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## WHAT TO DO NEXT? THE CASE FOR NON-PREDICTIVE STRATEGY

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*Two prescriptions dominate the topic of what firms should do next in uncertain situations: planning approaches and adaptive approaches. These differ primarily on the appropriate role of prediction in the decision process. Prediction is a central issue in strategy making owing to the presumption that what can be predicted can be controlled. In this paper we argue for the independence of prediction and control. This implies that the pursuit of successful outcomes can occur through control-oriented approaches that may essentially be non-predictive. We further develop and highlight control-oriented approaches with particular emphasis on the question of what organizations should do next. We also explore how these approaches may impact the costs and risks of firm strategies as well as the firm's continual efforts to innovate. Copyright © 2006 John Wiley & Sons, Ltd.*

Among the most difficult challenges in business is creating strategy for the future of an organization that is doing well. No pending doom, rallying cry, or clear problem to solve. How do we know where to go from here? In many of these situations the question isn't asked or answered, the course simply maintained until a challenge or opportunity crashes into the organization. In others, however, a lot of effort is put into this innocent little question. What to do next?

Keywords: strategy making; uncertainty; decision making; market creation; construction; effectuation

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Williamson (1998: 49) formalizes this as a 'level III' resource-based question:

How should firm A, with its pre-existing strengths and weaknesses, reposition for the future in relation to the strategic situation (actual and potential rivalry; actual and potential market niches) of which it is a part or to which it can relate?

The question has also been formulated in other ways: How can a firm sustain its competitive advantage over time? How can a firm remain effectively matched to a changing environment? And so on. These are different ways of asking the same fundamental question: *How can a firm know what to do next?*

Imagine, for example, the situation of a local radio station. Let's call it KEEP180.

KEEP180 has established a solid market position, anchored in a passion for new and creative music of all types. From its roots as a college station, it has found a very unique identity over the past decade. The station has no commercials; instead funded by listeners and 'day sponsor' corporate sponsorship, mostly from local businesses. A unique mix of music covers many genres (from Alternative to Reggae to Country to French rap, most of it very novel) and substantiates KEEP180's motto of 'where the music matters.' Investment in an Internet presence has led to a fast-growing worldwide popularity among a loyal segment of music listeners. The station occasionally broadcasts from other cities to support remote Internet listeners. The local audience has expanded to the next major city to the south through extension of its traditional broadcast. All of this has inspired great loyalty among musicians and listeners alike. Winning a Webby award has reinforced KEEP180's candidacy for being the best radio station site in the world. What should this firm do next?

Often we simply pass this question back to the owners of the firm: they should pursue whatever they want to, their preferences. This begs the question from the managers of KEEP180: what should we prefer to do next? Owner-managers may have a clear high-level goal of continuing to be successful. In our example, this might be stated as: *to share great music with the world*. But this does not meaningfully narrow their choices about what to do next. The range of imagined choices in pursuit of such high-level goals is central to why the question is interesting. Decision makers can have a pronounced impact on outcomes in exactly these kinds of situations where discretion is very high (Finkelstein and Hambrick, 1990). Let us examine a few of the suggestions that strategic management scholarship has to offer our successful radio station:

- *Suggestion #1A*. If they could predict the future, perhaps the managers of KEEP180 would know exactly what to do. They could position their firm to profit greatly from their predictive power; buying the winning lottery ticket for tomorrow's lottery, so to speak. For example, if they could reliably predict that all radio listening would occur through the Internet in 4 years, they could insightfully avoid moving into more transmitters or buying radio stations and instead more aggressively develop their broadband customer base and content.
- *Suggestion #1B*. Of course, we know we cannot 'know' this, and there's the rub. All we can do is make an educated guess. KEEP180, for example, could work hard to analyze broadcast market trends, track competitors, evaluate financial indicators, and assess their own strengths and weaknesses for pursuing particular positions in multiple future situations. Based on their best estimates of what the future may bring, they could choose to continue to invest in the broadband business to position for a world where 75 percent of radio listening occurs over the internet in the next 4–6 years.
- *Suggestion #2A*. Not all predictions are created equal—in fact, if the history of Internet firms is any indication, most predictions are erroneous at best. As an alternative to investing in prediction, our radio broadcasters could instead watch how other radio stations are growing, examine what formats are working well, and pay attention to what customers love right now. Being particularly attentive to the situation they are actually in, rather than guessing the future, managers of KEEP180 might join in the consolidation of the broadcast industry—buying other stations, for example, or perhaps take advantage of their Internet strength to create dozens of different stations that reach many market segments.
- *Suggestion #2B*. One might even suggest they do both, moving forward slowly on their short list of possible 'things to do next.' If they keep their options open they will be able to react to real learning without betting the business on predictions about Internet radio, yet keep a foothold in the Internet market in case it turns out to be a great opportunity. Likewise they would be involved in the consolidation of traditional radio stations in case that turns out to be most attractive. This is particularly relevant when the risk-adjusted expected values of the short list of options are comparable.

A substantial proportion of strategy research is devoted to this very discussion of how the radio station can know what to do next, or how it can reposition for the future. Scholars will recognize the suggestions above as different operationaliza-

tions of the classic planning and learning debates over strategy making under different ‘degrees’ of uncertainty (see Ansoff, 1991, as an example of the former and Mintzberg, 1994, for the latter). Both focus on the appropriate role of prediction in the decision process. Planning looks at prediction from a natural sciences standpoint, where prediction is quite valuable. In this view, prediction enables control, allowing us to choose the appropriate means to proceed toward desired outcomes. Learning, which enables adaptation, comes at prediction from the opposite direction, avoiding it as much as possible. Adaptation argues that, in changing environments, moving faster to adapt will lead organizations forward more effectively than trying harder to predict.

We begin this paper with a review of strategic management research to clarify the role of prediction in deciding what to do next. In particular, we show that prediction is fundamental to current conceptions of how to control future outcomes. We then turn the tables by separating the dimensions of prediction and control (see Figure 1). We use the resultant taxonomy to explore KEEP180’s answer to its question of what to do next and examine implications for future research.

**STRATEGIC MANAGEMENT THEORIES: THE ROLE OF PREDICTION**

Studies in mainstream strategic management boil down to two fundamental prescriptions for how firms can decide what to do next (Brews and Hunt, 1999): They should either *try harder to predict better* (rational strategies advocated by the planning school) or *move faster to adapt better* (adaptive strategies espoused by the learning school). Which prescription a firm is to follow depends upon how confident the firm is in its ability to predict changes in its environment. Whether stated as distinct or as a continuum from deliberate to emergent (Mintzberg and Waters, 1985), a key characteristic of both adaptive and planning approaches is their emphasis on *positioning* the organization within an exogenously given environment. The two approaches differ primarily in how they cope with that *given* uncertainty.

We drew the above conclusion based on an extensive literature review. We began the review with a citation search of two major databases (JSTOR and EBSCO’s Business Source Premier)

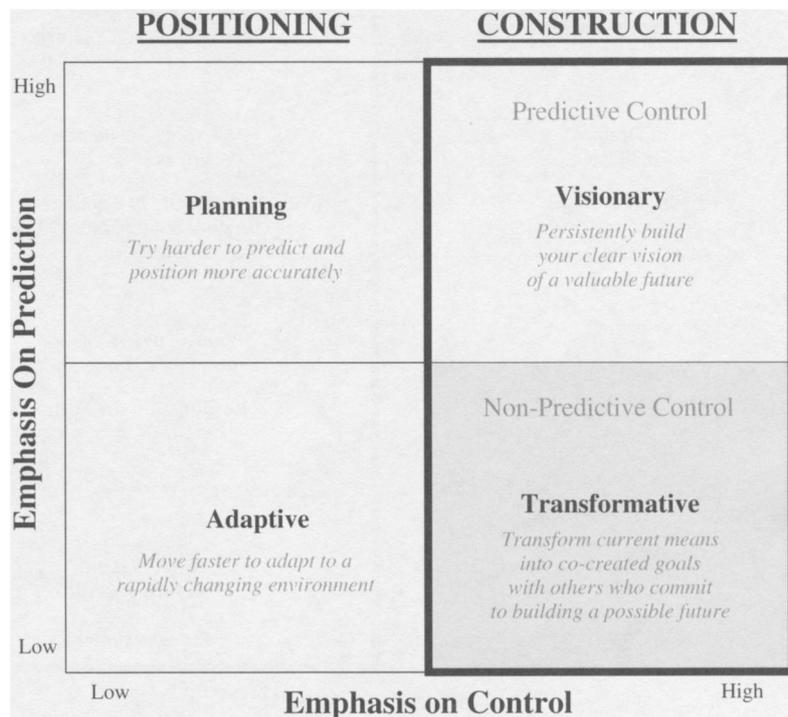


Figure 1. Framework of prediction and control

using broad conceptual keywords—namely, ‘strategy making,’ ‘strategy formulation,’ and ‘strategy design.’ We searched seven peer-reviewed journals (SMJ, AMJ, AMR, ASQ, MS, OS, and JIBS) and three practitioner journals (HBR, CMR, and SMR) in all. This resulted in 169 articles. To this, we added 18 articles suggested by strategic management scholars we consulted. We then iteratively narrowed the search by reading the abstracts to eliminate irrelevant articles, and grouping relevant articles that overlapped on key ideas. Finally we worked through the relevant articles in full, from which we identified 16 articles that exemplified cornerstone approaches to strategy making, although there is certainly some overlap in their positions. In some cases, a book summarizes the position from several of an author’s articles and was used as a reference point. Each of the final 16 (listed in the Appendix and organized into four

categories that will be explicated later in the paper) addresses the question of overarching interest to us, namely, how organizations can decide what do to next.

Assumptions about prediction and control are either explicit or implicit in virtually all formulations of strategic management research. So the focus of our literature analysis was on extracting those positions. Quotes from each article are presented in the Appendix to encapsulate the emphasis of each article with regard to prediction and control as the two concepts are discussed throughout this paper.

We began our analysis by positioning exemplar articles graphically along the dimension of prediction (high and low), as presented in the left-hand side (LHS) of Figure 2. For the moment, we will ignore the right-hand side (RHS) and return to it later in the paper.

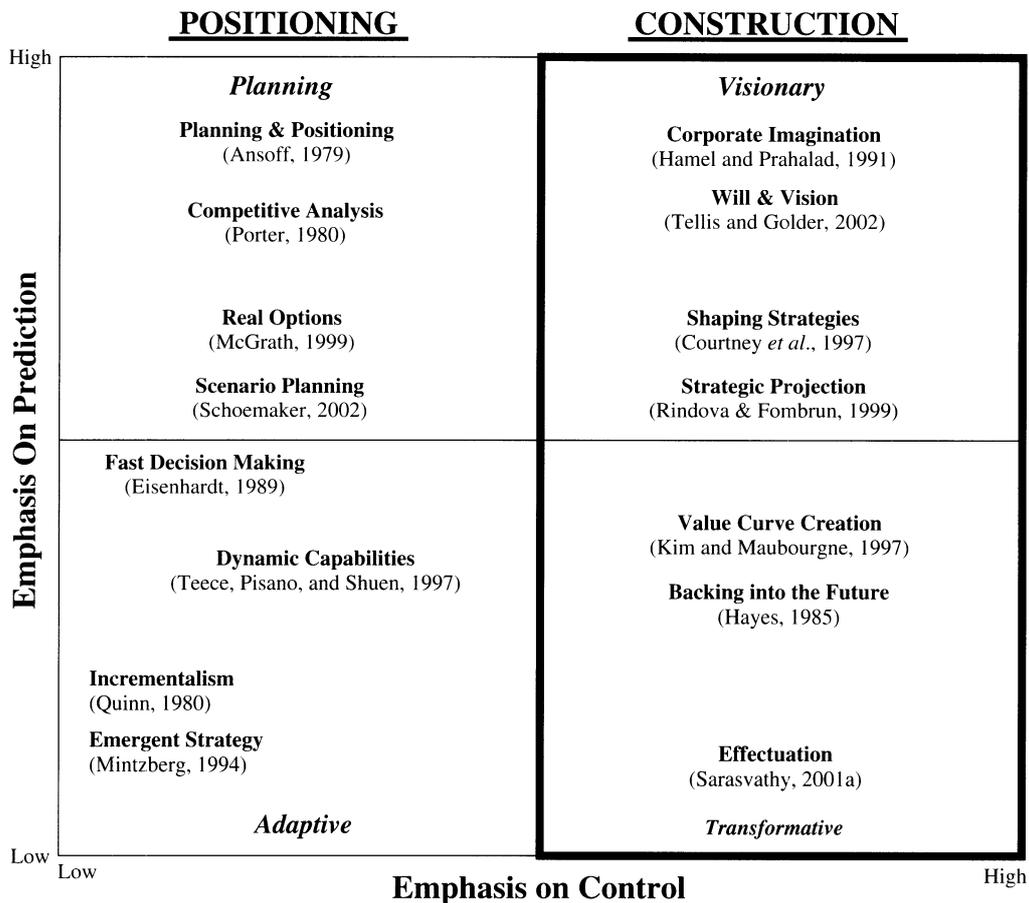


Figure 2. Representative literature on specific approaches to situational control

## Planning

The planning school is perhaps the oldest in strategic management and contains several widely read pieces such as Ansoff (1979) and Porter (1980), who emphasize the importance of systematic analysis and integrative planning. Discipline in the generation of alternatives, rational evaluation of important information, and significant integration into a firm's existing operations are earmarks of the rational planning process (Andrews, 1987; Fredrickson and Mitchell, 1984; Ansoff, 1991; Miller and Cardinal, 1994). In these approaches, more attention to situational detail, more frequent analysis, more scanning for trends, and evaluation of more alternatives guide the firm to their best possible strategy going forward (Schendel and Hofer, 1979), and a set of 'no regrets' moves (Courtney, Kirkland, and Viguerie, 1997).

The rational planning view predicts that as uncertainty increases, organizations that work more diligently to analyze and predict more accurately the changing situation in which they operate will outperform those that do not. Several empirical studies support this notion. Goll and Rasheed (1997) looked at the use of rational decision-making efforts through surveys of 62 manufacturing firms, evaluating the relationship of those efforts to return on sales and return on assets under different levels of environmental munificence and dynamism. They found that rational decision making positively impacted performance as dynamism increased. Similarly, Brews and Hunt (1999) found, through a survey of 426 managers enrolled in 39 executive education programs, that more specificity in the planning process was related to increased financial market performance vs. competitors over the prior 5–10 years. Also, Priem, Rasheed, and Kotulic (1995) report results from their study of 63 manufacturing firms where increased rationality in terms of scanning, analysis, and comprehensiveness in the strategy process was related to increased performance on several measures of performance relative to their peers, especially in dynamic situations. Similar results are reported in the Miller and Cardinal (1994) meta-analysis of 26 planning vs. learning studies; planning rationality is related to profitability even in turbulent environments. Additional notable studies of these relationships include Miller and Friesen, (1983), Pearce, Robbins, and Robinson (1987) and Dean and Sharfman (1996), where they

looked specifically at decision effectiveness longitudinally, rather than overall firm performance. Broadly these findings suggest that rational planning can guide organizations to successfully reposition for the future even in uncertain situations.

Champions of these notions make two key arguments for the enhanced role of rational planning with renewed vigor under uncertainty. First, short cuts, such as intuition, heuristics, and other avenues for handling the challenge, suffer from numerous personal and group biases (Staw, 1981; Schwenk, 1984; Bazerman, 1990). Systematic planning processes help to overcome the gaps and inconsistencies that can result from these biases (Ansoff, 1979; Priem *et al.*, 1995). The predictive approach may not be perfect because prediction is obviously difficult, but it represents the best method of remaining effectively 'aligned' with one's environment (Hough and White, 2003). Second, even if prediction is too inaccurate to be useful for strategy making under uncertainty, the discipline and systematic nature of rational planning is a valuable frame for the development and evaluation of emergent strategies (Ansoff, 1991; Szulanski and Amin, 2001).

## Adapting

The learning school, as opposed to the planning school, suggests organizations learn what to do next by minimizing the use of predictive rationality, and instead experimenting and moving quickly to capture new opportunities (Mosakowski, 1997). By being flexible and adaptive to situations as they develop, organizations successfully out-manuever competitors who also struggle to deal with the challenge of an uncertain future (Fredrickson and Mitchell, 1984; Nutt, 1976). Purely adaptive approaches avoid defining future event spaces, and instead position the firm for quick responses to uncertain and unpredictable events as they emerge. The basic strategic principle of adaptive approaches is incrementalism, as emphasized by Lindblom (1959), Quinn (1980), and Mintzberg (1978): the firm learns from environmental feedback; and subsequent strategy reflects this learning. As the cycle of action and feedback is short, adaptive approaches emphasize recognizing where the environment *is* rather than predicting where it *will be*, placing a premium on rapid adaptation rather than strategic intentions (Schoemaker, 2002).

Adaptation research argues that in dynamic and uncertain situations planning slows adaptation and that comprehensive planning can actually blind the organization to important changes in its environment (Mintzberg, 1990; Schoemaker, 1993). Also, predictions lead to commitments that lock organizations into planned strategy despite acknowledging huge challenges in making the predictions that justify those commitments. In this case, even if organizations see the need to make changes in their plan, they may not be able to effectively adapt (Ghemawat, 1999; Christensen and Bower, 1996). Boeker (1989) referred to the effects of these commitments as 'imprinting' and showed that as strategies are set up they lock in and firms are subsequently much less likely to adapt.

Empirical support for adaptive approaches to strategy making in uncertain situations is also significant. In two studies, Fredrickson and Mitchell (1984) and Fredrickson and Iaquinto (1989) looked at the consequences of comprehensive strategy making using a decision scenario survey with managers from firms in two industries, differing in the extent of instability. In both cross-sectional and longitudinal evaluations, they found comprehensive planning efforts were negatively related to performance in unstable environments. Miller (1993), through interviews with 53 firms, found that more successful firms were significantly more adaptive. Hough and White (2003), in an experimental design with 219 participants making 400 decisions, reported that a more comprehensive rational decision approach only enhanced decision quality in certain, rather than uncertain, situations. Also, based on an in-depth review of 8 of the 10 major oil companies, Grant (2003) reports that all of the firms have responded to increasing industry uncertainty by de-emphasizing their planning approach in exchange for more adaptive and flexible solutions, establishing a balance of corporate strategy guidelines and pure emergent strategy in what he refers to as 'planned emergence.' This notion of planned emergence, combining predictive planning with adaptive approaches, has grown significantly over the past decade and offers interesting combinations of the two approaches.

### **Bridging planning and adaptation**

Several streams of research point to planned emergence as a concept that bridges the gap between planning and adaptive approaches. Studies of fast

decision making show that in dynamic situations decision makers actually can arrive at faster decisions by pursuing a strategy-making process with many of the hallmarks of rationality (Bourgeois and Eisenhardt, 1988; Eisenhardt, 1989). Fast decision making allows for quick reactions to changing environments, central to adaptation, while retaining many of the rational strategy-making processes: more alternatives, more information, and more integration. Judge and Miller (1991) studied 32 hospital executives and found that fast and comprehensive strategic decisions were related to enhanced organizational performance. Similarly, Baum and Wally (2003) used a scenario-based survey to assess decision speed with 318 CEOs from 1996 to 2000, to show that fast rational decision making was related to higher profit and growth performance.

Work on dynamic capabilities also presses the notion of planned adaptation (Teece, Pisano, and Shuen, 1997; Eisenhardt and Martin, 2000). Rational planning can focus on predictive strategies that set the stage for fast adaptation. Organizations can rationally plan and develop systems that facilitate innovation and change, for example, through modular organizational structures that smooth significant organizational challenges to change, and/or establish formal but simple rules that guide the evaluation and pursuit of emergent opportunities (Simon, 1993; Eisenhardt and Sull, 2001). Scenario planning echoes this theme of connecting rational planning with effective adaptation by planning in advance for several scenarios that are individually challenging to predict, thereby accelerating adaptation when uncertainty is reduced (Schoemaker 2002).

Real options techniques have further refined the core approach of rational planning in uncertain situations (McGrath, 1999). By looking at different exercise options for alternative scenarios and their expected future outcomes, real options attempt to retain flexibility while providing a framework for decisions and valuation that is premised on alternatives predicted by the decision maker. As a result, strategy making is less dependent on any one prediction, and prepares the organization for major decisions as new real-time information becomes available. However, real options approaches are still significantly predictive as prediction underlies the estimated value of each individual option, both financially and

strategically; see Luehrman (1998) for an example of the extent to which predicted information is required.

This review of the planning vs. learning debate lays out several issues with prediction as a core aspect of strategy making. First, both planning and adaptive approaches to strategy making center around the appropriate role and/or effectiveness of prediction. Second, empirical support exists for the use of prediction as an effective way to decide what to do next, even in uncertain situations; there is also significant support for adaptive efforts. Third, several recent strategic approaches attempt to resolve this conflict by connecting the planning and adaptive approaches, encouraging firms to carefully plan to quickly adapt. Finally, both planning and adaptive strategies focus on positioning within an environment that is exogenous to the efforts of the organization. Under this assumption of exogeneity, predicting and positioning are the logical ways for organizations to seek control of their outcomes, and successfully reposition for the future. In the next section we relax the exogeneity assumption and suggest that viewing the environments of an organization as endogenous to the efforts of actors/organizations may help overcome this planning vs. learning dichotomy.

### CONCEPTUALIZING CONTROL AS INDEPENDENT FROM PREDICTION

The above insights from strategy research originate in observations about how managers have consistently guided organizations to favorable outcomes over time (Ansoff, 1965; Chandler, 1962). Favorable outcomes were considered outcomes that enhanced the survival prospects of organizations (Fligstein, 1996) and their profitability (Porter, 1980). Strategy was defined as the 'big decisions' made in the pursuit of these outcomes. As pointed out earlier, prediction has played a central role in crafting strategy. At least in principle, predicting the organization's environment enables them to position for the future in order to produce favorable outcomes. Cornerstones of this predictive effort involve predicting responses of competing firms, the path of market development (especially demand) with its attendant opportunities and threats, and factors affecting the costs of resources.

Deterministic frameworks in strategic management all share a basic conception: prediction is useful in strategy making because the consequences of what can be predicted can be controlled. This approach mirrors science, where prediction is used to test theories about causal connections in the natural environment and those theories are then used either to manipulate nature for our ends, or to safely position ourselves against the uncontrollable forces of nature. As managers face uncertainties in market environments, then, successful prediction of that environment enables them to navigate it, and to preemptively capture the resources that will become valuable, leading to continued favorable outcomes for the organization.

Naturally, these efforts in strategy draw on a deep history of thinking about chance and uncertainty. Written scholarship on how to make good decisions under uncertainty can be traced back at least to 1654, when Blaise Pascal wrote to Pierre Fermat about a gambling problem that launched the development of mathematical probability (Gigerenzer *et al.*, 1990). Hacking (1975) chronicles the endeavors of gamblers, scientists, philosophers, and kings to identify predictable patterns in nature and human behavior that allow them to produce desirable outcomes. It has become one of the basic tenets of science—from celestial mechanics to economics and management—that prediction and control are tied together, that they are *co-extensive*.

Yet, the practical usefulness of prediction as a means of control depends crucially on certain features of the environment (Mintzberg, 1994). Empirically, 'How to achieve control, and how much control is achievable, depends upon the foresight horizon' (Lane and Maxfield, 1996: 217). When the strategist's foresight horizon appears relatively certain, prediction and control appear to have a co-extensive relationship. As this horizon becomes more uncertain, the relationship between prediction and control changes. In highly uncertain environments, such as those characterized by complexity (Axelrod and Cohen, 1999), rife with strong path dependencies and punctuated change, the independence of control from prediction becomes stark. How control over outcomes is achieved in these settings changes. Efforts to control, directly working to create and influence the evolution of market elements, can be seen more clearly as competing alternatives to prediction for achieving favorable outcomes.

The conceptual framework for understanding prediction and control as distinct dimensions is grounded in Frank Knight's (1921) seminal work on the relationship between unpredictability and profit. Knight identified three types of uncertainty: the first consisting of known distributions and unknown draws, the second consisting of unknown distributions and unknown draws, and the third consisting of non-existent distributions where the very instances are unclassifiable (subsequently known as Knightian uncertainty). Knight's first two categories of uncertainty parallel the mathematical notions of classical probability and statistical probability; they also suggest scientists' and philosophers' distinctions between the known and the unknown. The third type of uncertainty—which has recently attracted interest from scientists attempting to work out quantum mechanics and its attendant theoretical puzzles—is the unknowable, summarized in Ralph Gomory's 1995 *Scientific American* article, 'The known, the unknown, and the unknowable.'

In biology, economics and social philosophy, analyses of this type of uncertainty consistently conceptualize it as a product of purposeful human creative action (Lewontin, 1992; Buchanan and Vanberg, 1991; Joas, 1996). In this third case, efforts to predict are distinctly severed from efforts to control. In environments characterized by Knightian uncertainty, prediction and control are not just empirically mismatched; they are conceptually at odds. Prediction can never be adequate for the purpose of control, even in principle, because of the role of human creative action in actually producing a non-existent, not just a hard-to-predict, future.

The conceptual co-extensiveness of prediction and control depends on classifying the environment as a dichotomy consisting of 'knowns' and 'unknowns.' Based on these classifications, it is in principle always possible to make predictions (even if it takes time to learn how to do it well), and use prediction as a means of controlling outcomes. In environments characterized by Knightian uncertainty, however, the very instances are unclassifiable. While after an innovative event occurs we may conclude that we could certainly have classified and predicted the probabilities of its success or failure, Knightian uncertainty refers to the actual instance of innovation (the pet rock, the Internet, Google) as unclassifiable (Buchanan and Vanberg, 1991). There simply was no category

of 'pet rock' to which we could assign probabilities *ex ante*. In settings of true uncertainty strategists of course still seek favorable outcomes, but this may result from directly shaping these categories rather than predicting their probable shapes and navigating those probability estimates.

To the extent we seek to understand reality as exogenous to human action, unknowability (true unpredictability) can be a disquieting and disruptive phenomenon. However, if we focus on human action as a primary factor in the creation of reality, we then need to develop approaches that don't involve prediction—i.e., to explore the potential of non-predictive techniques for generating favorable outcomes (March, 1982).

The practical meaning of predicting and controlling future events can be illustrated by reexamining the KEEP180 example that began the paper. Let us for a moment assume that the radio station carries out market research predicting an explosion in a new genre of French music. It can then invest in bringing that music to its audience and consequently capitalize on higher ratings. Prediction efforts can include modeling a future event space, estimating probabilities for events, and evaluating consequences, as well as more sophisticated portfolio strategies, initiation of multiple contingent efforts, and refining probability estimates over time. Alternatively, the producer at KEEP180 may simply love the French language, and leverage friendships with an executive at a French recording label and a current American music icon to create an explosion in French rap music and profit from a distribution relationship. Both cases involve beliefs about what is possible, but the first strategy operates primarily on the prediction of the future market, while the second operates primarily on the interest in and ability to create that future market.

In both cases, actors want to guide themselves towards favorable outcomes; our argument is simply that prediction is not the only point of leverage in achieving those outcomes. Planning and/or adapting to succeed in an essentially exogenous environment might be effective, but attempting to significantly influence/control an endogenous environment directly may also lead to favorable outcomes. Control over favorable outcomes need not be co-extensive to the efficacy or even necessity of prediction. Putting prediction and control on separate dimensions clarifies these approaches, while showing how they relate to more traditional strategic approaches. Figure 1, alluded to earlier,

outlines our framework and suggests four key approaches for strategic managers:

1. They can assume the environment is beyond their control and predictable, investing in predictive techniques that allow them to position favorably for the future—we call these planning strategies. Example: Walmart's original push into C&D tier markets with supply chain expertise.
2. They can assume the environment is unpredictable, shorten their planning horizons, and invest in flexible strategies that effectively respond to changes in the environment—we call these adaptive strategies. Example: Dell's creation of a build-to-order PC system, and organization to support it.
3. They can assume the environment is predictable but malleable and impose their vision of the future, shaping the environment to achieve their desired outcomes—we call these visionary strategies. Example: Microsoft's initial push toward a PC on every desk.
4. They can assume future environmental factors are largely non-existent, and seek to create them through cooperation and goal creation with others to imagine possible futures extending from current means—we call these transformative strategies. Example: Uhaul's creation of a one-way truck rental business.

On the right-hand side (RHS) of Figures 1 and 2, the two approaches emphasizing control are referred to as construction because they tend to more clearly focus on the types of efforts actors may pursue to create their future, at least in part. Construction represents this well as it not only calls to mind ideas of social construction, but also the more straightforward idea that markets develop through the construction of artifacts such as organizations and surrounding institutions, patterns of exchange, and preferences of important stakeholders. Not surprisingly, much of the work relating to control as an approach to repositioning for the future originates in research related to entrepreneurship and new markets. In an entrepreneurial setting, not only is prediction difficult, but efforts to directly construct the future of those structures and traditions may be particularly effective. These situations have been shown to present greater managerial discretion, allowing actor/organizations to pursue unique

approaches to influence their environment (Finkelstein and Hambrick 1990). With this in mind, we turn to a more detailed exposition of the RHS of Figures 1 and 2.

## EMPHASIZING CONTROL

The word 'construction' immediately brings to mind images of blueprints and visions as well as the proper materials and methods to transform them into reality. Construction evokes means–ends relationships rather than organism–environment interactions invoked by positioning concepts such as planning and adaptation. While positioning deals with the relative emphasis on prediction and navigating an exogenous environment, construction deals with deliberate efforts to make the environment endogenous. In this section, we outline two different approaches to construction: visionary strategy, and strategy as transformation. These approaches differ depending on the existence and clarity of goals, the availability and quality of means, and the skills of the constructor (strategist).<sup>1</sup>

As opposed to an exogenous evolving environment posited by positioning strategies, constructive approaches assume either the non-existence of key elements of the environment (presenting opportunities for constructing them), or the organization's ability to affect the evolution of those elements in significant ways. Elements that organizations attend to most closely are those that supply resources to the organization, particularly markets for outputs. Mature output markets consist of defined products and services (the artifacts exchanged), a set of consumers with well-ordered preferences (demand for products and services), and a set of market structures and institutions (such as distribution channels, product standards and marketing practices) that facilitate exchange at low transaction costs (Geroski, 2002; Coase, 1988; North, 1990).

Construction strategies capture organizations' efforts to shape the development of these market elements over time with other market participants (Lazonick, 1991). For example, before the

<sup>1</sup> In the language of Aristotelian causation, this sentence can be rewritten as: In each of these, construction (formal cause) depends on the availability and quality of means (material cause), skills of the constructor (efficient cause), and the existence and clarity of goals (teleology or final cause).

invention of the Internet, while the market for high-speed communication existed, most of the products (e.g., e-mail) did not exist. Even after the invention of the Internet, structures such as standardized protocols (e.g., IP addresses) and channels (e.g., ISPs) had to be invented before e-mail could become a viable product. If we go back to the first 15 years after the invention of the Internet, not only did market structures not exist but also demand itself had not been formulated in ways that would connect the Internet with the need for high-speed communications. It is plausible to hypothesize that well-organized preferences for digital vs. other forms of communication were constructed in a similar way to the construction of consumer perceptions in Rosa *et al.*'s (1999) account of the emergence of the minivan segment of the automobile market.

Geroski (2002) has expressed this as the process of transforming 'inchoate' demand into 'articulated' demand, arguing that one key consequence of new entrants rushing into emerging niches in industries is the generation of product variety. This variety enables users to sample and learn which product variations best meet their needs and more clearly articulate demand preferences. Research has shown numerous ways in which producers effect consumer preferences: preferences are effected by the order of entry of competitors into markets (Carpenter and Nakamoto, 1989); consumer preferences evolve based on the basket of available consumer products (Aversi *et al.*, 1999); advertising shapes preferences (Kotler, 1994); and organizations influence market take-up of innovations by their choice of lead users (von Hippel, 1986; Rogers, 1995). Assumptions about the ability to influence these interlocking components of the environment are fundamental to construction, emphasizing control in deciding what to do next.

As outlined on the RHS of Figures 1 and 2, construction strategies differ in their emphasis on prediction, thereby separated into Visionary and Transformative strategies. Visionary approaches have strong connections with predictive approaches to strategy, and embody heroic notions of insightful and persistent entrepreneurs that seem to impose their will upon the world. Transformative approaches focus on co-creating goals with others in a mutually persuasive process where action often precedes clear goals and predicted outcomes. Actors using this type

of strategy transform extant means into new futures.

### Visionary approaches

Visionary approaches are more familiar to strategic management than transformative ones. This type of strategy emphasizes constructing an organization and its environment by imagining future possibilities and proactively bringing them to fruition. The essence of vision is to set tremendous goals to create and colonize new spaces in the environment. Hamel and Prahalad (1989) articulate the approach in their discussion of strategic intent:

Too often strategy is seen as a positioning exercise in which options are tested by how they fit the existing industry structure ... The strategist's goal is not to find a niche within the existing industry space, but to create a new space uniquely suited to the company's own strengths, space that is off the map. (Hamel and Prahalad, 1989: 74)

The visionary approach simultaneously emphasizes high control and high prediction. The future that comes to exist does so in large part simply because visionary leaders chose to create it. In *Will and Vision*, Tellis and Golder (2002: 58) state that 'Vision is the starting point. It motivates and directs [other factors].' A steadfast commitment to a particular vision guides prediction and evaluation of alternative paths for achieving that vision, and the persistent pursuit of the means required to 'make it happen.' The oft-quoted definition of entrepreneurship as the pursuit of opportunity without regard to resources currently controlled (Stevenson and Jarillo, 1990) also captures this idea. Clear goals and predictions form the criteria for selecting between alternate means for constructing favorable outcomes. Note for example, '[W]hile strategic intent is clear about ends, it is flexible as to means' (Hamel and Prahalad, 1989: 68).

Several researchers have pointed to key success factors involved in the visionary approach. In assessing the impact of being a first mover in a product market, Tellis and Golder (2002) historically evaluated 66 different product categories. They found that commitment to a clear vision, a unique view of how things could be in the future, supported by incredible persistence and willingness to commit financial and reputation resources, is key to enduring market leadership. Collins and

Porras (1994) studied firms that created substantial wealth from their founding, in matched pairs with relatively underachieving firms. They also showed that success involved 'cult-like' commitment to a motivating vision of where the organization is *taking* the market, as opposed to positioning for where the market is heading. Rindova and Fombrun (1999) describe the role of strategic projections, where consistency between the communication and resource commitments in line with the organization's vision is critical to increasing reputation and a desire by others to support that organization's particular visionary efforts.

The RHS of Figure 2 lists representative research for construction approaches that parallel the research we identified earlier for positioning on the LHS. As is obvious from the graphical representation, research in the lower right-hand quadrant of Figure 2 is rather sparse. One of the challenges for this area is in articulating it as an approach in which actors/organizations can actually engage *a priori*. Earlier influential research in relation to construction of the future descriptively outlines non-predictive action but not as a proactive approach. Weick's (1979) work on enactment is a primary example. The challenge here is to translate the description of human involvement in the process of resolving the future into a 'strategic approach' that guides their influencing of that process. Transforming represents an attempt at this, emphasizing control and construction in the absence of prediction.

### Transformative approaches

Fortunately, preliminary steps have already been taken by several eminent scholars. Simon (1996), for example, explained in *Sciences of the Artificial* the importance of theories of non-predictive design; and March (1978, 1982) has argued that a *technology of foolishness*, both non-predictive and non-visionary, might actually be useful. Sarasvathy (2001a, 2001b) builds upon both Simon and March to show how expert entrepreneurs use an effectual logic that is transformative without calling for prediction or vision in creating new markets and new environments.

A small but growing number of empirical projects are pursuing research in this direction. ogilvie (1998) describes an experimental design manipulating the uncertainty faced by decision makers, and compares the outcomes of rational-logical

efforts with creative-action based ideas. The study finds that in unstable situations decision makers who emphasized an orientation toward creation and action showed enhanced decision quality. Kim and Maubourgne (1997) describe their work with 'value curves' which falls into the set of transformative approaches. They suggest that strategies are more effective as they move beyond reacting to traditional market specifications of success, toward leveraging means entirely toward overachieving on co-created product features with customers and leaving other predicted success factors out completely.

Our primary model for this quadrant comes from Sarasvathy (2001a), Dew (2003), and Sarasvathy and Dew (2005). These studies have worked out a model of effectuation induced from two empirical studies: one consisting of a think-aloud protocol analysis of 27 expert entrepreneurs and the other consisting of historical analyses of new markets created by the Radio Frequency Identity industry. The dynamic and interactive model of effectuation, graphically presented in Figure 3, outlines a specific process for how organizations can know 'what to do next;' the process is action oriented, inter-subjective, and non-predictively transforms an organization's means into newly constructed settings.

As Figure 3 shows, effectuation begins with three categories of means: Identity; Knowledge; and Networks. Actors begin with who they are, what they know, and whom they know to imagine things they can accomplish. This reflects an emphasis on future events they can *control* rather than those they can *predict*. For example, an endocrinologist thinking of starting an obesity clinic begins with the fact that she understands the causes of obesity and some ideas for helping people with the problem; a real estate professional may also start an obesity clinic because he has found a prime location next to a thriving teaching hospital specializing in obesity research, but he is likely to begin with possibilities suggested by the location of the property rather than the needs of obese people. The possible directions to take next emphasize strategies of control, pieces of the future that they can shape through their relatively unique abilities, prior knowledge, and social network.

In the next step of the process, they start reaching out to other people with a view to obtaining input on how to proceed with some of the things they could (possibly) do. The people they talk with

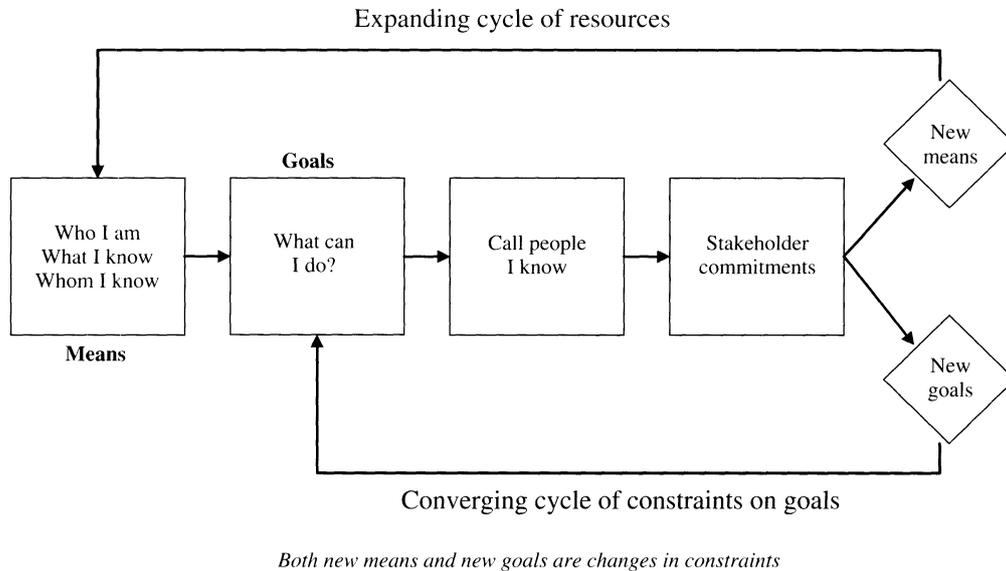


Figure 3. A transformative approach: the effectual process—dynamic and interactive

could be potential stakeholders, friends and family, or random people they meet in the routines of their lives. As they find people who want to participate in the efforts to build something (at this point the ‘something’ may be vague or concrete, but is always very much open to change) they move toward obtaining actual commitments from these potential stakeholders. What counts is the willingness of stakeholders to *commit* to the construction process; and not their fit with or alignment to some pre-conceived vision or opportunity. Each person who actually stakes something to come on board contributes to shaping the vision and the opportunity, as well as enabling and executing particular strategies to achieve them. Whatever each stakeholder commits becomes a patch in a growing quilt whose pattern becomes meaningful only through the continual negotiation and renegotiation of its appeal to new stakeholders coming on board. In other words, stakeholders commit resources in exchange for a chance to reshape the goals of the project, to influence what future will ultimately result.

This process of negotiation and persuasion sets up two cycles in the concurrent formation of a new firm and new market: an expanding cycle that increases the means available; and a converging set of constraints on the goals of the growing stakeholder network. These constraints help solidify structures of the new market as well as clarify and reorder preferences of stakeholders in the market.

At some point in the process, the converging cycle ends the stakeholder acquisition process; there is no more room for negotiating and maneuvering the shape of what will be created, and path dependency takes over. As the structures of the market begin to take visible shape it may be important to reevaluate the balance of prediction and control in one’s strategic approach.

Stakeholder commitments drive the dynamics of the effectual model. More fine-grained details of the dynamic model are provided by three key principles that stakeholders use. These principles provide criteria for taking effectual action and help stakeholders decide how to make effectual commitments:

- *Means-driven (rather than goal-oriented) action.* Each effectual stakeholder considers who he is, what he knows, and whom he knows. Stakeholders imagine possible courses of action based on their means and engage others whose strategies are driven by other types of identity, knowledge, and networks. When exciting overlaps are discovered and valuable new combinations are engineered, stakeholders commit those elements of their means that make worthwhile contributions to the new world being fabricated, thereby enabling the fabrication. Initially, every stakeholder interaction is as likely to change the shape of the new market or artifact being created as it is to change the original set of means.

- *Affordable loss (rather than expected return) as evaluation criterion.* Each effectual stakeholder strives to invest only what he or she can afford to lose. Since it is not clear at the early stages of the effectual process *what* the pie will be, let alone how much each piece will be worth down the road, stakeholders cannot effectively use expected return as their immediate criterion for selecting resource investments. Instead, each has to reconcile within his own mind whether they can live with the loss of what they are investing in the enterprise. This takes away the need to predict what the returns will be; calculation of affordable loss depends only on the investor's current situation and their subjective judgment of what they are able to afford; it is entirely within their control.
- *Leveraging (rather than avoiding) contingencies.* Any environment and epoch in human affairs contains unexpected contingencies; thus predictions come with disclaimers about degrees of confidence. While predictive efforts seek to avoid or hedge against contingencies, effectuation seeks to capitalize on these occurrences. In other words, surprises can offer unexpected opportunities as well as present unanticipated problems. Contingencies don't only undermine the value of current means in achieving the goal, but also provide opportunities to create new value through those means in pursuit of new goals. Therefore, stakeholders in the effectual process deliberately keep open room for surprises. In the case of KEEP180, for example, if funding for a new transmitter falls apart, the focus can go beyond absorbing that blow to finding alternative funding in pursuit of operation as a record label through a relationship created with one of those withdrawing investors in the transmitter.

The taxonomy in Figure 1 presents strategists with interesting new possibilities in addition to (a) trying harder to predict and position more accurately, or (b) moving faster to adapt to rapidly changing environments. Having all four quadrants available for analysis opens up further possibilities for theorizing and practice in strategic management. In particular, it forces us to confront the question: What are the advantages, if any, of *not* trying to predict the future? There are at least two. First, it points to creativity and entrepreneurship as important elements of strategizing; second, it

makes strategizing cheaper by eliminating costs of trying to predict the future as well reducing the costs of failure.

Exogenous or preselected goals and environments are ways for problem solvers to reduce the size and dimensionality of their problem space. Creative problem solving, however, is about generating more alternatives (Wallace and Gruber, 1992) and increasing the size and dimensionality of the problem space. Creativity also is more about problem formulation than about problem solving. It is certainly the case that strategy involves the generation of new alternatives in all four quadrants of Figure 1. However, by making both the generation of new goals and new environments endogenous to the strategy-making process, construction demands and facilitates the widest possible innovative range.

This is particularly the case in transformative approaches given the emphasis on the co-creation of goals with others, based on their means. This quadrant calls for exaptive efforts, pulling those means into new applications. According to Mokyr, the basic idea of exaptation is that, 'a technique that was originally selected for one trait owes its later success and survival to another trait which it happens to possess' (Mokyr, 2000: 57). In the transformative quadrant strategists engage in exaptation whenever they ask, for any specific set of preexisting resources, not only 'What can we do with these resources?' but also 'What else can we do with them?' (Dew, Sarasvathy, and Ventakaraman, 2004). Continual imagination on a variety of fronts including new goals, new means, new environments and new institutions is a cornerstone of transforming extant realities into new possibilities. As a result, this perspective on control provides insight into how research in creativity and entrepreneurship can connect more effectively to strategy making under uncertainty.

In sum, whereas predictive strategies are ways to manipulate current realities to reach preselected goals, and adaptive strategies are ways to map resources onto given environments, transformative strategies generate new goals and new environments from current realities. Reconceptualizing prediction and control as independent suggests new relationships between strategy making and: (a) particular types of environments, such as levels of uncertainty, institutional stability and maturity, etc.; (b) specific aspects of dynamics such as speed, magnitude, and quantity of changes

over time, etc.; (c) various types of technological regimes; (d) macro-economic factors; and (e) behavioral assumptions about the actors involved. We leave these explorations to future endeavors, and end by returning to the example of the radio station KEEP180 and what it might do next.

## CONCLUSION

If KEEP180 considers itself a radio station with a specific market niche and a stable business model, it might ask itself, 'What should we do next to serve our market?' The answer will probably be to invest in in-depth market research and tailor its future strategies to predicted trends in its market niche. If it believes more in its passion as a trend-setter in music broadcasting, it will ask, 'What should we do next to achieve our vision?' The answer could be to try to expand its niche and create new niches in alternate geographic regions or through alternate media for propagating its music. If it perceives its market is changing or that its niche is being invaded by other competitors, it will ask, 'What can we do to respond?' and hopefully move quickly to adapt its products and business model. But it can also assess its current situation, both in terms of its resources and its product-market positioning, and ask itself, 'What else can we do?' In particular, it can engage and leverage its stakeholders' imagination and their expanding network of relationships to come up with completely unanticipated new markets—sell sporting goods, agricultural equipment, marine products, lawn-mowers, and snowmobiles as J.B. Fuqua did, or start a 24-hour TV news channel, the world's largest bison herd and a chain of restaurants, not to mention millions of acres for conservation, as Ted Turner did.<sup>2</sup>

Or, perhaps, join hands with another entrepreneur in the music business, Richard Branson, to send rich tourists off to space, and who knows, bring home the very first alien contact from Alpha Centauri.<sup>3</sup> The essence of non-predictive strategy is that it is, well, unpredictable. What we argue here is that emphasizing control and managing any

failures it might entail—keeping them small and quick—offers a whole new world of fascinating intellectual opportunities for strategic management and entrepreneurship.

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<sup>2</sup> The early ventures of both Fuqua and Turner included radio stations in Georgia.

<sup>3</sup> Branson has recently founded Virgin Galactic, which, in partnership with Paul Allen and Burt Rutan (Designer of Spaceship One, the first privately manned space flight) is planning to put ordinary people into space by 2007.

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Appendix: Quotes from Exemplar Articles Explaining Their Place in the Framework

Quadrant	Article	Emphasis on prediction	Emphasis on control	Quotation from exemplar article
Planning	Planning and positioning (Ansoff, 1979)	High	Through prediction	... when [firms] arrive on a market with a new product/service, such firms (those not forecasting) find the market pre-empted by more foresightful competitors, who had planned their strategic moves in advance (p. 17)
	Competitive analysis (Porter, 1980)	High	Through prediction	... strategy involves positioning a business to maximize the value of the capabilities that distinguish it from its competitors. It follows that a central aspect of strategy formulation is perceptive competitor analysis ... to develop a profile of the nature and success of the likely strategy changes each competitor might make (p. 47)
Adaptive	Real options (McGrath, 1999)	Moderate	Low	... real options reasoning, ... emphasizes managing uncertainty by pursuing high variance outcomes but investing only if conditions are favorable (p. 13)
	Scenario planning (Schoemaker, 1993)	Moderate	Low	... scenarios do not aim to predict the future, but rather bound it ... A concerted, collective scenario building effort will give the firm's managers a head start, as well as a conceptual framework within which to scan, encode, update, and understand the future as it unfolds (p. 200)
	Fast decision making (Eisenhardt, 1989)	Moderate	Low	Fast decision makers use more not less information ... develop more not fewer alternatives. (p. 543) ... that information was not forecast information. Rather, it was real time information, especially on a firm's competitive environment and operations (p. 549)
Visionary	Dynamic capabilities (Tece, Pisano, and Shuen, 1997)	Moderate	Low	The ability to calibrate the requirements for change and to effectuate the necessary adjustments would appear to depend on the ability to scan the environment, to evaluate markets and competitors, and to quickly accomplish reconfiguration and transformation ahead of competition (p. 521)
	Incrementalism (Quinn, 1980)	Low	Low	One wants to adopt the best currently available technical solutions and to adapt to the customers most current perceived needs (p. 23)
	Emergent strategies (Mintzberg, 1994)	Low	Low	Strategy formation then becomes a learning process, whereby so-called implementation feeds back to formulation and intentions get modified en route, resulting in an emergent strategy (p. 946)
Visionary	Corporate imagination (Hamel and Prahalad, 1991)	High	High	... battles will be won by companies that can build and dominate fundamentally new markets ... to realize the potential that core competencies create, a company must also have the imagination to envision markets that do not yet exist and the ability to stake them out ahead of the competition (p. 81)
	Will and vision (Tellis and Golder, 2002)	High	High	Realizing the vision requires persistence, innovation, and financial commitment. For these reasons, the visionary not only sees the future of the market but creates the future by bring that vision to fruition (p. 83)
	Shaping strategies (Courtney <i>et al.</i> , 1997)	High	Moderate	Shapers aim to drive their industries toward a new structure of their own devising. Their strategies are about creating new opportunities in a market—either by shaking up stable level 1 industries, or by trying to control the direction of the market in industries with high levels of uncertainty (p. 73)

(continued overleaf)

Appendix: (Continued)

Quadrant	Article	Emphasis on prediction	Emphasis on control	Quotation from exemplar article
	Strategic projections (Kindova and Fombrun, 1999)	Moderate	Moderate	In addition to influencing interpretations, strategic projections contribute to the formation of firm-related schemata, such as corporate reputations. Specific interpretations and reputational schemata affect how constituents evaluate a firm and how they choose to allocate the resources they control (p. 697)
Transformative	Value curve creation (Kim and Maubourgne, 1997)	Moderate	High	... high-growth companies paid little attention to matching or beating their rivals. Instead, they sought to make their competitors irrelevant through a strategic logic we call value innovation (p. 104)
	Backing into the future (Hayes, 1985)	Low	High	Earlier I questioned the notion that means should follow ways on the ground that important resources ... cannot always be purchased when needed. Now I also question whether managers should decide on ends before selecting ways (p. 117). The logic of ends—ways—means that got the hares into this situation is unlikely to get them out. They will need to explore a new logic, possibly a reverse logic (p. 119)
	Effectuation (Sarasvathy, 2001a)	Low	High	Causation processes are effect-dependent—focusing on expected returns, competitive analyses, pre-existent knowledge, and prediction; effectuation processes are actor-dependent—emphasizing affordable loss, strategic partnerships, contingent action, and control (p. 243)