Experts also process and organize significant bodies of knowledge (Glaser 1996) necessary to make good decisions without a great reliance on external inputs, particularly predictive ones (Rikers et al. 2002). Instead, experts have learned to filter information automatically from external sources (Leifer 1991), validating it against patterns from previous experiences (Chase and Simon 1973).

In marketing management, this limited reliance on predictive information is an important factor distinguishing expert entrepreneurs. They have an ability to judge typicality on the basis of their store of patterns built over years of

deliberate practice. They recognize environments in which the value of predictive information is low, both because such information is perishable in fast-moving uncertain environments and because this information does not account for the impact of actions they will take (Van Heerde, Dekimpe, and Putsis 2005). As George Bernard Shaw once said, "In literature, the ambition of the novice is to acquire the literary language; the struggle of the adept is to get rid of it." Similarly, in uncertain situations, managers without domain-specific experience learn the textbook tools of market research, while expert entrepreneurs seek alternatives. Therefore, although some managers may have great stores of semantic or factual knowledge of a domain, they may lack practical experience in dealing with uncertainty. Given the predominant emphasis of research and textbook literature on using predictive information, such as historical market data to build sophisticated models, we expect the following:

P<sub>1</sub> (market research): When making marketing decisions in an uncertain business situation, people higher in entrepreneurial expertise are more likely to be skeptical about market data, while those lower in entrepreneurial expertise are more likely to take market data as given and credible.

*Prior experience and analogical reasoning.* The knowledge mechanisms that expert entrepreneurs substitute for market research is the subject of our next proposition. Through deliberate practice, experts have, among other things, developed a database of patterns that they can access when solving future problems (Gobet and Simon 1996). The question is whether entrepreneurial experts will actually apply this unique knowledge to the modeling of solutions for problems in the uncertain situations of product development and market creation as do chess and computer-programming experts to their tasks (Adelson 1984). From prior work, we know that experts automatically store information according to outcomes (Ericsson and Kintsch 1995). Because experts match and recognize stored patterns against existing situations (Reingold et al. 2001), they are likely to retrieve strategies they know they can implement (Kalakoski and Saariluoma 2001). For example, in their think-aloud protocol study of real-world industrial designers, Dahl and Moreau (2002) show the importance of pattern recognition and analogical reasoning in new product development. From a summary of this work, which includes variation in the indicators of expertise, we expect that while managers are likely to use problem data as the basis for taking action, expert entrepreneurs build strategies that draw on analogies to prior experience. Formally,

P<sub>2</sub> (prior experience): When making marketing decisions in an uncertain business situation, people higher in entrepreneurial expertise are more likely to use analogical reasoning based on experience than those lower in entrepreneurial expertise.

*Affordable loss.* Expert entrepreneurs are also likely to differ from managers in how they employ available resources. Effectuation suggests that expert entrepreneurs know through past experience and actual practice that success cannot be predicted when facing uncertainty but that

the occurrence of failure can be significantly controlled (Sarasvathy 2001a; Sarasvathy and Menon 2003). Affordable loss refers to the tendency of expert entrepreneurs to evaluate an investment according to whether they could survive the total failure of an initiative. A preference for the cheapest, if not free, options and for quickly realized small successes and small failures tends to dominate. In contrast, the predictive method of forecasting expected values and selecting initiatives according to their predicted worth considers investment requirements only against possible returns. By taking action based on affordable loss rather than on predicted values, the risk involved in any one action cannot put an entire project in jeopardy. Although this tactic may have unintended consequences, such as underinvesting in attractive options or moving too quickly down unproductive paths, it provides a means of achieving some control over the occurrence of failure. Using protocol analysis, Mukhopadhyay, Vicinanza, and Prietula (1992) present empirical evidence from a panel of experts in software project cost estimation who employ this heuristic and produce superior performance to mathematical models and computer simulations. As a result, we expect the following:

P<sub>3</sub> (affordable loss): When making marketing decisions in an uncertain business situation, people higher in entrepreneurial expertise are more likely to consider how much money they have and what the effort is going to cost than those lower in entrepreneurial expertise.

*Decision framing.* The task of building new organizations, product innovations, and/or new markets is nontrivial. In general, experts have acquired a highly adapted set of cognitive skills and a deep understanding of the nature of their own problem domain (Bettman and Sujan 1987; Ericsson and Charness 1994). Because of the uncertainty associated with tasks in the domain of new firm, product, or market creation, how decision makers frame problems is critical. Studies of the organization of information by experts and novices show that experts approach problem situations with more understanding than novices. Experts are more likely to frame problems comprehensively, using a top-down framework or schema, within which they contextualize specific decisions and link them to other decisions. In contrast, novices tend not to frame problems within a conceptual scheme but rather approach them from the bottom-up and according to surface characteristics rather than their underlying structures (Mackay and Elam 1992). Experts' ability to group problems into fundamental categories and relate them to other decisions results in knowledge architectures that link multiple occasions of connected decisions in the task domain over time, with feedback and interpretation. This capability of expert entrepreneurs to frame and contextualize problems inherent in marketing a new product or new venture leads us to expect the following:

P<sub>4</sub> (decision framing): When making marketing decisions in an uncertain business situation, people higher in entrepreneurial expertise are more likely to explicitly visualize building a whole business, while those lower in entrepreneurial expertise are more likely to make isolated marketing decisions.

## ***Hypotheses Based on the Marketing Mix***

We now focus attention on applying effectuation to a specific mix of marketing activities. In each area, we theorize about expert entrepreneurial strategy as guided by effectuation and contrast it with a representative practical expectation from current marketing texts or literature.

*Market and product.* Expert entrepreneurs' experience and practice in uncertain new venture settings teaches them that market targets and product offerings can be considerably transformed along the path from concept to acceptance. Thus, value proposition change is a pattern that experts are accustomed to and actively embrace (Sarasvathy and Kotha 2001). In contrast to this view is the textbook prescription from the old dominant logic in marketing that advises beginning with the selection of a target market for a predefined product or service and proceeding to build elements of price, promotion, and placement around that product or service (Kotler and Armstrong 1999). Theoretical arguments for feedback loops in which the product is generated by the process (Vargo and Lusch 2004) and even exhortations to move to a network perspective (Achrol and Kotler 1999) exist. Yet empirical evidence demonstrates that adherence to well-defined product offerings is still the norm; for example, Biyalogorsky, Boulding, and Staelin (2006) explain why marketing managers persist with their offering even when the product has failed in the market. Consequently, we expect the following:

P<sub>5</sub> (market and product): In an uncertain business situation, people higher in entrepreneurial expertise are more likely to consider more alternative markets, even if the option necessitates product or strategy change, while those lower in entrepreneurial expertise are more likely to accept target markets and products as given.

*Pricing.* Confounding prescriptions from traditional marketing literature make pricing a dilemma. On the one hand, producers have incentives to underprice products early on in the hope of penetrating the market, driving adoption (Katz and Shapiro 1986; Rogers 1995), and capturing value later in the cycle. On the other hand, they have contradictory incentives to "skim" profits from early adopters who are typically less price sensitive (Kotler and Armstrong 1999; Nagle and Holden 1994). What is likely to separate expert entrepreneurs from less experienced managers is both the process by which they arrive at the pricing decision and the outcome of the decision. Expert entrepreneurs approach the pricing issue "locally," according to information gained from their interactions with stakeholders (Sarasvathy 2001a). They learn the value that each customer derives from an evolving value proposition and how this value is derived, and they generalize price as the process unfolds. Because managers with less entrepreneurial experience are likely to develop pricing based on segmentation ideas and the target market they preselect, their pricing approach needs to be relevant to the chosen customer segment. Indeed, pricing is often a factor that describes the segment itself. Consequently, managers are likely to set prices in terms of a "lowest common denominator" for a given segment, while expert entrepreneurs are

likely to price on the basis of the highest level of value they have uncovered through interactions with individual customers (see Berthon and John 2006).

*P<sub>6</sub>* (price): In an uncertain business situation, people higher in entrepreneurial expertise are more likely to price higher to capitalize on the value they have identified to a specific customer (skim pricing), while those lower in entrepreneurial expertise are more likely to price lower to penetrate entire target segments (penetration pricing).

*Channel.* Effectuation predicts that expert entrepreneurs are cognizant that successful ventures involve complete and complex webs of stakeholder relationships, with stakeholders bringing resources and ideas to a new venture as well as obligations (Sarasvathy 2001a). We expect that expert entrepreneurs will build stakeholder relationships directly, one step at a time, as part of the process of creating a market, firm, or product. A result of this effort is that experts will generate rich, firsthand knowledge related to the effort and will quickly have a sense of whether the business has real promise. However, this practice will also color the way they approach distribution of the product because relationships will create the market. As a result, we expect that the channel strategy the expert entrepreneurs use will be contingent on partnerships and therefore will be relatively narrow. In contrast, managers will sell to as many segments as they rationalize to be profitable through channels that have broad reach and appeal.

*P<sub>7</sub>* (channel): In an uncertain business situation, people higher in entrepreneurial expertise are more likely to develop a focused channel strategy around partnerships to serve a narrow customer group, while those lower in entrepreneurial expertise are less focused, selling to more segments through more channels and being less dependent on partnerships.

## The Study

### Method

First, we operationalized expertise as a set of criteria for sample selection. Second, we developed a research instrument to present an uncertain situation and to capture the information-seeking tasks involved in discovering and/or creating the market for a new product. Third, participants completed the think-aloud task, and their concurrent verbal protocols were collected. Fourth, we coded, analyzed, and reported protocols.

### Protocol Analysis

Because our objective was to understand the heuristic differences in decision making associated with entrepreneurial expertise, we selected the method of concurrent verbal protocol analysis. Pioneered largely in psychological studies of expertise, this approach calls for analysis of the transcripts of participants thinking aloud during problem-solving tasks. As designed, the intent of the method was to gain insight into real-time cognitive processing (Ericsson and Simon 1980), initially using the game of chess (Charness 1989). The method was designed to minimize the bias associated with retrospective recall and to gain visibility into the

decision-making steps often obscured using stimulus-response methods, which analyze only decision outcomes, not processes.<sup>4</sup> Some examples of protocol analysis studies in entrepreneurship include venture capitalist investment selection criteria (Hall and Hofer 1993) and entrepreneurial decision framing (Dew et al. 2009). Examples in marketing include consumer choice processes (Cooper-Martin 1993), pretesting questionnaires (Bolton 1993), brand extension (Boush and Loken 1991), and retail sales projections (Cox and Summers 1987).

### Participants

Our study includes a sample of 27 expert entrepreneurs and 37 managers with little entrepreneurial experience, with a robustness check using 34 executives. We operationalized expert entrepreneurs as having founded one or more firms and having remained with at least one of the ventures through ten years of operation, the initial public offering, and the achievement of a minimum of \$200 million in annual revenues. These criteria ensured that our expert entrepreneurs spent the required amount of time in domain-specific deliberate practice, achieved an extraordinary level of performance in a situation, and thus could be considered experts (Ericsson and Lehmann 1996). We identified these experts by combining a list of the 100 most successful entrepreneurs from 1960 to 1985 (Silver 1985) and the list of national winners of the Entrepreneurs of the Year awards, compiled by Ernst & Young. The expert entrepreneur sample contains broad industry diversity, ranging from transportation to medical devices and consumer products, and all the entrepreneurs are men. The sample is 90% American, ages range between 40 and 82 years, and two-thirds have advanced degrees. On average, participants founded seven firms.

Our requirements for a comparison sample of managers included (1) having sufficient knowledge to address the questions in the research instrument but (2) not having entrepreneurial expertise. We selected 37 graduate students in business administration. Participants are 97% American, ages range between 26 and 46 years, and their experience lies primarily in large organizations. As with the experts, they have diverse industry backgrounds, including acquisitions and procurement, supply and logistics, human resources, operations, and medical services. Only 1 had started multiple ventures (two ventures), and 87% had never been part of a start-up.

The choice of MBA students as a comparison sample follows a precedent of using students in expertise experiments from psychology (Lehmann and Norman 2005) as well as in marketing research (Armstrong and Collopy

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<sup>4</sup>This is particularly problematic for experiments that are sufficiently simple so that a participant can generate the solution in his or her head (Ericsson and Simon 1993). If the solution can be generated in a single step, the researcher will fail to see into the "black box" and will consequently not gain insight into the process of cognitive processing. Because our scenario has no correct answer and offers participants a nearly infinite solution set, we believe that we have mitigated this risk, thus gaining meaningful insight into the heuristics of expert entrepreneurs. We appreciate a reviewer for suggesting this.



1996). To conduct an additional robustness check on the uniqueness of our expert entrepreneur sample—namely, to ensure that the differences we observed are indeed due to their entrepreneurial expertise—we validated our findings against a second sample of 34 executives with an average of more than 14 years of experience and senior positions at major multinational firms spanning functions, industries, and geographies but without any significant new venture experience. Business executives differ from expert entrepreneurs on all the same dimensions as the students, except for pricing and use of personal selling.

### **Research Instrument**

Participants were administered the instrument individually, in a standardized format. Then, they were provided a detailed written description of an imaginary game of entrepreneurship called “Venturing.” After participants finished reading the description, they were presented with the following five written questions and asked to read the questions aloud; this ensured that they all experienced the questions in the same order and format:

1. Who could be your potential customers for this product?
2. Who could be your potential competitors for this product?
3. What information would you seek about potential customers and competitors? List questions you would want answered.
4. How will you find out this information? What kind of market research would you do?
5. What do you think are the growth possibilities for this company?

After responding to the first five questions, participants were presented with two pages of market research information related to the opportunity for the Venturing product. After reviewing the information, participants received the following three additional written questions, again in a standardized format and order:

1. Which market segment/segments will you sell your product to?
2. How will you price your product?
3. How will you sell to your selected market segment/segments?

A professional service recorded and transcribed the entire interaction. All participants were asked to commit a minimum of 30 minutes to the experimental task. All the participants completed the interaction without time pressure, and members of both groups remarked that they found both the scenario and the questions to be engaging and representative of the kinds of issues they faced or might expect to face in the context of creating a new opportunity.

### **Coding**

We developed a coding scheme to extract relevant variables and counts using the helix process that Ericsson and Simon (1993) describe. This process generates scheme items along a particular axis, such as the dimensions of expertise in general and marketing decisions in particular, using sequential coding iterations. The iterations began with one of the principal investigators randomly selecting two expert entrepreneur and two manager protocol transcripts and creating a

list of specific scheme items. The same researcher expanded the list by adding items from other protocol transcripts, testing, adding, deleting, and refining items iteratively until new protocol transcripts yielded no modifications. The converged scheme was then tested by two other principal investigators, who used the coding scheme to recode the same protocol transcripts independently. During these iterations, we made three minor modifications, resulting in an inventory of variable descriptions and operationalizations (see Table 2).

To check interrater reliability, an independent coder recoded both the expert entrepreneur and the manager protocols using the scheme in Table 2. The two sets of codings were compared for reliability. The first pass at independent codings revealed strong agreement on all but two variables. Further clarification of the variable definitions between the principle investigators and the independent coder resulted in a strong mean interrater agreement across all variables in this study of .78, with no agreement less than .62, calculated using the proportional reduction in loss (PRL) approach (see Rust and Cooil 1994). The PRL interrater agreement scores appear for each variable in Table 3. We performed analysis of variance or chi-square tests depending on whether the variables were scale or dichotomous.

## **Results**

### ***P<sub>1</sub> (Market Research)***

We expected that managers with less entrepreneurial experience would be more likely to take market research data as given, while expert entrepreneurs would be more likely to question it. We looked for comments that reflected skepticism regarding the data presented in the scenario or in market data in general, and we tagged participants who made such comments “nonbelievers.” “Believers” did not question the data. An example of a nonbeliever’s transcript is as follows:

Expert Entrepreneur 15: I don’t win much from market research. It’s always been very bad in my projects.

Interviewer: Very, very bad, or don’t you believe in it? Which one?

Expert Entrepreneur 15: I don’t believe in it.... I think so many people fail in getting something done because they analyze too much.

This approach is in contrast to that of Manager 10, a believer who accepts the numbers and is willing to base his market strategy choice simply on their magnitude:

I am looking at the market here; it talks about estimated dollar value of instructional technology [being] \$1.7 billion. You got the dollar of the interactive game, which is \$800 million, and both expect to earn 20%. So both are good markets. Obviously, \$1.7 billion is grabbing my attention because it seems like a bigger market, and [we] would probably be able to make more money in that market just from looking at it.

A chi-square comparison of the expert entrepreneur and manager groups revealed that expert entrepreneurs were significantly more likely not to believe market data ( $p < .001$ ), in support of  $P_1$ .

**TABLE 2**  
**Variable Operationalizations**

Variable	Coding Question
Market research	Did this person believe the numbers? Enter "Yes" or "No." (Even if you are not 100% sure as to yes or no, please circle based on your overall judgment—whether largely yes or largely no.)
Prior experience	Did this person go beyond making marketing decisions to talk about building the business as a whole? Enter "Yes" or "No." If yes, count how many times they mentioned insights from previous experience.
Affordable loss	Did this person worry about how much money he or she has and what the costs of executing his or her marketing decisions will be? Enter "Yes" or "No." If yes, count how many times.
Decision framing	Did this person go beyond making marketing decisions to talk about building the business as a whole? Enter "Yes" or "No."
Decision framing: long-term	Did this person go beyond making marketing decisions to talk about building the business as a whole? Enter "Yes" or "No." If yes, count how many times they mentioned issues related to the long-term.
Market and product	Check each of the markets listed if person wanted to sell to them (there were a total of 41 categories; we list 3 examples here).
Price: qualitative	Did this person select price on the basis of it being high with the intent of maximizing profit (skim)? Did this person select price on the basis of it being low with the intent of maximizing adoption (penetration)? Enter "Skim," "Penetration," or "No."
Price: quantitative	Did this person pick a single price or a single price range? If yes, quantitatively, what was it?
Channel: all direct sales	Check off channels they used: Direct sales.
Channel: personal direct sales	Check off channels they used: Direct sales: "I will personally call" (other option was "I will recruit salespeople").
Channel: partnerships	Did this person visualize partnering or building a relationship with someone? Enter "Yes" or "No." If yes, count number of partnerships.
Channel: number of channels	Check off channels they used.
Channel: number of segments	Check off segments to which they decided to sell.

### ***P<sub>2</sub> (Prior Experience and Analogical Reasoning)***

Because expert entrepreneurs have developed superior pattern-matching and pattern recognition skills for uncertain situations than managers, we expected that they would draw on prior experience in decision making more frequently than managers. To test this, we counted each instance in which a participant referred to previous experience. A comparison of the expert entrepreneur and manager groups offers support for  $P_2$ ; expert entrepreneurs were more likely to use previous experience than managers ( $p < .001$ ). We present a transcript excerpt from a manager and an expert entrepreneur who draw on prior experience to make a decision:

Manager 20: I would look at business schools, the better business schools and colleges across the United States. Going back to my own experience, I went to Miami in Ohio, and I think that the type of atmosphere that that business school created would lend itself well to this type of research, and I'm sure that that's not limited to just that school.

Expert Entrepreneur 22: I like all but retailing. I would not spend that money. And that's a huge cost to do it. And I know that from my own experience with the company. How do you get shelf space? And the right shelf space? How do you get the minds of people to understand your product and want it?

### ***P<sub>3</sub> (Affordable Loss)***

As with  $P_1$  and  $P_2$ , we did not ask any specific questions about cost so as not to prime participants on the topic. We also did not present participants with a fixed amount of money to work with in the scenario. Instead, we analyzed the transcript data, looking for comments and questions regarding the amount of money available to the project and for decisions in which cost was a factor. We found that expert entrepreneurs were significantly ( $p < .001$ ) more likely to consider available financial resources when making decisions regarding the scenario, in support of  $P_3$ . In the following transcript excerpts, Expert Entrepreneur 11 considers cost three times (italics are added to highlight these mentions) as he makes a channel decision; in contrast, Manager 10 is drawn to the opportunity associated with the greatest possible financial upside, with no mention of cost:

Expert Entrepreneur 11: So the Internet seems to really be actually a surprisingly effective way to communicate at a *pretty low cost*. So the bookstores, that seems *very, quite expensive*, with a lot more support needed. And direct to educational institutions seems also a lot more complex ... needing training.... I think I have a little difficulty making the decisions not knowing *how much money*; *maybe I do know how much money* I have to work with.

Manager 10: I tend to want to look over the information here a little more just to get a better feel. I guess the biggest thing I want to focus on is, as an entrepreneur, you want to go up with a product that you think is going to earn you the most money, revenue, and profits.

### ***P<sub>4</sub> (Decision Framing)***

We expected expert entrepreneurs to think holistically about building a business rather than simply answering the questions in the scenario. We counted the number of thoughts a

**TABLE 3**  
**Summary of Variable Descriptive Statistics, Interrater Agreement, and Analysis Results**

Variable Description	Descriptive Statistics	PRL <sup>a</sup>	Entrepreneur/ Manager Difference	Entrepreneur/ Executive Difference	Summary of Findings on the Differences Between Expert Entrepreneurs and Managers
<b>P<sub>1</sub> (Market Research)</b>					
Market research	Expert: 13 yes, 14 no Manager: 34 yes, 3 no	.81	$\chi^2 = 15.31$ $p < .001$	$\chi^2 = 11.63$ $p = .001$	Expert entrepreneurs are less likely to believe and accept market research than managers.
<b>P<sub>2</sub> (Prior Experience)</b>					
Prior experience	Maximum: 4 Minimum: 0 SD: .96	.77	$F = 20.89$ $p < .001$	$F = 11.01$ $p = .002$	Expert entrepreneurs are more likely to draw on experience in uncertainty than managers.
<b>P<sub>3</sub> (Affordable Loss)</b>					
Affordable loss	Maximum: 10 Minimum: 0 SD: 2.57	.69	$F = 41.52$ $p < .001$	$F = 18.11$ $p = .000$	Expert entrepreneurs are more concerned with project affordability than managers.
<b>P<sub>4</sub> (Decision Framing)</b>					
Decision framing	Expert: 21 yes, 4 no Manager: 4 yes, 33 no	.62	$\chi^2 = 29.41$ $p < .001$	$\chi^2 = 9.54$ $p = .004$	Expert entrepreneurs are more likely to think holistically about the business.
Decision framing: long-term	Maximum: 12 Minimum: 0 SD: 1.77	.78	$F = 10.74$ $p = .002$	$F = 6.26$ $p = .015$	Expert entrepreneurs are more likely to consider the long-term.
<b>P<sub>5</sub> (Market)</b>					
Market and product	Maximum: 8 Minimum: 0 SD: 1.38	.82	$F = 14.93$ $p < .001$	$F = 3.87$ $p = .048$	Expert entrepreneurs identify or create more new markets than managers.
<b>P<sub>6</sub> (Price)</b>					
Price: qualitative	Expert: 9 skim, 3 penetration Manager: 1 skim, 11 penetration	.77	$\chi^2 = 12.21$ $p = .002$	$\chi^2 = .46$ $p = .793$	Expert entrepreneurs are more likely to price high (skim) to maximize cash. Managers are more likely to price low (penetration) to drive adoption.
Price: quantitative	Maximum: \$1,000 Minimum: \$30 SD: \$141	.98	$F = 4.19$ $p = .046$	$F = .62$ $p = .435$	Expert entrepreneurs price product higher than managers.
<b>P<sub>7</sub> (Channel)</b>					
Channel: all direct sales	Expert: 6 yes, 21 no Manager: 8 yes, 29 no	.75	$\chi^2 = .003$ $p = .954$	$\chi^2 = 2.24$ $p = .098$	No difference in direct sales channel choice between expert entrepreneurs and managers.
Channel: personal direct sales	Expert: 3 yes, 3 no Manager: 0 yes, 8 no	.81	$\chi^2 = 5.09$ $p = .024$	$\chi^2 = .36$ $p = .455$	Expert entrepreneurs choosing direct sales are more likely than managers do it themselves.
Channel: partnerships	Maximum: 3 Minimum: 0 SD: .73	.86	$F = 13.24$ $p = .001$	$F = 3.59$ $p = .032$	Compared with managers, entrepreneur experts cocreate with distribution partners.
Channel: number of channels	Maximum: 4 Minimum: 0 SD: 1.03	.71	$F = .29$ $p = .864$	$F = .21$ $p = .646$	No difference between expert entrepreneurs and managers on number of channels.
Channel: number of segments	Maximum: 4 Minimum: 0 SD: 1.02	.75	$F = 5.80$ $p = .019$	$F = 4.46$ $p = .039$	Expert entrepreneurs are less likely to pursue more unique segments than managers.

<sup>a</sup>PRL provides the proportional loss reduction measure of interrater agreement (Rust and Cooil 1994) for the variable.

Notes: Chi-square tests are two-tailed.

participant offered that related to the business but were outside the scope of questions presented by the scenario to determine the degree to which participants went beyond the data to make decisions. We found that expert entrepreneurs were significantly more likely to think holistically about the scenario ( $p < .001$ ) than managers. In further support of P<sub>4</sub>, we also counted the number of thoughts a participant had about long-term issues regarding the business. Because we did not ask about long-term issues, this also reflected the degree to which participants thought beyond the scenario and envisioned the business as a whole. As we expected, expert entrepreneurs were significantly more likely ( $p = .002$ ) to be concerned about long-term issues than managers. In the following quotation, Expert Entrepreneur 25 references long-term issues and uses an analogy to trace a possible trajectory of how his venture would endure over time:

Again I'm looking at a long-term play here. That market, if we were doing an analysis of institutional, instructional technology market and the interactive simulation market, let's go back and look at some examples. The Apple computer is an excellent example of how you can come into a market, get great market play, and then blow out, for all the reasons I said I wanted to avoid. I want to have flexibility, I want to be able to deal in multicultural situations, I want it in fact to be current—so that it doesn't become stale.

#### **P<sub>5</sub> (Market and Product)**

We found that expert entrepreneurs were significantly more likely than managers to identify or pursue markets not mentioned in the Venturing product scenario ( $p < .001$ ), even if that choice implied a change to the product articulated in the scenario, in support of P<sub>5</sub>. The key to this difference was the way expert entrepreneurs chose to interact with stakeholders to redefine and transform the initial product. Beginning with exactly the same hypothetical product, the 27 expert entrepreneurs created 28 different and unique market definitions with product adaptations to match. Conversely, the 37 managers were less likely to reformulate the concept of the market, generating only 12 new market definitions.

Furthermore, expert entrepreneurs were more open to considering new markets at least in part because they were not as tied to the articulation of the product as presented in the scenario. Although we could not find a reliable way to operationalize this difference quantitatively, we present three quotations from expert entrepreneurs that reflect their willingness to make product changes, enabling them to consider new market definitions.

Expert Entrepreneur 6: Find out actually who your customers are, and from that, you might change your advertising approach and change the design of the product.

Expert Entrepreneur 11: Find out how the training operations of larger companies, how they inform themselves about what kind of courses they can offer, and the decision process they go through, and the kind of criteria they set in terms of what a product of this nature should look like.

Expert Entrepreneur 18: One of the ways I find that you get buy-in to anything is to make the potential customer feel that they have a part in developing the product.

These quotations illustrate three mechanisms expert entrepreneurs use to reconceptualize product in uncertain situations: customers, process, and partners. Other mechanisms may be at work as well. We do not attempt to determine exhaustively all possible mechanisms and their potential relationship to the reconsideration of target markets and products here; instead, we offer this as a potential avenue for further research.

#### **P<sub>6</sub> (Price)**

To examine the initial price preferences of expert entrepreneurs and managers with less entrepreneurial experience, we first looked for explicit strategy remarks about pricing decisions. We identified statements that reflected a strategy of pricing high to maximize profit and coded these as skim strategies. We also identified statements that reflected a strategy of pricing low to drive early product adoption and coded these as penetration strategies. We found that expert entrepreneurs were significantly more likely to base pricing decisions on a skim pricing strategy and that managers were significantly more likely to base pricing decisions on a penetration pricing strategy ( $p = .002$ ). This significant difference was evident in the quantitative prices as well ( $p = .046$ ), for which the mean expert entrepreneur price was \$157 and the mean manager price was \$75, in support of P<sub>6</sub>. We present two quotations: one from Manager 3, who discussed setting penetration pricing for a market share, and one from Expert Entrepreneur 3, who articulated entry with a skim strategy:

Manager 3: I think that probably given the primary data, [I'd] probably price it in the \$50 to \$100 range. I would want to get a higher percentage of people at first to be able to take, especially if it is offered through the Internet initially. You have got to be able to keep the price down to get people interested.

Expert Entrepreneur 3: All the traffic will bear;... no question you are going to charge as much as you can;... looking for the inflection point on the curve as to when you're going to get the higher volumes.... Sometimes it pays to try to figure out a two tier pricing;... so you have the platinum game and you have the B-average game in some form or another.

#### **P<sub>7</sub> (Channel)**

To analyze channel choice, we began by coding all channel strategies according to the categories in Table 2. To determine whether a participant based channel strategy around an individual customer or a whole segment, we considered the channel in which either choice was viable—namely, direct sales. We first examined the difference between expert entrepreneurs and managers with less entrepreneurial experience on their predisposition toward direct selling in general and found no significant difference ( $p = .954$ ). Considering only participants who chose to sell direct, we analyzed thoughts describing a strategy that involved the founder doing the initial selling. The difference between the groups on a strategy of personal, direct selling showed that expert entrepreneurs were significantly more likely to make initial sales themselves, while managers were more likely to engage a sales force to approach a segment ( $p = .024$ ). We

provide an example in which Expert Entrepreneur 10 articulates a personal, direct selling strategy and an example in which Manager 7 excludes direct customer contact in all three selected channel alternatives (direct, Internet, and retail):

Expert Entrepreneur 10: Because I figured since I'm here in Boston and we have a really fantastic environment ... to create feedback, where I personally can be involved ... rather than have to get it translated through some kind of representative.

Manager 7: The educators, yeah, I would have to; you would have to rely mostly on recruiting and sales guys to go around and hit up the school boards. Definitely the Internet and the retailers to get the direct end user customers, especially the Internet would probably be somewhere you find the 19- to 25-year-olds. You would have to hire the recruiters and the Internet and the retailers.

Further support of  $P_7$  is offered by our analysis of differences in how expert entrepreneurs and managers use partnerships. We counted the number of thoughts related to partnership activities and found that expert entrepreneurs were significantly ( $p = .001$ ) more likely to incorporate partnerships into their decision making as they solved problems during the scenario. Although we did not find any significant difference between the groups with respect to the number of channels chosen ( $p = .864$ ), we found that managers were significantly more likely to select more segments than expert entrepreneurs ( $p = .019$ ). In summary, we find a majority of support for the components of  $P_7$ , except for the number of channels chosen.

To summarize the results, expert entrepreneurs are significantly more likely to use heuristics based on an effectual logic in making marketing decisions under uncertainty. In contrast, managers with little entrepreneurial experience tend to rely on predictive approaches prescribed in marketing textbooks.

## Implications and Conclusion

Effectual logic provides an internally consistent set of prescriptions for marketing decision making under uncertainty (see Table 1), which contrast significantly with marketing textbook prescriptions. In all fairness, however, we must acknowledge at least two issues in interpreting this evidence: (1) Most, if not all, textbook prescriptions are derived from studies of marketing within large, well-established corporations and not in entrepreneurial settings, and (2) there are several strong movements in marketing scholarship away from the old dominant logic underlying textbook prescriptions and toward exactly the sort of principles and heuristics advocated by an effectual logic.<sup>5</sup> We outline a few of these and discuss one in particular.

<sup>5</sup>At the same time, neither uncertainty nor entrepreneurship is afforded much mind space, even in the conversation about the evolution of a new dominant logic for marketing. For example, these two words did not even make it into the subject index in Vargo and Lusch's (2006) book, and the only mention of either we found was contained in the quotation at the beginning of this article.

## Effectual Logic: Coherence with Cocreative Theories of Marketing

In a foreword to the recent book edited by Vargo and Lusch (2006), Webster (p. xiii) avers the following:

For the past decade or so, marketing thought leaders, both in academe and business, have expressed increasing concerns about the state of marketing, both as a science and as a practice, and the strained relationship between the two. There is more agreement about the nature of the problems facing the field than there is about required changes and future direction.

In the ensuing discussion, we keep in mind the ongoing and unfinished nature of this conversation and offer our contributions as exciting possibilities for profitable collaboration with the works in progress on entrepreneurial effectuation rather than as competing, alternative theories. Expert entrepreneurs' use of effectual logic both coheres with and lends credence to several recent insights from marketing and the resultant angst toward the field. In a nutshell, effectual logic is relational (Arndt 1979; Dwyer, Schurr, and Oh 1987; Macneil 1980; Morgan and Hunt 1994), network oriented (Achrol and Kotler 1999), equity driven (Rust, Lemon, and Zeithaml 2004), and cocreative (Jaworski and Kohli 2006). In line with Vargo and Lusch (2004), effectual logic is also human centered and operant resource based.

Hunt and Morgan (1997) identify a large slate of resources, including both operand and operant resources, and posit the resource-advantage theory as a candidate for a general theory of competition. Resource-advantage theory is a close cousin of the resource-based view (RBV) in strategic management. In many ways, effectual logic is indeed resource based, but it differs from both the RBV and the resource-advantage theory in important ways. Recently, the RBV has come under criticism because it uses "valuable" as one of the characteristics that defines a resource.<sup>6</sup> Resource-advantage theory appears to be susceptible to a similar critique. For example, consider Hunt and Madhavaram's (2006, p. 100) definition: "A firm resource is any tangible or intangible entity available to the firm that enables it to produce efficiently and/or effectively a market offering that has value for some market segment(s)." This is dangerously close to being fodder for the criticism "that bad marketing is also marketing" (Levy 2006, p. 62). Effectual logic attempts to sidestep this problem by explicitly assuming any and all means at hand—regardless of whether they turn out to be valuable *ex post*—as possible inputs into the process. For example, new ventures frequently use waste or slack resources (i.e., those perceived as having little or no economic value, such as the time and effort of stay-at-home mothers in the case of Mary Kay Cosmetics) as key operant resources to develop new business models. More recently "waste equals food" has become a mantra for

<sup>6</sup>For example, note the dialog between Barney (1991) and Priem and Butler (2001) published in the *Academy of Management Review* (see also Hunt and Madhavaram 2006).

environmentally-friendly ventures inside and outside corporations (McDonough and Braungart 2000). The emphasis in entrepreneurial effectuation is really on what the effectuator does with the means at hand rather than any value, potential or otherwise, embodied in the resources themselves, whether operand or operant. In this, the effectual RBV is procedural rather than substantive.

Resource-advantage theory, similar to its cousin RBV, posits relationships between a firm's resources and its position in the competitive landscape. Dynamism enters into the landscape as firms struggle to obtain resources that are either unique or relatively difficult to imitate or move and therefore serve as sources of sustainable competitive advantages. As Hunt and Morgan (2006, p. 72) note, "[Competition] consists of the constant struggle among firms for comparative advantages in resources that will yield market positions of competitive advantage and thereby, superior financial performance."

In effectuation, in addition to the resources that might have such long-term potential, what people do with the resources matter. Therefore, the effectual process itself can make any given resource more or less valuable and more or less capable of producing long-term advantages. For example, consider the case of coffee before the appearance of Starbucks. As Koehn (2001) chronicles, coffee was considered a commodity in the late 1970s, for which prices had been going down for more than two decades. However, through the actions of a handful of entrepreneurs and their early stakeholders, an entire new industry of specialty coffee was cocreated, greatly enhancing the value of coffee and transforming it from a basic commodity to a premium consumer experience. This argument about the process of cocreating new value is just as applicable to that most important of operant resources—the human being. Entrepreneurs throughout history (sometimes out of societal concerns but more often out of economic necessity or opportunity) have invested in and improved the value of human resources. As Koehn (1997, p. 44) writes of Josiah Wedgwood as early as the eighteenth century,

The task ... was to make artists of mere men. It made no sense to rely on the local labor market because "few hands can be got to paint the flowers in the style we want them." I may add, nor any other work we do. We must make them. There is no other way.

Expert entrepreneurs do not consider resource value exogenous to the cocreation process. They are well aware that cocreation provides financial and psychological ownership to all stakeholders engaged in the process and often ends up making even mundane resources more valuable. In the age of the World Wide Web, this has become inescapable; customers of firms such as Netscape, Google, and Amazon.com literally purchased equity to make them blockbuster initial public offerings. The phenomena of open source and crowd-sourcing offer further testaments to the notion that cocreation increases the value of the resources of the firm, be it share value, brand value, or the social and reputational value of its intangible resources. Effectuators explicitly embrace and leverage this endogeneity of resource value to the dynamics of the cocreational process. Here, it is the cooperative shaping of the market rather than

a competitive scramble for (predicted to be) valuable resources that drives industry dynamics.

In this connection, effectual expertise poses a nuanced but important challenge to an unstated assumption in current marketing theorizing that may be worth highlighting: cocreation not only with customers and suppliers but also with a variety of other stakeholders. Common to almost all current marketing research, including the recent collection of articles in Vargo and Lusch (2006), is the existence of a class of people exclusively called "customers." Marketing scholars tend to ignore or, in some cases, assume away the notion that customers may play multiple or ambiguous roles (i.e., they may also be investors or suppliers or may not themselves know if they are or want to be customers at all).

By focusing on a cocreation process that includes any and all people as potential stakeholders and allows negotiation and renegotiation between self-selected stakeholders as the way to determine subsequent roles and relationships in the growing network, effectuation offers a practical process for tackling both role and goal ambiguities in value cocreation. This implies that it may be profitable for researchers to consider how they might generalize marketing insights to stakeholders as a whole. In a recent article on managing the cocreation process, Payne, Storbacka, and Frow (2008, p. 94) echo this call for further research on "the role of non-supplier partners and intermediaries in co-creation."

In conclusion, although the exact nature and extent of effectuation's contribution to the development of a new paradigm in marketing is an empirical question, there is a *prima facie* case for considering its theoretical contribution to the field. In addition, there are significant managerial implications.

### **Managerial Implications**

Here, we return to the marketing student knocking on the professor's door and consider how we should respond to the question of designing winning strategies under uncertainty. Note that the use of effectual logic is neither a necessary nor a sufficient condition for achieving marketing or entrepreneurial success. Yet the findings from the current study are not without normative implications for performance.

The findings regarding market research and pricing are particularly striking in this regard. Not only are the specific heuristics addressing market research and pricing consistent with a relational and cocreational, rather than a transactional, view of marketing, but they also provide distinct mechanisms for keeping costs down and pushing revenues up. Therefore, regardless of any exogenous probability of success or failure, they work in the directions we would want them to work with regard to endogenous variables. Moreover, when we take into account that cocreational and nonpredictive aspects of effectuation tend to endogenize more variables than traditional approaches that take those variables as exogenous, there is room for optimism in terms of our pedagogical and practical recommendations.

*Market research.* Our finding that expert entrepreneurs are skeptical of market research suggests that marketing managers facing uncertainty should fully consider the value of alternatives to conventional market research activities. Expert entrepreneurs replace market research with cocre-

ational or partnership strategies with potential customers, suppliers, and investors who they work with directly. They view all four Ps as iterative and interactive outcomes of a cocreational process driven by self-selected stakeholders that include customers. We speculate that this process generates several implications.

First, by interacting with and “listening in” (Urban and Hauser 2004) to specific stakeholders, not only are companies in the initial stages of new market, product, and service development more likely to generate novel information, but the kind of information they generate is also more likely to be useful and valuable. Compared with traditional market research, this increases the likelihood of creating realistic new market opportunities because firms learn at every step what stakeholders will actually commit to and—just as important—what they will not commit to. This enables the firm to fail fast on poor product and service ideas and to bring good ideas to market sooner.

Second, rather than investing time, money, and managerial effort up front in market research, new ventures can move directly to selling a potential or actual product or service to customers on the basis of affordable loss. Here again, an implication is faster feedback at lower cost than market research activity would typically enable. Furthermore, in many instances, stakeholders may pay for or contribute to the costs of creating the early-stage product or service, which distributes risk and cost among stakeholders, thus lowering both to the new venture. Finally, to the extent that each stakeholder also invests only what he or she can afford to lose, the firm may be able to carry out more iterations of the product or service development process, thus increasing experimentation and consequent generation of valuable novelty at lower cost.

**Pricing.** No strategy probably dominates start-ups run by managers with little entrepreneurial experience more than promising customers “more for less”—that is, more valuable products and services at lower prices. This conjecture is borne out in our study; such managers consistently price lower than expert entrepreneurs. Expert entrepreneurs have learned that more for less is not a good pricing strategy for new products and services. We speculate that this has several implications for practicing managers.

First, in the case of new or uncertain product/service offerings, customers are not likely to have been exposed to prior price information. The initial pricing for a new product or service will act as a reference for the niche (Mazumdar, Raj, and Sinha 2005). Using a negotiated pricing process (rather than predictive pricing) is more likely to result in new ventures establishing an accurate range for a high reference price that customers still perceive as fair (Bolton and Lemon 1999).

Second, by directly negotiating with early customers and achieving bidirectionality and mutual satisfaction in pricing decisions (Oliver 2006), the company locks in customer commitment not only to the value proposition but also to the new venture itself, thereby increasing the probability that customers will become repeat purchasers and perhaps active promoters of the company’s offerings (Bendapudi and Leone 2003).

## **Further Research**

Before we conclude the article on a high note, it would be worthwhile to specify certain limitations and contingencies on the use and misuse of effectual logic. Because this study is an early step in understanding effectuation, rather than speculating on where these boundaries may lie, we tackle these through an examination of future research possibilities.

One of our core findings suggests that expert entrepreneurs are skeptical of market research. A limitation of our study is that we did not examine the moderating effects of variables such as product type, customer target, or competitive intensity. Further research might examine the conditions and approaches in which market research improves new venture success. For example, although market research is not positively correlated to performance for radical innovation, it may be beneficial for entrepreneurs to conduct market research if the new firm is creating incremental products that meet existing market needs. Furthermore, although assessing segment size may be useful to a new venture that intends to offer a mass-produced standard product, it may be irrelevant to a new service venture that can customize each and every engagement.

Further research could also investigate effective strategies and targets for cocreation. For example, although much literature has examined funding partners, a critical supplier may be a more important cocreation partner for a new venture, which typically lacks both resources and expertise (Song and DiBenedetto 2008). Suppliers that are involved early in the product design, testing, and commercialization phases can make early investments in equipment, tools, and training; can identify design errors early on; can observe what works and what does not; and will be aware of the market launch and product positioning strategy from the outset. However, the new venture also lacks prior experience with potential suppliers and thus may not necessarily be a desirable partner from the supplier’s point of view. How can the new venture with no prior relationships gain commitments from a key supplier in the cocreation process? Further research might usefully unpack the complex and integrative nature of precommitments and cocreational relationships.

## **Conclusion**

We have shown a relationship between expert entrepreneurs and unique, effectual approaches to decision making under uncertainty that is not evident in their manager peers. This is relevant because virtually **all categories of products and services now modeled, analyzed, and predicted were once novel and uncertain. Even predictable markets can change abruptly as a result of disruptive inventions, regulatory actions, and events outside the control of even the best marketers. From our work, we extracted some common decision strategies of expert entrepreneurs faced with uncertain business problems and, from these findings, made inferences to aid our understanding about the genesis of products, firms, and markets.**

In summary, effectual logic not only overlaps with the ways marketing theories are evolving but also brings texture

to the entrepreneurial spirit of marketing. Marketing is central to creating valuable new ventures both at the level of individual stakeholders in the firm and for the economy and society as a whole. Yet scholarship in entrepreneurial finance is better developed than research at the interface of entrepreneurship and marketing. Furthermore, marketing as a science finds itself in exciting times, caught up in the heady vortex of developing a new dominant paradigm. Per-

haps a more detailed understanding of how expert entrepreneurs make marketing decisions will help coalesce some of the elements of the new paradigm. The results from the current study relating effectual logic to marketing under uncertainty hark back to the quotation from Vargo and Lusch (2006, p. 53) at the beginning of this article: "In this sense, one of the most important operant resources in society and the economy is the entrepreneurial spirit."

## REFERENCES

- Achrol, Ravi (1991), "Evolution of the Marketing Organization: New Forms for Turbulent Environments," *Journal of Marketing*, 55 (October), 77-93.
- and Philip Kotler (1999), "Marketing in the Network Economy," *Journal of Marketing*, 63 (Special Issue), 146-63.
- Adelson, Beth (1984), "When Novices Surpass Experts: The Difficulty of a Task May Increase with Expertise," *Journal of Experimental Processing: Learning, Memory and Cognition*, 10 (3), 483-95.
- Alba, Joseph W. and J. Wesley Hutchinson (1987), "Dimensions of Consumer Expertise," *Journal of Consumer Research*, 13 (4), 411-54.
- Armstrong, J. Scott and Fred Collopy (1996), "Competitor Orientation: Effects of Objectives and Information on Managerial Decisions and Profitability," *Journal of Marketing Research*, 32 (May), 188-99.
- Arndt, Johan (1979), "Toward a Concept of Domesticated Markets," *Journal of Marketing*, 43 (October), 69-75.
- Bendapudi, Neeli and Robert P. Leone (2003), "Psychological Implications of Customer Participation in Co-Production," *Journal of Marketing*, 67 (January), 14-28.
- Berthon, Pierre and Joby John (2006), "From Entities to Interfaces: Delineating Value in Customer-Firm Interactions," in *The Service-Dominant Logic of Marketing: Dialog, Debate, and Directions*, Robert Lusch and Stephen Vargo, eds. Armonk, NY: M.E. Sharpe, 196-207.
- Bettman, James R. and Mita Sujan (1987), "Effects of Framing on Evaluation of Comparable and Noncomparable Alternatives by Expert and Novice Consumers," *Journal of Consumer Research*, 14 (2), 141-54.
- Biyalogorsky, Eyal, William Boulding, and Richard Staelin (2006), "Stuck in the Past: Why Managers Persist with New Product Failures," *Journal of Marketing*, 70 (April), 108-121.
- Bolton, Ruth (1993), "Pretesting Questionnaires: Content Analyses of Respondents' Concurrent Verbal Protocols," *Marketing Science*, 12 (3), 280-303.
- and Katherine Lemon (1999), "A Dynamic Model of Customers' Usage of Services: Usage as an Antecedent and Consequence of Satisfaction," *Journal of Marketing Research*, 36 (May), 171-86.
- Boush, David M. and Barbara Loken (1991), "A Process-Tracing Study of Brand Extension Evaluation," *Journal of Marketing Research*, 28 (February), 16-28.
- Butterworth, B. (2006), "Mathematical Expertise," in *The Cambridge Handbook of Expertise and Expert Performance*, K. Anders Ericsson, Neil Charness, Paul Feltovich, and Robert Hoffman, eds. New York: Cambridge University Press, 553-68.
- Camerer, Colin F. and E.J. Johnson (1991), "The Process-Performance Paradox in Expert Judgment: How Can the Experts Know So Much and Predict So Badly?" in *Towards a General Theory of Expertise: Prospects and Limits*, K.A. Ericsson and J. Smith, eds. Cambridge, UK: Cambridge University Press, 342-64.
- Charness, Neil (1989), "Expertise in Chess and Bridge," in *Complex Information Processing: The Impact of Herbert A. Simon*, David Klahr and Kenneth Kotovsky, eds. Hillsdale, NJ: Lawrence Erlbaum Associates, 183-208.
- Chase, W.G. and Herbert A. Simon (1973), "The Mind's Eye in Chess," in *Visual Information Processing*, W.G. Chase, ed. New York: Academic Press, 215-81.
- Chi, Michelene T.H., R. Glaser, and E. Rees (1982), "Expertise in Problem Solving," in *Advances in the Psychology of Human Intelligence*, R.J. Sternberg, ed. Hillsdale, NJ: Lawrence Erlbaum Associates, 7-75.
- Cooper-Martin, Elizabeth (1993), "An Extension of the Congruence Hypothesis: The Effects of Real Products, Branching Format, Similarity and Involvement," *Psychology & Marketing*, 10 (5), 433-47.
- Cox, Anthony D. and John O. Summers (1987), "Heuristics and Biases in the Intuitive Projection of Retail Sales," *Journal of Marketing Research*, 24 (August), 290-97.
- Dahl, Darren W. and Page Moreau (2002), "The Influence and Value of Analogical Thinking During New Product Ideation," *Journal of Marketing Research*, 39 (February), 47-60.
- Day, George and David Montgomery (1999), "Charting New Directions for Marketing," *Journal of Marketing*, 63 (Special Issue), 3-13.
- De Groot, A. ([1946] 1978), *Thought and Choice in Chess*. The Hague: Mouton.
- Dew, Nicholas, Stuart Read, Saras Sarasvathy, and Robert Wiltbank (2009), "Effectual Versus Predictive Logics in Entrepreneurial Decision-Making: Differences Between Experts and Novices," *Journal of Business Venturing*, forthcoming.
- Doll, J. and U. Mayr (1987), "Intelligence and Achievement in Chess: A Study of Chess Masters," *Psychologische Beiträge*, 29 (2-32-3), 270-89.
- Dwyer, F. Robert, Paul H. Schurr, and Sejo Oh (1987), "Developing Buyer-Seller Relationships," *Journal of Marketing*, 51 (April), 11-27.
- Ericsson, K. Anders (2006), "The Influence of Experience and Deliberate Practice on the Development of Superior Expert Performance," in *The Cambridge Handbook of Expertise and Expert Performance*, K. Anders Ericsson, Neil Charness, Paul Feltovich, and Robert Hoffman, eds. New York: Cambridge University Press, 683-703.
- and Neil Charness (1994), "Expert Performance: Its Structure and Acquisition," *American Psychologist*, 49 (8), 725-47.
- and W. Kintsch (1995), "Long-Term Working Memory," *Psychological Review*, 102 (2), 211-45.
- and A.C. Lehmann (1996), "Expert and Exceptional Performance: Evidence on Maximal Adaptations on Task Constraints," *Annual Review of Psychology*, 47, 273-305.
- and H.A. Simon (1980), "Verbal Reports as Data," *Psychological Review*, 87 (3), 215-51.
- and ——— (1993), *Protocol Analysis: Verbal Reports as Data*. Cambridge, MA: MIT Press.
- Gartner, William B. (1985), "A Conceptual Framework for Describing the Phenomenon of New Venture Creation," *Academy of Management Review*, 10 (4), 696-706.



- Glaser, Rashi (1996), "Changing the Agency for Learning: Acquiring Expert Performance," in *The Road to Excellence: The Acquisition of Expert Performance in the Arts and Sciences, Sports, and Games*, K.A. Ericsson, ed. Mahwah, NJ: Lawrence Erlbaum Associates, 303–311.
- Gobet, F. and N. Charness (2006), "Expertise in Chess," in *The Cambridge Handbook of Expertise and Expert Performance*, K. Anders Ericsson, Neil Charness, Paul Feltovich, and Robert Hoffman, eds. New York: Cambridge University Press, 523–38.
- and Herbert A. Simon (1996), "Templates in Chess Memory: A Mechanism for Recalling Several Boards," *Cognitive Psychology*, 31 (1), 1–40.
- Greeno, J.S. and Herbert A. Simon (1988), "Problem Solving and Reasoning," in *Steven's Handbook of Experimental Psychology*, 2d ed., Richard C. Atkinson, ed. New York: John Wiley & Sons, 589–639.
- Hall, John and Charles W. Hofer (1993), "Venture Capitalists' Decision Criteria in New Venture Evaluation," *Journal of Business Venturing*, 8 (1), 25–43.
- Hebert, R.F. and A.N. Link (1988), *The Entrepreneur: Mainstream Views and Radical Critiques*, 2d ed. New York: Praeger.
- Hunt, Shelby D. and S. Madhavaram (2006), "Teaching Marketing Strategy: Using Resource-Advantage Theory as an Integrative Theoretical Foundation," *Journal of Marketing Education*, 28 (2), 93–106.
- and Robert M. Morgan (1997), "Resource-Advantage Theory: A Snake Swallowing Its Tail or a General Theory of Competition?" *Journal of Marketing*, 61 (October), 74–62.
- Hutton, R.J. and G. Klein (1999), "Expert Decision Making," *Systems Engineering*, 2 (1), 32–45.
- Jagpal, Sharan (1998), *Marketing Strategy and Uncertainty*. Oxford: Oxford University Press.
- Jaworski, Bernie and Ajay Kohli (2006), "Co-Creating the Voice of the Customer," in *The Service-Dominant Logic of Marketing: Dialog, Debate, and Directions*, Robert Lusch and Stephen Vargo, eds. Armonk, NY: M.E. Sharpe, 109–117.
- Kalakoski, Virpi and Pertti Saariluoma (2001), "Taxi Drivers' Exceptional Memory of Street Names," *Memory and Cognition*, 29 (4), 634–38.
- Katz, Michael L. and Carl Shapiro (1986), "Technology Adoption in the Presence of Network Externalities," *Journal of Political Economy*, 94 (4), 822–41.
- Klein, Gary A. (1998), *Sources of Power: How People Make Decisions*. Cambridge, MA: MIT Press.
- Knight, Frank Hyneman (1921), *Risk, Uncertainty and Profit*. Boston: Houghton Mifflin.
- Koehn, N.F. (1997), "Josiah Wedgwood and the First Industrial Revolution" in *Creating Modern Capitalism*, T.K. McCraw, ed. Cambridge, MA: Harvard University Press, 19–50.
- (2001), *Brand New: How Entrepreneurs Earned Consumers' Trust from Wedgwood to Dell*. Boston: Harvard Business School Press.
- Kotler, Philip and Gary Armstrong (1999), *Principles of Marketing*, 8th ed. Englewood Cliffs, NJ: Prentice Hall.
- Larreche, Jean-Claude and Reza Moïn pour (1983), "Managerial Judgment in Marketing: The Concept of Expertise," *Journal of Marketing Research*, 20 (May), 110–21.
- Lehmann, C. and C. Norman (2005), "Teaching Business Students to Recognize a Firm in Distress: What Information Is Important to Experts?" *Journal of Education for Business*, 81 (2), 91–98.
- Leifer, Eric Matheson (1991), *Actors as Observers: A Theory of Skill and Social Relationships*. New York: Taylor & Francis.
- Levy, Sidney J. (2006), "How New? How Dominant?" in *The Service-Dominant Logic of Marketing: Dialog, Debate, and Directions*, Robert Lusch and Stephen Vargo, eds. Armonk, NY: M.E. Sharpe, 57–64.
- Mackay, J.M. and J.J. Elam (1992), "A Comparative Study of How Experts and Novices Use a Decision Aid to Solve Problems in Complex Knowledge Domains," *Information Systems Research*, 3 (2), 150–72.
- Macneil, Ian (1980), "Contracts: Adjustment of Long-Term Economic Relations Under Classical, Neoclassical and Relational Contract Law," *Northwestern Law Review*, 72 (6), 854–905.
- March, James G. (1982), "The Technology of Foolishness," in *Ambiguity and Choice in Organizations*, James G. March and J.P. Olsen, eds. Bergen, Norway: Universitetsforlaget, 69–81.
- Masunaga, H. and J. Horn (2001), "Expertise and Age-Related Changes in Components of Intelligence," *Psychology and Aging*, 16 (2), 293–311.
- Mazumdar, Tridib, S.P. Raj, and Indrajit Sinha (2005), "Reference Price Research: Review and Propositions," *Journal of Marketing*, 69 (October), 84–102.
- McDonough, William and Michael Braungart (2000), "A World of Abundance," *Interfaces*, 30 (3), 55–65.
- Morgan, Robert M. and Shelby D. Hunt (1994), "The Commitment–Trust Theory of Relationship Marketing," *Journal of Marketing*, 58 (July), 20–38.
- Mukhopadhyay, Tridas, Steven S. Vicinanza, and Michael J. Pritetula (1992), "Examining the Feasibility of a Case-Based Reasoning Model for Software Effort Estimation," *MIS Quarterly*, 16 (2), 155–71.
- Nagle, Thomas T. and Reed K. Holden (1994), *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 2d ed. Englewood Cliffs, NJ: Prentice Hall.
- Norman, G., K. Eva, L. Brooks, and S. Hamstra (2006), "Expertise in Medicine and Surgery," in *The Cambridge Handbook of Expertise and Expert Performance*, K. Anders Ericsson, Neil Charness, Paul Feltovich, and Robert Hoffman, eds. New York: Cambridge University Press, 339–53.
- Oliver, Richard (2006), "Co-Producers and Co-Subjects in the Satisfaction Process: Mutually Satisfying Consumption," in *The Service-Dominant Logic of Marketing: Dialog, Debate, and Directions*, Robert Lusch and Stephen Vargo, eds. Armonk, NY: M.E. Sharpe, 118–27.
- Payne, Adrian F., Kaj Storbacka, and Pennie Frow (2008), "Managing the Co-Creation of Value," *Journal of the Academy of Marketing Science*, 36 (1), 83–96.
- Perkins, W. Steven and Ram Rao (1990), "The Role of Experience in Information Use and Decision Making by Marketing Managers," *Journal of Marketing Research*, 27 (February), 1–10.
- Priem, Richard and John Butler (2001), "Is the Resource-Based View a Useful Perspective for Strategic Management Research?" *Academy of Management Review*, 26 (1), 22–40.
- Read, Stuart and Saras Sarasvathy (2005), "Knowing What to Do and Doing What You Know: Effectuation as a Form of Entrepreneurial Expertise," *Journal of Private Equity*, 9 (1), 45–62.
- Reingold, Eyal M., Neil Charness, Richard S. Schultetus, and Dave M. Stampe (2001), "Perceptual Automaticity in Expert Chess Players: Parallel Encoding of Chess Relations," *Psychonomic Bulletin & Review*, 8 (3), 504–510.
- Ries, Al and Jack Trout (1985), *Marketing Warfare*. New York: McGraw-Hill.
- Rikers, Remy M.J.P., Henk G. Schmidt, Henny P.A. Boshuizen, Gerard C.M. Linssen, Geertjan Wesseling, and Fred G.W.C. Paas (2002), "The Robustness of Medical Expertise: Clinical Case Processing by Medical Experts and Subexperts," *American Journal of Psychology*, 115 (4), 609–629.
- Rogers, Everett M. (1995), *Diffusion of Innovations*, 4th ed. New York: The Free Press.
- Rust, Roland and Bruce Cooil (1994), "Reliability Measures for Qualitative Data: Theory and Implications," *Journal of Marketing Research*, 31 (February), 1–14.

- , Katherine Lemon, and Valarie Zeithaml (2004), "Return on Marketing: Using Customer Equity to Focus Marketing Strategy," *Journal of Marketing*, 68 (January), 109–127.
- Sarasvathy, Saras (2001a), "Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency," *Academy of Management Review*, 26 (2), 243–63.
- (2001b), "Effectual Reasoning in Entrepreneurial Decision Making: Existence and Bounds," *Academy of Management Best Paper Proceedings*. Briarcliff, NY: Academy of Management, ENT D1–D6.
- (2002), "Entrepreneurship as a Science of the Artificial," *Journal of Economic Psychology*, 24 (2), 203–220.
- (2008), *Effectuation: Elements of Entrepreneurial Expertise*. Cheltenham, UK: Edward Elgar Publishing.
- and Nicholas Dew (2005a), "Entrepreneurial Logics for a Technology of Foolishness," *Scandinavian Journal of Management*, 21 (4), 385–406.
- and ——— (2005b), "New Market Creation as Transformation," *Journal of Evolutionary Economics*, 15 (5), 533–65.
- and Suresh Kotha (2001), "Dealing with Knightian Uncertainty in the New Economy: The Real Networks Case," in *Research on Management and Entrepreneurship*, Vol. 1, John Butler, ed. Greenwich, CT: IAP Inc, 31–62.
- and Anil Menon (2003), "Failing Firms and Successful Entrepreneurs: Serial Entrepreneurship as a Simple Machine," Darden Business School Working Paper No. 04-05.
- and Herbert A. Simon (2000), "Effectuation, Near-Decomposability, and the Creation and Growth of Entrepreneurial Firms," paper presented at the First Annual Research Policy Technology Entrepreneurship Conference, University of Maryland (May 19–20).
- Schenk, K.D., Nicholas P. Vitalari, and K. Shannon Davis (1998), "Differences Between Novice and Expert Systems Analysts: What Do We Know and What Do We Do?" *Journal of Management Information Systems*, 15 (1), 9–51.
- Shanteau, J. (1992), "Competence in Experts: The Role of Task Characteristics," *Organizational Behavior and Human Decision Processes*, 53 (2), 252–66.
- Sheth, Jagdish and Atul Parvatiyar, eds. (2000), *Handbook of Relationship Marketing*. Thousand Oaks, CA: Sage Publications.
- Silver, A. David (1985), *Venture Capital: The Complete Guide for Investors*. New York: John Wiley & Sons.
- Simon, Herbert A. (1991), "Bounded Rationality and Organizational Learning," *Organization Science*, 2 (1), 125–34.
- Song, Michael and C. Anthony DiBenedetto (2008), "Supplier's Involvement and Success of Radical New Product Development in New Ventures," *Journal of Operations Management*, 26 (1), 1–22.
- Sonnentag, S., C. Niessen, and J. Volmer (2006), "Expertise in Software Design," in *The Cambridge Handbook of Expertise and Expert Performance*, K. Anders Ericsson, Neil Charness, Paul Feltovich, and Robert Hoffman, eds. New York: Cambridge University Press, 373–87.
- Spence, Mark T. and Merrie Brucks (1997), "The Moderating Effects of Problem Characteristics on Experts' and Novices' Judgments," *Journal of Marketing Research*, 34 (May), 233–47.
- Sujan, Harish, Mita Sujan, and James R. Bettman (1988), "Knowledge Structure Differences Between More Effective and Less Effective Salespeople," *Journal of Marketing Research*, 25 (February), 81–86.
- Urban, Glen L. and John R. Hauser (2004), "'Listening In' to Find and Explore New Combinations of Customer Needs," *Journal of Marketing*, 68 (April), 72–87.
- Van Heerde, Harald J., Marnik G. Dekimpe, and William P. Putsis Jr. (2005), "Marketing Models and the Lucas Critique," *Journal of Marketing Research*, 42 (February), 15–21.
- VanBruggen, Gerrit, Ale Smidts, and Berend Wierenga (2001), "The Powerful Triangle of Marketing Data, Managerial Judgment, and Marketing Management Support Systems," *European Journal of Marketing*, 35 (7–8), 796–815.
- Varadarajan, P. Rajan and Satish Jayachandran (1999), "Marketing Strategy: An Assessment of the State of the Field and Outlook," *Journal of the Academy of Marketing Science*, 27 (2), 120–43.
- Vargo, Stephen and Robert Lusch (2004), "Evolving to a New Dominant Logic for Marketing," *Journal of Marketing*, 68 (January), 1–17.
- and ——— (2006), "Service-Dominant Logic: What It Is, What It Is Not, What It Might Be," in *The Service-Dominant Logic of Marketing: Dialog, Debate, and Directions*, Robert Lusch and Stephen Vargo, eds. Armonk, NY: M.E. Sharpe, 43–56.
- and ——— (2008a), "Service-Dominant Logic: Continuing the Evolution," *Journal of the Academy of Marketing Science*, 36 (1), 1–10.
- and ——— (2008b), "Why Service?" *Journal of the Academy of Marketing Science*, 36 (1), 25–38.
- Webster, Frederick (1992), "The Changing Role of Marketing in the Corporation," *Journal of Marketing*, 56 (October), 1–17.
- Weick, Karl E. (1979), *The Social Psychology of Organizing*, 2d ed. Reading, MA: Addison-Wesley.
- Wiltbank, Robert, Nicholas Dew, Stuart Read, and Saras Sarasvathy (2006), "What to Do Next? The Case for Non-Predictive Strategy," *Strategic Management Journal*, 27 (10), 981–98.
- , Stuart Read, Nicholas Dew, and Saras Sarasvathy (2009), "Prediction and Control Under Uncertainty: Outcomes in Angel Investing," *Journal of Business Venturing*, forthcoming.