COMPETENCE-BASED STRATEGIC MANAGEMENT

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In this chapter we focus on the question of whether we can predict ex ante which competences will lead to rent generation. We examine two aspects of this question: our ability to operationalize attributes of rent-generating competences independent of firm performance and our insight into where the critical focus of managerial attention may lie when seeking rents. In addressing the first aspect, we propose a theoretical basis for choosing ex ante predictors of rent generation that are tied to a firm’s environment. Similarly, we address the second aspect with a solution to the trade-off between managerial attention directed inside the firm and managerial attention directed outside the firm that depends upon a firm’s environmental characteristics.

INTRODUCTION

An essential problem in the resource-based view of strategy (Penrose, 1959; Rubin, 1973; Lippman and Rumelt, 1982; Rumelt, 1984, 1991;
Wernerfelt, 1984, 1995; Barney, 1986, 1991; Dierickx and Cool, 1989; Conner, 1991; Mahoney and Pandian, 1992; Mosakowski, 1993; Peteraf, 1993) is that there is no clear or agreed basis for selecting which of the vast number of a firm’s resources are in fact those that contribute to firm performance. Upon close examination, all firms become bundles of essentially idiosyncratic resources that could never be perfectly replicated at any cost. Even though the concept of scarcity is a cornerstone of the resource-based view’s arguments for the conditions that lead to rent generation, in and of itself this concept does little to sift through the plethora of idiosyncratic resources of a firm. As Conner (1991: 145) notes, “at some level, everything in the firm becomes a resource and hence resources lose explanatory power”.

To some extent, it is the difficulty of predicting which resources will generate rents ex ante that motivates such criticisms as Porter’s (1991: 108):

> At its worst, the resource-based view is circular. Successful firms are successful because they have unique resources. They should nurture these resources to be successful. But what is a unique resource? What makes it valuable? Why was a firm able to create or acquire it? Why does the original owner or current holder of the resource not bid the value away? What allows a resource to retain its value in the future? There is once again a chain of causality that this literature is just beginning to unravel.

Resource-based view scholars should not disregard this criticism simply because Porter is working in a different research tradition.

We agree with Porter in that the current state of the strategic management work on the resource-based view often represents tautological reasoning of the sort that (1) rents are used to define a firm’s critical resources in that these resources are identified by comparing successful versus unsuccessful firms; and then (2) the question is asked whether resources generate rents, to which a resounding YES is heard. Resolving the tautology presents a formidable challenge to future researchers, including those working in related perspectives such as competence-based strategic management, and in this chapter we propose a preliminary answer to the general question: How can we predict which resources and competences will underlie a firm’s long-run performance?

Our proposed solution focuses on two questions: what is a unique (or scarce) resource or competence, and what makes it valuable?\(^1\) We focus on the difficulties of operationalizing uniqueness and value

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\(^1\)In a separate paper (Mosakowski, 1995), we address the related question of what actions managers might take to create or acquire a rent-generating resource or competence.
independently of firm performance outcomes. To do so, we suggest that the competitive environment in which resources and competences are embedded will determine which are unique and valuable. Thus, we depend on independent environmental characteristics as an external referent for answers to the scarcity and value questions.

In addition, we examine the impact of a firm's competitive environment on the appropriateness of managers adopting an inward-looking focus instead of an external-looking focus. Research on the resource-based view of strategy—and, in particular, the finding that business-unit effects have a greater impact on firm performance than do industry effects (Rumelt, 1991)—is in danger of being misinterpreted as dismissing the importance of the traditional Porterian (1980) view of strategic thinking that focuses on topics external to the firm, such as the analyses of competitors, customers, suppliers, and so forth.² However, suggesting that firm resources and competences are important to firm performance does not negate the necessity for managers to study their competitive environment and develop a strategic logic (Sanchez and Heene, 1996). In this chapter we develop arguments about how environmental conditions may affect the balance between a manager's attention to internal versus external issues.

A caveat about firm performance is warranted at this point. Although we acknowledge the possibility of a holistic perspective in which firms are pursuing multiple strategic goals (Sanchez and Thomas, 1996), we maintain the traditional emphasis on economic rents as our performance variable. In the calculation of rents, one needs to adopt an ex ante perspective to evaluate whether a resource or competence will lead to rent generation such that the ex ante cost of acquiring or developing the resource or competence is less than its ex post value—resulting in an above-normal return (Barney, 1986; Rumelt, 1987). However, in this chapter we do not explicitly take into account actor market considerations (Barney, 1986) that affect the costs of acquiring or developing resources or competences. Instead, we focus on the static situation in which firms' resources and competences are in place and we want to predict which firm will generate future rents.

The potential for an inward-looking myopia is reduced in the approach of competence-based strategic management, which stresses both an internal and external perspective (Sanchez, Heene, and Thomas, 1996b: 27). This work acknowledges that critical resources may reside in the environment—that is, resources that are not owned by firms but can be addressed by them may play a critical role in determining the competitive advantage of firms (Sanchez, Heene, and Thomas, 1996b). In addition, the product market and competitive arenas have been integrated into the notion of competence-based competition. Bogner and Thomas (1996) emphasize that competences likely to generate rents are those capable of generating product traits that are desirable in their targeted market.
In this situation, many competences represent largely sunk costs and therefore our attention to rents translates into a focus on which competences are likely to generate the greatest ex post returns. Obviously, a more complete model would incorporate factor market considerations and the dynamic problem of firms building new competences and leveraging existing competences (Gorman, Thomas, and Sanchez, 1996).

In the rest of the chapter we develop our arguments in the following way. In the next section we begin by elaborating on some of the underlying difficulties associated with studying scarcity and value of resources or competences. In the third section we propose two operational solutions to these difficulties, both based on an environmental referent. In the fourth section we discuss two types of environments—severe and non-severe—to propose how the balance between an inward-looking focus versus an outward-looking focus may vary between these environments. In the fifth section we conclude our discussion.

**Competence-based Strategic Management**

Selznick's (1957) early use of the term “core competence” and Penrose's (1959) work on managerial competences and firm strategy suggest that looking within the firm to understand sources of competitive advantage is not a new idea. Nonetheless, renewed research attention by strategic management researchers has attempted to systematize the conditions under which resources and competences may serve as sustainable sources of rents. This research perspective has been associated with many labels that include the term “competence” (McKelvey, 1982)—such as “core competence” (Prahalad and Hamel, 1990; Hamel and Prahalad, 1993; Henderson and Cockburn, 1994), “competence-based competition” (Hamel and Heene, 1994; Sanchez, Heene, and Thomas, 1996a), and “competence-based strategic management” (Sanchez, Heene, and Thomas, 1996a; Heene and Sanchez, this volume)—as well as with the “resource-based view”, “strategic assets” (Winter, 1987; Amit and Schoemaker, 1993), “dynamic capabilities” (Teece, Pisano, and Schuen, 1992), “core capabilities” (Leonard-Barton, 1992), or just “capabilities” (Ulrich and Lake, 1990; Stalk, Evans, and Shulman, 1992). In referring to the extant literature, we use the phrases, *competence-based competition, competence-based strategic management* and *competences* to encompass this work in its entirety.

A fundamental tenet of competence-based strategic management is that, to explain differences in firm performance, one needs to examine
differences in firms’ competences. But as Peteraf (1993: 180) notes, numerous authors working within this general perspective disagree over terminology and other points. Since the objective of the current chapter is not to resolve these disagreements, we gloss over any differences to characterize competence-based strategic management as a cohesive theory. We acknowledge that by glossing over differences we are to some extent ignoring efforts by many of the authors to differentiate their work from previous work in this tradition, and do not intend to mislead the reader into believing that such differences are insignificant. Since the tautology problem appears to plague many of these efforts, we instead concentrate our efforts in this direction.

In painting this general picture, we rely upon what is perhaps the most comprehensive set of definitions proposed thus far—in the volume on competence-based strategic management by Sanchez, Heene, and Thomas (1996b). In addition, we rely upon Barney’s (1991) suggestion that the critical conditions that initiate rent generation are: (1) that the competence is scarce, and (2) that the competence is valuable. For rent generation to be sustained, Barney argues that the competence must remain scarce—because of its inimitability and its non-substitutability—and remain valuable. To facilitate competence-based strategic management’s advance to the state of falsifiable theory, we propose the necessity of identifying ex ante competences that meet these conditions. The ability to identify those competences that are scarce and valuable will allow for the prediction of, and explanation for, the generation of rents. Otherwise, competence-based strategic management would also simply be an ex post rationale for why some firms are successful and others are not.

THE SCARCITY DILEMMA

The emphasis on competence scarcity is intimately tied to the concept of Ricardian rents, such that “the key to the existence of Ricardian rents is the presence of a fixed scarce factor; the scarcity is such that the extra profit (rent) commanded by the factor is insufficient to attract new competences into use” (Rumelt, 1987: 142). Rumelt (1984)

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1A related point is that the tradability/mobility of the competence will dictate who will capture the rents in the long run (Barney, 1986, 1989; Dierickx and Cool, 1989; Peteraf, 1993), but we do not address this as a separate issue.

2We note that Amit and Schoemaker (1993) differentiate between unique with regard to other players in the industry versus unique in the sense of limited use in other states of nature. Conner (1991) and Peteraf (1993) also discuss the importance of uniqueness with regard to the specialization to a firm’s other assets and competences. In this case, we focus only on the uniqueness of a competence held by firms competing in the industry.
suggests the necessity of isolating mechanisms to limit the mobility of competences among firms by increasing the cost for competitors to imitate or substitute a competence. Barney's (1986, 1991) conditions of inimitability and non-substitutability capture two avenues through which isolating mechanisms operate and rents are sustained: through the increased cost of direct imitation of the competence in question, and through the increased cost of indirect imitation by substituting for the competence. Thus, not only must the specific form of a competence be scarce and costly to imitate, but so must the function of the competence. In discussing scarcity in this chapter we refer to the scarcity of a competence's function to represent this general logic, even though the current work on competence-based strategic management tends not to differentiate form from function.

A dilemma arises with regard to falsifiable propositions concerning scarce competences. We refer to this as the scarcity dilemma. The apparent dilemma arises in that if "scarcity" is critical and almost every competence held by a firm is to some extent scarce, that is, idiosyncratic to a particular firm, how do we operationalize scarcity? In studying the scarcity of an idiosyncratic competence, is it how scarce a competence is (i.e. one firm versus two firms); the nature of the scarcity (i.e. all firms can do something only to different degrees versus only one firm can do something); or something else that matters?

In order to use scientific methods based on the principal of falsifiability, one must be able to generalize about scarcity to test its necessity for rent generation. To do so, one may face the problem of generalizing about uniqueness—which Conner (1991: 144) suggests must necessarily be an impossibility. Without resorting to the extreme position that there is no way to study uniqueness systematically, we suggest that the scarcity dilemma represents a dilemma of operationalization. This is represented by Porter's (1991: 108) question of "But what is a unique resource?" Without a resolution of this dilemma, competence-based strategic management faces the risk that Peters (1991: 273) describes as:

Operational impossibilities spawn tautological discussions that replace predictive theories with historical explanations, testable hypotheses with the infinite regress of mechanistic analysis, and clear goals for prediction with vague models of reality.

In fact, Peter's prediction that operational impossibilities will lead to a reliance on historical explanation is borne out by the value dilemma in the next subsection.
THE VALUE DILEMMA

The core of the value dilemma is the problem of differentiating between competences that enhance a firm's performance, detract from it, or have little effect. Given the multitude of relatively minor differences among organizations, we expect that the majority will fall into the last category. In particular, many competences may prove to be unimportant to a firm's rent stream. To address this issue, Barney (1991) adds the dimension of "valuableness" to those of scarce, imitable, and non-substitutable. The addition of this fourth dimension is an attempt to complete the list of necessary and sufficient conditions for the generation of rents.

We use the term value dilemma to refer to the seemingly impossible problem of trying to predict which idiosyncratic competences are sources of value. As noted above, the current practice for studying value suffers from circularity in that valuable resources are often identified by examining successful firms, and the proposition that these valuable resources generate rents is then subsequently confirmed. This tautological trap is in good company, in that behaviorist research on reinforcement as well as ecological research on natural selection suffer from similar traps. As with scarcity, we suggest that value poses a dilemma of operationalization. In this case, the operational challenge is that of establishing an independent operationalization of value that is not tied to the ex post incidence of rent generation.

As with the scarcity dilemma, the issue of generalizing about uniqueness arises. As a first step, we would want to predict which types of competences will be likely to generate rents; as a next step, we need to consider whether we can predict which idiosyncratic variant of these operations is likely to generate rents—i.e. firm A's version versus firm B's version. Thus, we must consider the point beyond which our predictive abilities do not apply.

Without the resolution of the value dilemma, an inability to identify ex ante those competences that are of strategic value would relegate competence-based strategic management to the realm of ex post description, rather than predictive science. Peters (1991: 268) notes the false comfort of historical explanations as often used in case study analyses:

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5 In this chapter we focus on the problem of identifying which competences lead to rent generation. A companion problem exists of identifying which incompetencies (Leonard-Barton, 1992) lead to losses.
The challenge of historical explanations is to blend all the elements of competition so skillfully and convincingly that the resultant composite explanation will leave the audience intellectually satisfied. Thus the audience can claim to understand a process they could never predict, because they have achieved a complex, empathetic, and intensely personal feeling of understanding about what went on.

In the next section we propose operational solutions to these two dilemmas.

**Proposed Solutions to the Dilemmas**

**The Scarcity Dilemma**

The problem of operationalizing scarcity refers to the problem of distinguishing meaningful differences in competences from meaningless ones, given that we are assuming a world in which idiosyncracy is commonplace. Take the example of four automobile companies responding to dramatically higher gasoline prices during the oil crisis in 1979. We might observe firms developing competences in engine redesign by US automakers A and B, competences in the redesign of the materials and aerodynamics of the automobile body by US automaker C, and competences in selling to the US market by a foreign manufacturer of subcompacts (automaker D). On the surface, the competences held by automakers C and D appear to be unique whereas the competences held by automakers A and B are shared. If one examines these competences in more detail, however, one might observe that the two firms investing in engine design expertise may have behaved in very different ways in their specific design strategies, managerial processes integrating design with manufacturing, and so forth. It is not unreasonable to assert that the specific managerial processes operating across these firms are unique and that these unique processes are primarily responsible for the resulting competences (Sanchez, Heene, and Thomas, 1996b). Would these now be considered idiosyncratic competences? This represents the core of the scarcity dilemma, that is, how to study idiosyncratic phenomena scientifically.

We suggest a relatively straightforward solution that revolves around an examination of firms’ specific achievements—that is, their intermediate outcomes—which paint an outcome-based picture of their competences. Our solution is similar to Godfrey and Hill’s (1995: 530) call to use observables to replace unobservables in strategic management theories:
What scholars need to do is to theoretically identify what the observable consequences of unobservable resources are likely to be, and then go out [sic] to see whether such predictions have a correspondence in the empirical world.

In the automobile example, suppose that, at some time point after these firms responded to rising fuel prices, firm A produced cars with maximum miles per gallon of 22, 25, 24, 27, and 30; firm B produced cars with maximum miles per gallon of 31, 28, 26, 31, and 34; firm C produced cars with miles per gallon of 20, 22, and 25; and firm D produced cars with miles per gallon of 32, 35, and 29. These data suggest the relative scarcity of cars with miles per gallon over 30. Three out of the four competitors produced them; furthermore, two out of the four competitors replicated this feat at least once.

This outcome-based view of scarcity relies upon demonstrated competences as reflected in a firm’s intermediate outcomes, rather than upon intentions, abilities, or inputs. Perhaps the most salient demonstration if a firm’s competences might be in the characteristics of the products he firm produces, including the cost of the product—especially as these product characteristics translate into the satisfaction of customer needs. For example, a semiconductor firm’s manufacturing skills resulting from its cumulative experience in clean-room techniques will be reflected in the cost and reliability of the chips produced. We propose that it is the scarcity of these intermediate outcomes, not of specific competences, that is necessary for rent generation since intermediate outcomes encompass both the form and function of a competence.

This compression of form and function points to one of many advantages associated with an emphasis on intermediate outcomes. In addition, since intermediate outcomes form the basis of consumers’ purchase decisions, we can observe a more direct link to rent generation. In so doing, however, we need to pay comparable attention to how a firm’s managerial processes and assets lead to its intermediate outcomes. Figure 3.1 illustrates how one might divide the problem of managerial processes leading to rent generation into two separate problems.

We caution the reader that the relationship between competences, intermediate outcomes, and rent generation becomes significantly more complex if one allows the link between competences and intermediate outcomes to include a stochastic element. In this case, scarcity of competences may not be a necessary condition for rent generation—scarcity of intermediate outcomes may be necessary instead. We develop related arguments in Mosakowski (1995). Cost may be a generically critical competitive dimension, such that cost is important to some agree in all types of competitive environments.
Note that in Figure 3.1 we describe a causal chain that is similar to the systems view of competence-based competition depicted in Sanchez and Heene (1996). In the Figure we demonstrate how managerial processes may combine with a firm's asset base to produce firm competences, which can then be observed in the form of a firm’s intermediate outcomes in its product markets. Depending on other firms’ intermediate outcomes, rent profiles will emerge.

Another advantage of focusing on intermediate outcomes is that it allows us to compare across firms in a scientifically meaningful way because not only are intermediate outcomes observable, they are also comparable as consumers do compare them as the basis for their purchase decisions. Focusing on outcomes also makes possible the study of competence bundles. This refers to the idea that certain competences and/or incompetencies—for example, technological creativity and managerial naiveté—may be inextricably linked. By observing intermediate outcomes, we can observe the effects of this bundling process in terms of actual product characteristics. In the example, the combination of creativity and naiveté may lead to a technologically superior product that is produced at a high cost; given
these characteristics and the nature of competition and consumer demand, the firm may or may not generate rents.

In focusing on intermediate outcomes we are not alone. What we refer to as intermediate outcomes is similar to what Penrose (1959: 25) refers to as services, in that “resources consist of a bundle of potential services and can, for the most part, be defined independently of their use, while services cannot be so defined, the very word ‘service’ implying a function, an activity”. Similarly, Bogner and Thomas (1996) emphasize that competences likely to generate rents are those capable of generating product attributes that are desirable in their targeted market. Chatterjee (1995) proposes a similar product-market-based view of competences. Sanchez (1995) emphasizes how the uncertainty and dynamics of product markets affect the value of a firm’s competences. Our contribution lies in recognizing that intermediate outcomes hold the key to overcoming the tautology problem.

This approach is not without its weaknesses. For example, Conner (1991: 145) also raises the possibility of looking at product market outcomes, but suggests caution when the “outcomes of application of firm resources [are] used as proxies for the underlying resources”. Certainly, one can imagine situations in which competences are not made observable in product market outcomes such that some competences may lead to rent generation even when they are not put into use in the product market. For example, one might imagine that a technologically superior firm may suppress innovations because these innovations would only serve to cannibalize the firm’s technologies currently in use in the product market. Still, this technological competence may contribute to a firm’s rents (in this case, monopoly rents) even though it is not used in developing any of the firm’s current products because it serves to pre-empt competitors from entering.

Nonetheless, even though our proposed solution moves the operationalization of a competence-based concept into the realm of what Wernerfelt (1984) refers to as “product strategies”, it circumvents the impossibility of operationalizing scarcity in a world in which idiosyncrasy dominates. This should not be taken to imply that operational difficulties magically disappear, however. In the fuel efficiency example, we acknowledge that each of the patterns of fuel efficiency produced by the automobile manufacturers is unique. The intermediate outcome of producing a car with at least 30 miles per gallon appears not to be scarce, while the ability to produce a car with 35 miles per gallon appears to be unique to firm D. Yet firm D has not replicated his outcome in other models. And what if the generation of intermediate outcome is stochastic? In this case, we must allow for the fact that not all outcomes can be readily repeated. In addition, firm B
produced three cars with 31+ miles per gallon (one at 34 miles per gallon); whereas firm D produced two cars with more than 31 miles per gallon (32 and 35). The critical research design question is whether we can predict whether these differences matter.

Looking to this example, we can draw up a partial list of the critical operational questions that arise when one focuses on the scarcity of intermediate outcomes:

(1) How many instances of an intermediate outcome produced by competitors are sufficient for establishing the scarcity of the underlying competence?

(2) How many observations of an intermediate outcome demonstrated by a firm are sufficient to deem that it is repeatable in the future?

(3) What magnitude of differences in outcomes is sufficient to affect the competitive outcome?

It is important to note that these questions can be resolved independently of firm performance. For example, these three operational concerns might be resolved with research on oligopoly, routinization of firm behavior, and marketing research, respectively—to name but a few of the research areas that address these issues. This is important since, by viewing the problem in these terms, we have moved away from a tautology toward a science that seeks to uncover how consumers detect and value small differences in product characteristics, for example. In addition, we acknowledge that one might need to raise other operational issues or look to other theoretical perspectives for guidance. We have only offered a first step toward untangling the specific questions whose answers allow us to operationalize uniqueness without resorting to tautological reasoning. Therefore, we resolve the scarcity dilemma by stating a general scarcity proposition as follows:

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8For example, debate remains as to how scarce is scarce enough. In a strong statement that argues that the extreme case of uniqueness—not the less restrictive case of scarcity—is necessary for rent generation, Barney (1991) suggests that, for a competence to generate rents, it must necessarily be unique, inimitable, and nonsubstitutable. Others (Wernerfelt, 1984; Conner, 1991; Lippman and Rumelt, 1982) and earlier work by Barney (1986, 1989) suggest that a competence does not need to perform a singular function, but that its function only remain scarce. Thus, a competence may be rare, but not necessarily unique, for it to generate a competitive advantage (Barney, 1989). A nonunique competence may still generate a competitive advantage if the number of firms possessing the competence is less than the number of firms needed to generate perfect competition dynamics in an industry (Hirschliefer, 1980). Thus, scarcity may be a matter of degree, in which a unique competence eventually diffuses to a small number of firms, such that perfect competition does not result.
Proposed operationalization of scarcity: A competence is operationally
defined to be scarce when the competence leads to an intermediate
outcome that is rare among competing firms.

In this discussion we have implicitly looked to a firm’s competitive
environment to determine scarcity by comparing a firm’s intermediate
outcomes with the intermediate outcomes of competitors. However, we
have not addressed which is perhaps the more salient question—which
intermediate outcomes should one examine. In the next subsection we
narrow our sights to a subset of intermediate outcomes that we predict
will be closely tied to a firm’s rent generation. In so doing, we address
the value dilemma.

THE VALUE DILEMMA

In this subsection we set our sights on predicting that some types of
firms or competences are more likely to generate rents than are others.
Because Barney’s (1991) use of the term “value” is separate and
distinct from scarcity, it differs from the commonly accepted (i.e.
Marshallian) use of the term “value”, which combines supply-side
concerns (as emphasized by Ricardo) and demand-side concerns (as
emphasized by such economists as J.B. Say). “Value” in Barney’s
(1991) discussion focuses solely on the latter’s attention to the role of
consumers’ utility functions in price determination by suggesting that
competences will yield rents only as long as the competences are
suited to their environment—that is, the competences result in
products that enhance consumers’ utility. Naturally, since environ-
ments change, the value condition is also subject to temporal fluctua-
tions—and concerns with sustainability—since changing environments
may obsolete previously valuable competences.

The solution we offer here proposes an operationalization of compe-
tence value that is independent from the incidence of rent generation
by looking to a firm’s environment. Consider the following biological
analogy. A wide variety of species of plants grow in the Mojave
Desert, including such diverse plants as the Joshua tree, creosote bush,
and opuntia cactus. An ex post explanation may be used to describe
how each plant evolved in its own unique way under the same set of
conditions, untangling which combination of characteristics facilitated
a species’s ability to store water, for example. It is unlikely, however,

Also see Collis (1995) for a discussion of value in the context of the resource-based view of
strategy.
that the science of desert plants will ever evolve to the point that it can predict *ex ante* how specific plant attributes emerged.

Thus, we do not expect that a deterministic model, applied to this problem, would succeed in generating accurate and specific predictions about plant attributes unique to each species. However, the nature of this environment suggests that plants that flourish will need to develop characteristics that perform critical functions, such as the ability to store moisture, protect against predators seeking to tap into their moisture reserve, or conserve on water use (Pianka, 1994: 109). Thus, in this environment, we can predict that desert plants will need to perform these functions in a much more efficient manner than will plants in a climate with more moisture (Box, 1981). This is the equivalent of stating that characteristics of the desert environment dictate that water storage, water conservation, and the protection of water reserves are three critical intermediate outcomes.

As the comparison to Marshall’s theory of value points out as well as Barney’s separation of the scarcity and value concepts illustrate, the three intermediate outcomes discussed in the Mojave desert example may be critical competitive dimensions for two reasons: water is scarce and water has a high utility associated with it because it is necessary for survival. Thus, our proposed solution to the value dilemma suggests that the value of a competence can be operationalized by the superiority of outcomes that the competence produces along the competitive dimensions having high levels of utility for consumers. Note that this operationalization of value is tied not to the rents produced but to independent dimensions of competition. Thus, techniques developed by marketing science for measuring consumer utilities (or calculating indifference curves) could be used to develop *ex ante* hypotheses about which competitive dimensions will be valuable.

Proposed operationalization of value: A competence is operationally defined to be valuable when it leads to an intermediate outcome that is superior on a dimension that enhances consumers’ utility.

This operationalization of the value of a firm’s competences offers a more complete answer to the question of where rents come from. When both operationalizations of competence scarcity and value are adopted, we can develop *ex ante* predictions that rents will be generated by competences that produce scarce and valuable intermediate outcomes. Our general solution to the two questions raised in the Introduction does the following: it focuses on intermediate outcomes, rather than a firm’s idiosyncratic competences, to operationalize both competence value and scarcity independently of firm performance. Like the tautological reasoning that depends upon the
outcome of rent generation to identify key resources, we acknowledge that our solution is also outcome-based. By focusing on intermediate outcomes instead of rent outcomes, however, we can break the tautology by developing an independent understanding of competences that are likely to reduce a firm’s costs, for example. In this way, we are one step closer to developing hypotheses about specific competences or specific types of managerial choices that will enhance a firm’s chances of generating rents.

In the next section we extend this discussion of value to distinguish between different types of environments to suggest that the nature of the managerial problem may vary.

**Dimensions of Competition and the Managerial Problem**

In this section we suggest that the severity of a firm’s environment affects the relationship between intermediate outcomes and rent generation. We define severity in a nontraditional way, however, to refer to the number of environmental dimensions on which organisms compete. This is supported by the biological argument advanced by Pianka (1994: 277–278) that “niche dimensionality strongly affects the potential [Pianka’s emphasis] for ‘diffuse’ competition arising from the total competitive effect of all interspecific competitors (MacArthur, 1972)”. Bruce Henderson (1983: 23) suggests that a similar phenomenon may apply to competition among firms.

In a severe environment, the critical competitive dimensions are relatively unambiguous; whereas the set of trade-offs among dimensions might be relatively uncertain in a nonsevere environment. In the desert example, organisms compete primarily for a single environmental resource, water. As such, we could characterize this environment as severe. A severe environment might be represented by the special case of commodity industries, in which competition is primarily along the dimension of cost. Alternatively, an environment with multiple dimensions of competition—such as a temperate-zone deciduous forest (in which plants compete for water, sunlight, and various nutrients) or the compact segment of the automobile market (in which automakers compete based on cost, safety, reliability, styling, interior space and trunk space, and fuel efficiency)—would be characterized as operating in a nonsevere environment, where no one factor drives the competition. In this case, multiple intermediate outcomes will be associated with rent generation.

Thus, in a severe environment, one might suggest that we can
predict with a high level of certainty that firms performing best on one critical dimension of competition—i.e. cost—will generate rents. Some uncertainty is unavoidable since what defines superior performance will be uncertain since this depends upon the achievements of competitors, which may be unpredictable. In a nonsevere environment, there is clearly less certainty as to the best set of trade-offs among the different dimensions of competition. For example, one might argue that Mazda’s Miata automobile excelled at styling, performed well on cost, reliability, and did not excel in interior and trunk space, safety, and fuel efficiency. In this case, the optimal trade-offs among the different product dimensions—which, one might argue, is a fundamental question for research on competitive strategy—are ambiguous. It is in this type of environment that a manager’s cognition of his or her environmental context, as well as the construction of a strategic logic, will be critical (Sanchez and Heene, 1996).

Having said this, we note an important implication of our argument that varies between severe versus non-severe environments: where managerial attention will be most rewarded in the different environments. Consider how managerial processes affect firm performance. Intermediate outcomes may play an important role in that they mediate the relationship between a firm’s assets and managerial processes and its performance. In fact, the relationship between assets and managerial processes and firm performance may be completely mediated by intermediate outcomes in that managerial processes will only affect rent generation when they are reflected in firm competences and, ultimately, product characteristics. Thus, managerial processes may describe what Itami (1987) refers to as “invisible assets”—and these assets cannot generate rents without becoming somehow “visible” in the form of lower-cost products, more reliable products, more desirable branding, etc. Therefore, we can decompose the effect that managerial processes have on firm performance into two component processes—the internal process that determines how managerial processes affect intermediate outcomes and the external process that determines which product strategy or strategies among competing firms generate(s) rents (see Figure 3.1).

In a severe environment, a larger share of managerial attention might be better directed internally toward managerial processes that attempt to improve a firm’s performance on the single critical intermediate outcome, instead of toward defining on what dimension(s) the firm should compete. For example, in the case of a commodity industry, the low-cost firm will generate the most rents. In this environment, managerial attention might best be directed toward lowering costs internally instead of toward studying external environmental
conditions to better understand what is the critical dimension. Thus, strategy may be economizing (Williamson, 1991) in a severe environment.

In a non-severe environment, managerial attention may need to be distributed across both sets of relationships—that is, the internal determinants of intermediate outcomes, as well as their external consequences. Managers in firms operating in non-severe environments cannot ignore environmental scanning activities and externally oriented strategic thinking to the extent that managers in firms operating in severe environments can. In particular, managing the trade-offs among critical competitive dimensions—for example, by allocating resources to pursuing one intermediate outcome instead of another—may emerge as a significant task for the strategic decision maker in nonsevere environments. Thus, an internal focus on developing competences for technological innovations, brand imaging, etc. should be combined with an external focus on the competitive dimensions on which firms are competing. This is consistent with Rotem and Kalish’s study (1995), which found that managers that share their attention across both their external environment and their internal resources tend to perform the best.

Assuming a fixed level of managerial attention and two uses for this attention, a simple model would suggest that the optimal allocation of managerial attention would be at the point at which the marginal returns to allocating attention to internal issues would equal the marginal returns to allocating attention to external issues.\(^\text{10}\) This suggests that:

Proposition 1: At the point of optimal allocation of managerial attention, the portion of total attention allocated to external issues will be greater in a nonsevere environment than in a severe environment. \(\textit{ceteris paribus.}\)

In the next section we conclude the chapter by discussing the broader issues associated with our attempt to increase the predictability of competence-based strategic management.

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\(^{10}\) Obviously, more complexities could be introduced into the calculus, such as differential probabilities of success between severe and non-severe environments. With multiple critical competitive dimensions, it is possible that there could be a greater chance of finding a sustainable combination of product attributes that generate rents than in a severe environment in which only the low-cost firm may be able to earn rents. However, as Lippman and Rumelt (1982) show, under certain conditions, even in an environment in which cost is the only important competitive dimension, many firms may be able to generate rents.
CONCLUSION

An essential problem for competence-based strategic management is that there is no agreed basis for selecting which of the vast number of organizational competences are in fact those that contribute to the generation and persistence of rents. To address this concern, past research has emphasized the scarcity and value. In this chapter we discuss operational issues regarding these two criteria by focusing on the scarcity and value of the intermediate outcomes produced by a firm’s competences.

To understand where independent measures of intermediate outcomes might come from, we look to the environment. In addition, we distinguish between severe and non-severe environments. In severe environments such as a commodity industry, a single dimension such as cost may serve as the primary basis for determining which firms generate rents. In a nonsevere environment, in which firms compete on multiple dimensions, the trade-offs among the dimensions may be ambiguous. Thus, we have been relatively silent about the trade-offs among competitive dimensions in a nonsevere environment—such as whether achieving a 20% reduction in cost will produce an equivalent rent stream to achieving a 10% reduction in cost and a 10% improvement in quality. Resolving these ambiguities may represent one important aspect of the art of the strategic manager in non-severe environments. Thus, in non-severe environments, we expect more managerial attention to be directed toward external-looking activities, such as defining a firm’s intended product strategy vis-à-vis its competitors and customers’ needs. However, we expect that such externally oriented attention will be complemented by internal attention to issues such as communicating this strategic vision within the organization and other managerial processes that reinforce this vision as well as monitor the appropriateness of this vision.

Thus, looking to the environment and intermediate outcomes provides a metric—in this case, a metric dictated by consumers’ utility functions—that allows us to compare idiosyncratic firm competences. In arguing for the usefulness of this metric, we do not mean to suggest a deterministic model in which firms holding certain types of competences or firms employing certain types of managerial processes will always generate rents. Instead, we allow that in comparing firms we may only be able to predict the likelihood of generating rents associated with different categories of firms.

While incorporating some randomness in the processes that ultimately lead to rent generation, we recognize the need to develop further knowledge about how managerial processes influence firm
competences, how firm competences influence intermediate outcomes, and how intermediate outcomes influence rent generation. In this chapter we have focused on the last link and not addressed the previous two. In effect, the recommendation to unravel the chain beginning with managerial processes and ending in rent generation suggests the need to develop more theoretical and empirical work along the line of Porter's (1985) value chain concept. To do so, one must take care to embed a firm's value chain squarely in the competitive environment. Thus, we need to understand how firms achieve different valuable intermediate outcomes as well as how they can do so uniquely or at least scarcely.

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