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SCANNING DYNAMIC COMPETITIVE LANDSCAPES: A MARKET-BASED AND RESOURCE-BASED FRAMEWORK

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Heterogeneity among rivals implies that each firm faces a unique competitive set, despite overlapping market domains. This suggests the utility of a firm-level approach to competitor identification and analysis, particularly under dynamic environmental conditions. We take such an approach in developing a market-based and resource-based framework for scanning complex competitive fields. By facilitating a search for functional similarities *among products and resources, the framework reveals relevant commonalities in an otherwise heterogeneous competitive set. Beyond its practical contribution, the paper also advances resource-based theory as a theory of competitive advantage. Most notably, we show that resource substitution conditions not only the* sustainability *of a competitive advantage, but the* attainment *of competitive advantage as well. With equifinality among resources of different types, the rareness condition for even temporary competitive advantage must include resource substitutes. It is not rareness in terms of resource type that matters, but rareness in terms of resource functionality.*

INTRODUCTION

A central premise of resource-based theory (RBT) is that rival firms compete on the basis of their resources and capabilities (Wernerfelt, 1984; Dierickx and Cool, 1989; Barney, 1991; Amit and Schoemaker, 1993; Collis and Montgomery, 1997). An obvious implication is that competitors can be identified not just by similarities among their products, but by similarities among their resources and capabilities as well. This principle is generally understood and accepted regarding direct rivals and close competitors. What is less evident (and to our knowledge has not yet been recognized) is that RBT can also be employed in an analogous fashion, to identify indirect competitors, such as substitutors.

To support this claim, we draw an analogy between product substitutes and resource substitutes.[1] In brief, while product substitutes may not be similar to one another on a superficial basis, they are similar in terms of their *use*. They can be employed in similar ways, to satisfy the same basic customer needs. They are *functionally similar*. Our fundamental insight is the following analogue:

> Just as the products of substitutors are functionally similar to those of direct rivals, so are their resources. Substitutors have resources similar to those of the direct rivals, not in type but in *use*. They compete on the basis of *resource substitutes*.

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[1] We use the terms 'resources' and 'capabilities' inclusively and interchangeably in this paper, following the usage in Barney (1991) and Peteraf (1993).

We use this insight to develop a market-based and resource-based framework for broad competitor identification. Ours is a practically oriented framework, designed to aid managers with the challenging task of identifying rivals that are heterogeneous with respect to both product and resource characteristics. The framework facilitates the identification of a wide range of competitive types, including potential entrants, substitutors, latent substitutors, and vertical differentiators (providers of price/quality substitutes).

Broad competitor identification is an increasingly important task for managers. Competitive heterogeneity is a ubiquitous phenomenon, as the focus of this Special Issue suggests (Hoopes, Madsen, and Walker, 2003). Substitutors and potential entrants often present the most formidable but least recognizable competitive threat. This is especially the case in dynamic competitive landscapes, where additional heterogeneity is introduced continually. Our framework may be used for scanning all types of competitive environments. It is particularly useful for scanning dynamic competitive landscapes, where broad competitor identification is critical and few qualitative tools are otherwise available.

This paper contributes to management theory as well as management practice. It advances our understandings of substitutes by linking functional similarities on the product side to functional similarities on the resource side. It contributes to a broad theory of heterogeneity by deepening our understanding of how market-side and resource-side factors interrelate. It extends resource-based theory into a new area of application and illustrates its relevance under dynamic conditions (Helfat and Peteraf, 2003). More substantively, it has significant implications for our conceptualization and interpretation of RBT. Among them are the following:

1. Resource substitution conditions not only the *sustainability* of a competitive advantage, but the *attainment* of competitive advantage as well. Equifinality between rare, valuable resources and freely available substitutes negates the possibility of even temporary advantage.
2. Resource scarcity should be assessed in terms of resource functionality rather than resource type. When perfect substitutes are available, neither rareness nor even uniqueness of resource type is a limiting factor.
3. The value of a resource derives from its application in product markets. It traces back from the ultimate satisfaction of customer needs.
4. The effect of resource substitution on the sustainability of advantage is not a mere echo of the effect of imitation. Resource substitution has a more fundamental effect, attacking resource value as well as scarcity.

Our work suggests that market-based and resource-based theories of rivalry and performance are complementary rather than competing frames. They connect naturally to one another and provide the greatest utility when employed together. By connecting resource-side analysis to its market-side counterpart, this paper addresses a common criticism of RBT—that it is insufficiently connected to the market (e.g., Bromiley and Fleming, 2000). We provide the details of our arguments within the penultimate section of the paper.

Finally, this paper contributes to the literature on marketing and business definition as well. Long ago, Levitt (1960) made his famous argument that businesses should be defined not in terms of product types, but in terms of customer needs served. This encouraged managers to think about their business and growth opportunities more broadly. We take Levitt's (1960) insight to the next logical step. Capabilities should be defined not in terms of resource types, but in terms of the functions that they serve. By categorizing resources in terms of functionality and use, managers can broaden their thinking not only about competitive opportunities, but about competitive threats as well.

THE NEED FOR BROAD-BASED COMPETITOR IDENTIFICATION TOOLS

Managerial and cognitive limitations

When it comes to recognizing rivals, managers are notoriously myopic (Levitt, 1960). Left to their own devices, they notice only competitors that are relatively close in terms of product type, geography, and other salient characteristics (Porac and Thomas, 1990). They pay attention to a few close rivals, but ignore others only barely more distant (Lant and Baum, 1995). As a consequence, they are likely to be blindsided by rivalry coming from unexpected quarters (Zajac and Bazerman, 1991).

There are a variety of explanations for this. Managerial resources, such as time and attention, are valuable and in short supply. To manage efficiently, managers must conserve these resources and apply them to their most productive use. If the search costs of broad environmental scanning exceed the perceived benefits, the choice to monitor only close rivals may be rational.[2] Search costs increase when rivals are heterogeneous and the competitive environment is dynamic.

Bounded rationality is a factor as well. This poses a constraint under conditions of complexity and uncertainty (Williamson, 1975). Such conditions are characteristic of rugged competitive landscapes shaped by dynamic competitive forces (Levinthal, 1997).

Cognitive biases also play a role. Judgment tends to suffer when events are of an uncertain and probabilistic nature (Kahneman, Slovic, and Tversky (1982). Managers often rely on heuristics to aid decision-making in such settings, but heuristics can distort perceptions and bias thinking. Other types of cognitive errors, such as overconfidence, interfere in such situations as well.

Frame dependency limitations

The framing of a problem will influence what is noticed (Kahneman and Tversky, 1979). This suggests that the tools available for environmental scanning may introduce yet another source of bias. Focused scanning techniques provide only a narrow view of the competitive field, the scope of which is determined by the technique. Approaches to competitor identification based on market definition, for example, are likely to reinforce the proclivity of managers to monitor their own narrow product market boundaries. The lack of frameworks designed specifically for broad environmental scanning is a limiting factor.

A distorted view may also be the product of a distorted or misapplied frame. RBT, for example, can be a useful aid in competitor identification when it is applied correctly. When it is misapplied, it can distort managers' perceptions of the competitive field. To the extent that RBT has encouraged managers to attend only to rivals with resources similar to their own, this may be the case.

The antidote

The development of frameworks better suited to the unique scanning requirements of a heterogeneous and dynamic environment provides an antidote to many of these problems. Better scanning tools lower the costs of search and make scanning a more effective use of scarce managerial resources. They reduce the demands on bounded rationality. Tools that counteract bias allow managers to break free of their perceptual confines and develop greater competitive awareness. This can make a crucial difference in terms of their abilities to anticipate and counter emerging competitive threats. Finally, a wider range of tools permit managers to apply multiple lenses or more closely match their choice of tool to a particular analytical need.

Maintaining industry leadership in high velocity environments is undoubtedly challenging (Eisenhardt, 1989). But the loss of competitive advantage is not an inevitable consequence of change. By learning to recognize competitive threats while they are small, managers improve their chances of countering them before they loom large.

THE FRAMEWORK'S FOUNDATION

The challenge

When the objective is to identify direct rivals or close competitors, competitor identification can be approached in terms of defining the market. The set of direct rivals is described by the confines of the market boundary.[3] When the objective is a more inclusive identification of competitive threats, the congruence between market definition and competitor identification breaks down. Simply broadening the definition of the 'market' is not likely to provide an adequate solution.

Identifying competitors broadly within a shifting competitive landscape poses special challenges. Competition is not restricted to local pockets of relatively homogeneous firms, but comes in many forms and from many directions. Heterogeneous competitors compete indirectly and on multiple dimensions. Firms and their capabilities evolve, introducing additional heterogeneity to the environment (Helfat and Peteraf, 2003).

[2] The search costs include the opportunity cost of forgoing other managerial tasks.

[3] The market boundary may be somewhat fuzzy, but it still approximates the set of direct rivals.

The difficulties of identifying competitors from a diverse and changing set of candidates are many. Competitor identification involves classifying firms on the basis of relevant similarities. But if competitors are heterogeneous, then what are the relevant similarities for recognizing them *as* competitors? What kinds of similarities are necessary for competition? How much similarity is required? Competition comes not only in a variety of forms and from a variety of directions, but it also takes place in a variety of arenas. Firms compete in input markets as well as output markets. They compete along the vertical chain for a share of the rents generated and as multimarket rivals. Moreover, because of firm heterogeneity, each firm faces a somewhat different competitive set within the confines of the overall market. When the heterogeneity is significant, the identification of competitors must proceed from a firm-level perspective. Market-level analysis cannot suffice.

The approach

Our aim is not to address the full set of these complexities. Rather, it is to expand the awareness of managers qualitatively, regarding competitive threats in product markets. We restrict our attention to rivalry in output markets, since this is the classic focus of competitor identification efforts. We focus only on single product markets, setting aside any effects of product market linkages. Finally, we take the analytical perspective of a focal firm, and look for commonalities with other firms on a pair-wise basis, to identify the unique competitive set of the focal firm.

Our objective is to survey the competitive landscape broadly, bringing into view not only close competitors, but more distant rivals and various forms of emerging competition as well. To accomplish this, we scan the terrain from two directions simultaneously, comparing firms on the basis of market-side as well as resource-side characteristics. Competitive commonalities on the market side are obviously germane for identifying product market rivals. But it is essential to look for commonalities on the resource side as well, since firms compete on the basis of their resources and capabilities. Resources and capabilities are the underlying competitive drivers and the source of significant firm heterogeneity.

Identifying the direct rivals or close competitors of a focal firm is relatively straightforward. One can approach this exercise qualitatively by comparing firms in terms of product type. Products that are similar in type resemble one another in terms of product category and overall outward characteristics, although they differ in terms of specific attributes. They appeal to the same general customer set. Sellers of similar types of products are thus direct rivals for the patronage of those customers.

One can also identify direct competitors by comparing their resources and capabilities. Similar types of products are produced from similar resources and capabilities. Comparisons on the resource side, however, augment a product-side comparison. By providing another view of the competitive terrain, they expose an additional type of competitive threat. Similarities among product characteristics tell us only about *actual* competitors. Similarities among firm capabilities provide information about the *potential* of firms to produce similar products. Firms with capabilities similar to those of the focal firm (that do not compete with it currently) may do so in the near future. They are potential rivals of the focal firm.

The real challenge comes in attempting to identify more indirect competitive threats. This requires a search for other types of commonalities amidst the heterogeneity of the competitive field. It requires a search for similarities far more fundamental than product type.

Firms compete with one another in product markets to the extent that they attract the same customer. Customers, then, are the ultimate arbiters of which firms are competitors. They determine which alternatives to include in their 'consideration sets,' from which they make their final choice (Peter and Olson 1993). At a fundamental level, their choice depends upon their particular needs and their perceived utility of the product.

Firms are rivals, then, to the extent that their products satisfy the same basic customer needs (Kotler, 2000). They serve the same purpose in the minds of users. This suggests a search for *functional similarities* in order to identify rivals at this more fundamental level. That is, we should focus on similarities *in use*, rather than similarities *in type*.

At a finer level, consumers make product comparisons on the basis of product performance

characteristics or quality.[4] What drives consumer choice is not simply *whether or not* a product can satisfy a given need, but *how well* it can do so. Degree of satisfaction matters. To capture this, we focus on a second type of similarity as well—similarity *in performance*.

By comparing firms on the basis of how well their product satisfies a given need, we can identify and classify actual competitors, through the eyes of the buyer. But comparing firms on the basis of similarities in the function and performance of their capabilities is useful for competitive identification as well. Coupled with product-based comparisons, resource-based comparisons reveal a wider range of competitive threats, as we will demonstrate.

Below, we develop a framework for broad-based competitor identification on the basis of both types of comparisons—market-side and resource-side. We take the perspective of a firm scanning its competitive landscape for various types of competitive threats. We assess each possible competitive threat by making pair-wise comparisons with the focal firm, looking for competitive commonalities.

To facilitate these comparisons, we develop a pair of constructs for assessing the relevant commonalities. The first of these is a market-side indicator of similarities in customer needs served. The second is a resource-based indicator of similarities, in terms of how well the need is satisfied. Together, these constructs provide the basis for a framework that supports an expanded awareness of various sources of competition. These include not only direct rivals, but also indirect competitors, such as substitutors, potential competitors, latent substitutors, and vertically differentiated rivals.

Market-side comparisons

Managers may be blindsided by new competition if they monitor only rivals with products of the same general *type*. Consider the fate of *Encyclopedia Britannica*. A decade ago, it was the dominant player in the encyclopedia market. Today, the biggest seller of encyclopedias is Microsoft. A product-oriented approach to competitor identification, done in the early 1990s, would suggest that *Encyclopedia Britannica*'s competitors were limited to companies like World Book and Colliers. Such a view lulled the managers of *Encyclopedia Britannica* into believing that their competitive position was unassailable. What they needed to realize was that their product was meeting a need for ready access to information. Further, they needed to see that other types of information delivery systems could meet this need. While such an understanding might not have enabled them to avoid the impending assault, it might have given them more time to reposition or to devise a more effective defensive strategy.

To address this type of problem, we introduce a simple market-side indicator for identifying rivals that takes into account a more basic driver of consumer choice. We call this construct *market needs correspondence* and define it as follows:

> *Market needs correspondence* is a dichotomous indicator that signifies whether or not a given firm serves the same customer needs as the focal firm.

There are several things to note about the use of this indicator. First, it is a simple indicator of a zero/one or Yes/No form. That is, a firm either serves the same needs as the focal firm or it does not. It does not take into account the degree to which a firm satisfies needs, in terms of either the particular aspects of the needs addressed or the degree to which they are satisfied. It is a simple, crude measure that requires some judgment in its application.

Second, deploying this indicator requires one to specify first the needs served by the focal firm. What may be less clear is that there are many ways to specify the needs served by a given firm, even if it provides but a single product. Products and services have multiple characteristics that satisfy an array of needs. Moreover, the needs themselves may be specified more or less narrowly. For example, in a narrow sense, Taco Bell satisfies a need for quick, convenient, inexpensive meals that other fast-food providers serve as well. Even more narrowly, it addresses a customer need (or taste) for 'Mexican' fast food. More broadly, it satisfies a more general need for food. This last view was the one that the management of Taco Bell took in the early 1990s, when they redefined their market share objectives in terms of 'share of stomach' (Hallowell and Schlesinger, 1991).

To employ the *market needs correspondence* indicator meaningfully within our framework, one must begin by choosing some level of generality

[4] Since prices depend upon the degree of competition, we do not consider price or willingness-to-pay at this level of consumer choice.

as a starting point for defining the need served. We recommend that managers begin with a relatively narrow conception of the need, although the starting point is not critical. Once the firm's rivals have been identified with respect to that need, then the analysis can be repeated using a broader (or narrower) definition of the need. In this manner, managers can assess their competitive field from a series of telescoping perspectives.

Resource-based comparisons

Just as dissimilar products may play similar functional roles in satisfying underlying customer needs, so may dissimilar resources and capabilities. For example, cameras may be produced with technologies involving film that depend on capabilities in chemistry and mechanics. Alternatively, they may be produced using electronic capabilities to record pictures digitally on disk. In this case, consumers' desire to record an event pictorially is served by completely different technologies. In terms of type, the two resource bases are quite dissimilar; in terms of functionality or *use*, they are similar. They may be applied toward the same end; they fulfill the same need.

A needs-based view of competition supports the realization that competitors may look very different from the resource side. One expects substitute products to be made from dissimilar resource bundles. It is less apparent that the resources and technologies of direct competitors may also differ substantially, even when the product category is defined very narrowly. Consider the fact that plastics makers are competing increasingly with steel makers to produce the very same types of structural supports, such as I-beams. From the customer's point of view, the construction material is immaterial (so to speak!), even though the resources and capabilities differ substantially.

The role of resource similarity in competitive outcomes receives considerable attention due to the surge of interest in RBT. But the emphasis is on similarity in terms of resource type. The role played by resources that are dissimilar in terms of type, but similar in terms of use or functionality, receives much less notice. As a result, managers may be overly focused on rivals with the same types of resources, while overlooking rivals with dissimilar resource bundles that can be directed to the same end. That is, their awareness of *functionally* similar resources is likely to be limited.

In part, this may be due to some confusion regarding the resource-based frame. The emphasis on resource scarcity has led some to conclude that firms with valuable resources will necessarily have a competitive advantage if rivals are denied access to resources of the same type. Resource scarcity does matter (Peteraf, 1993; Winter, 1995). But the limiting factor is not scarcity in terms of resource type, but scarcity in terms of resource function or use. Resource bundles that are dissimilar in type may serve as effective substitutes in terms of producing the same end product or its equivalent (as in the I-beam example). If there is equifinality among resources, then the scarcity of one type of resource is of no concern, so long as another type is abundant.

To counter this confusion, we introduce a resource-side construct that directs attention to the functional role that resources and capabilities play. Just as our market-side construct is designed to detect product substitutes, so this resource-side construct is designed to reveal resource substitutes. To extend the reach of this construct, we incorporate another element relevant to consumer choice as well. We introduce a performance dimension for a finer comparison of the capabilities of a rival in relation to the focal firm. This facilitates competitive comparisons in terms of how well rivals can address a given customer need. We call this construct *capability equivalence* and define it as follows:

> *Capability equivalence* is the extent to which a given firm has resource and capability bundles comparable to those of the focal firm, in terms of their ability to satisfy similar customer needs.

There are several things to note about this definition. First, we use the term 'capability' to emphasize that the search for resource-side similarities is not limited to physical assets or resources in the narrowest sense of that term.[5] It includes skills, technologies, and more intangible endowments, such as productive routines and other organizational competencies as well. It includes resource and capability bundles.

Second, it is directed toward the comparable satisfaction of customer needs. Such a definition

[5] Although we choose the term 'capability' because it connotes potential and breadth to a greater degree than the term 'resource,' our definition of 'capability equivalence' parallels closely the 'resource equivalence' construct used in Bergen and Peteraf (2002).

is consistent with a marketing approach to supply-side issues, which does not lose sight of the market objective (Rao and Bergen, 1997). By eliciting a comparison of capabilities in terms of satisfaction levels, it requires one to assess *how well* a rival can meet a given set of customer needs relative to the focal firm. This adds another dimension to a survey of the competitive field, increasing its scope and drawing attention to some classes of competitors that might otherwise be overlooked.

Finally, because it assesses *capability*, this construct is directed toward detecting the *potential* for competition by a rival. In contrast, our market-side construct is an indicator of *actual* competition. Together, these constructs provide the means to survey a broad range of competitive types.

A BROAD-BASED FRAMEWORK FOR COMPETITOR IDENTIFICATION

In this section, we bring together the concepts of market needs correspondence and capability equivalence to construct a framework for identifying and classifying competitors. As explained, market needs correspondence asks simply whether or not a given firm addresses the same set of customer needs as the focal firm. It is an indicator of actual competition at the level of 'in the ballpark' or 'not.' The construct of capability equivalence facilitates a finer-grained assessment of the rival's ability to meet a set of market needs, from a resource-side perspective. This provides an indication of the rival's relative strength and its potential for competition. Together, these dual constructs cover the critical dimensions determining the extent to which two firms may compete.

Figure 1 provides a schematic representation of the framework. *Market Needs Correspondence* is displayed on the *y-axis* as a Yes/No indicator of whether or not a given firm serves the same need as the focal firm. Although *Capability Equivalence* is a continuous measure, we represent it on the *x-axis* in simpler Hi/Lo terms. Conceptualizing capability equivalence in Hi/Lo terms permits us to characterize competitors in terms of four quadrants on the grid.

Firms in quadrant I serve the same basic market needs as the focal firm, with capabilities that are comparable in terms of ability to meet the needs, if not in outward form or type. They satisfy the need at comparable levels of satisfaction. This group of competitors is far more inclusive than the set of rivals most apparent to the focal firm. It includes not only the firm's nearest and most direct competitors, but also rivals offering good product substitutes. In the retail food industry, for example, the supermarket Jewel faces other supermarkets such as Cub Foods in quadrant I, as well as substitute providers such as Wal-Mart's supercenters. This is the competitive set whose activities managers should monitor most frequently since they present the most immediate competitive threat.

Quadrant II contains firms that do not presently meet a corresponding market need, but score high in terms of capability equivalence. These are the focal firm's potential competitors—firms that have the clear ability to serve a particular set of market needs, but do not do so at present. An example from the airlines industry is firms that are established at one endpoint of a route (serving other points) that do not currently offer service on that route.[6] In general, the most formidable potential competitors are those that can serve a market correspondingly well with very little incremental investment.

Note that because of the breadth of the 'capability equivalence' construct, the framework facilitates the identification of two kinds of potential rivals. The first is the set of potential direct rivals, as our example illustrates. The second is the set of latent substitute providers—those firms with capabilities that are dissimilar to those of the focal firm but yet functionally equivalent. Their capabilities are similar in type to those of the actual substitutors of the focal firm. Both types of potential competitors are found in quadrant II.

Firms in quadrant III are not competitive in terms of either market presence or capabilities. This set of firms is the least likely to present a near-term competitive threat, although it should still be monitored. While these firms are outside the relevant competitive set at present, this could change over time as firms and contexts change.

Of greater immediate interest is the set of firms in quadrant IV. These firms have presence in the marketplace, but score relatively low in terms of capability equivalence. They are serving the same basic customer needs as the focal firm, but with

[6] Research shows such firms are the most likely potential entrants onto a route (Borenstein, 1989).

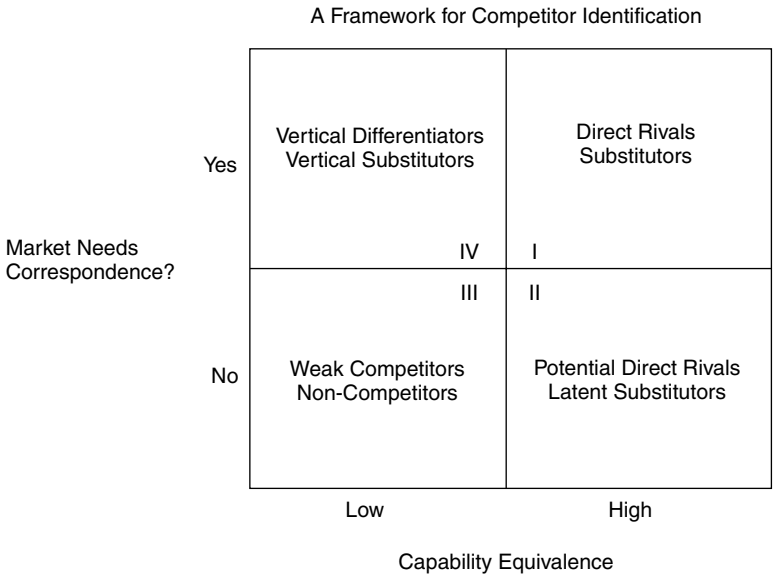

Figure 1. A framework for competitor identification

capabilities that are not equally well suited to the task. That is to say, although they serve the market, they cannot address the customer needs as effectively.

What kinds of competitors fall into this category? In essence, these are the competitors that provide goods of a markedly different quality level from the focal firm. They are the providers of what are known as 'vertically differentiated' goods (Besanko, Dranove, and Shanley, 1996). These firms serve similar customer needs as the focal firm, but at a very different level of satisfaction, due to differences in their ability to deliver on the capability side. If the goods are of poorer quality, they are 'inferior goods', in economic terms. This means that demand for them goes down as customers' incomes go up. Customers prefer them only when they face severe budget constraints.

The class of competitors located in quadrant IV includes two types of vertically differentiated competitors: classic vertical differentiators and 'vertical substitutors'. Vertically differentiated competitors, in the classic sense, offer products *similar in type* to those of the focal firm, but of a different level of *quality*.[7] An example would be high status brands, such as Rolex watches, compared to the cheap imitations found on the streets of Hong Kong or New York which simulate the look but can't match the quality.

We coin the expression 'vertical substitutors' for the case of substitutors with differing quality levels, analogous to vertical differentiators. Vertical substitutors offer products of *different types* that address the same basic customer needs, but at *unequal* levels. Their products are close substitutes in terms of addressing the same basic need, but not in terms of quality level. As with classic vertical substitutes, prices must reflect the relative quality differences or the poorer-quality product will not be purchased. And even then, customers will tend to purchase less of the inferior good when their incomes increase.

Competitors of the sort found in quadrant IV are not commonly monitored by managers, especially when product quality is markedly inferior to that offered by the subject firm. Empirical evidence on competitive dynamics, however, suggests that seemingly weak competitors can prove to be the ultimate survivors (Barnett, 1997). Competitors that are weak initially may evolve into strong competitors over time.

AN ILLUSTRATION OF THE FRAMEWORK

We illustrate the predictive utility of this framework by plotting on it the actual points of entry into

[7] Since customers clearly prefer better-quality goods, all else equal, prices will reflect the relative differences in quality.

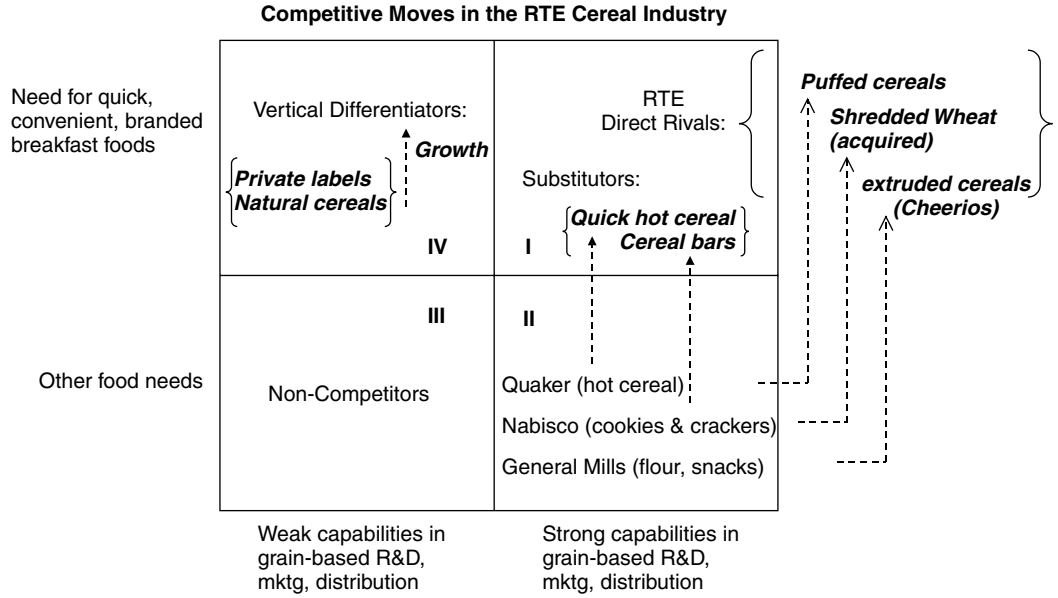

Figure 2. Competitive moves in the RTE cereal industry

the ready-to-eat cereal industry throughout its history. Consider the directions from which competitors emerged to attack the once highly profitable ready-to-eat (RTE) cereal industry.[8] For years, this industry was dominated by a small handful of cereal producers who paid attention largely to one another. They limited new entry into the industry by packing the product space to the point that there was insufficient demand to support another similar product (Schmalensee, 1978).

How, then, was this barrier finally breached? Take note of the entry points, in light of the framework (see Figure 2).

RTE cereals meet a need for quick, tasty, and nutritious breakfast food that requires little time to prepare and clean up.[9] Satisfying this need at a level comparable to that provided by the RTE cereal pioneers requires various capabilities. It requires specialized capabilities in R&D and food processing, since producing high-quality cereal is a non-trivial undertaking. It requires marketing skills, since advertising and branding have influenced the perception of need, nutrition, and quality since the inception of this business. Moreover, it requires distribution capabilities to make the product widely available to consumers.

At the start of this industry, three direct rivals were the sole occupants of quadrant I. These were Kellogg, Post, and Perky's Shredded Wheat (which became Nabisco's flagship cereal brand). The earliest challenge came from a maker of hot cereals, the Quaker Oats Company. Quaker Oats had capabilities comparable to those of the RTE cereal firms, but their product served a need unlike the need addressed by the RTE segment, due to differences in preparation time and trouble. By drawing on its extant capabilities in order to pioneer puffed RTE cereals, Quaker Oats was able to move from quadrant II, where it was positioned as a potential direct competitor, into quadrant I as an actual direct competitor. As technological developments enabled hot cereal makers to formulate 'quick' versions of their hot cereals, they moved into quadrant I with good substitute products as well.

Other early entry attempts were made by big grain-based food concerns, which also had capability bundles (R&D, marketing, distribution) comparable to those of the RTE cereal makers, although of a more dissimilar nature.[10] These firms also occupied quadrant II, as latent substitutors. Their

[8] Much of this material was taken from Corts (1995). See also 'Crunch Time', *Barron's* (22 February 1999: 17).

[9] How one defines the need initially is a matter of judgment. Recall that a fuller picture may emerge by redefining the need at a broader or narrower level and repeating the analysis.

[10] Their capabilities were functionally similar, although they differed in type. They were being applied to other related uses.

first attempts, however, were not successful. Their mistake was in trying to compete as *direct* competitors, by making RTE cereals, for which their R&D capabilities were not well suited.

Nabisco and General Mills found a way around this problem, entering as direct rivals via acquisition. General Mills ultimately pioneered a new technology to produce extruded RTE cereals, but not until it had accumulated 13 years of experience in the business. After many years, other latent substitutors recognized that they could address the basic consumer need for quick and convenient breakfast food by introducing breakfast bars and other items better matched to their capability set. This entry path was highly successful, introducing to quadrant I a new set of substitutors, originating from dissimilar but equivalently capable firms in quadrant II.

Rivals with capabilities less comparable, in terms of quality, to those of the big cereal makers have also made inroads. The surge of interest in health foods caught the Big Three unprepared to ward off entry by producers of natural cereals, which had significantly weaker capability sets.[11] More recently, they have been stunned by the success of private label cereal makers. Private label cereals initially offered distinctly inferior goods, but their product quality has improved markedly over time, and their market share has grown accordingly. This type of competition, coming unexpectedly from vertically differentiated firms in quadrant IV, has cut deeply into the market share of the Big Three. The overall effect of the various kinds of competitive incursions into this industry has been a precipitous drop in the prices, revenues, and profitability of the industry incumbents.

As this example illustrates, the real competitive challenge often comes unexpected, from quarters outside the narrowly defined competitive domain. It is this type of challenge that is most difficult to recognize and to defend against. Could the major RTE cereal makers have responded to these competitive incursions more successfully if they had anticipated them more fully? Could they have leveraged their initial advantages more effectively as conditions changed? The answer is unclear. But without a wider view of the competitive field, their chances of doing so were limited from the start.

[11] Then, the Big Three were Kellogg, General Mills, and General Foods, which owned the Post brands. General Foods later came under the control of Phillip Morris.

Our framework is designed to direct attention to those arenas from which new forms of competition are most likely to emerge. Not only does it provide a broader picture of the competitive field, but it provides a more dynamic picture as well. It provides powerful clues about the ways in which competitive fields change over time. It can reveal new competitive opportunities for the focal firm, as well as new competitive threats. Used repeatedly, it can track the movement of specific rivals over time, as their positions on the grid change. It can be used to monitor and chart the actions of potential competitors.

Moreover, by highlighting the importance of capabilities, it reminds managers to track not only rivals' conduct in product markets, but their activities in resource markets as well. Firms that are actively engaged in acquiring resources that may be deployed toward serving the needs of the focal firm's customers may soon become direct competitors. For example, in the wake of deregulation, the regional airlines began placing orders for long-haul planes (Bailey, Graham, and Kaplan, 1985). This signified their intention to enter the long-haul routes that had formerly been the exclusive preserve of the national carriers. By tracking the activities of these potential rivals in the resource markets, managers of the major carriers could have had an early warning of the impending competitive incursion. This would have provided them with additional degrees of freedom in preparing a response.

While the framework is applicable to both stable and volatile settings, it is particularly useful in market environments characterized by rapid change and significant turbulence (D'Aveni, 1994). In this case, the set of direct competitors is least likely to be the source of radical change. As a result, methods of competitor identification that are narrow in scope will be of limited value. Only a framework that facilitates broad environmental scanning and the dynamic tracking of competitive conditions can provide the proper kind of lens.

THEORETICAL IMPLICATIONS

Although our framework is managerially oriented, the significance of the underlying theory extends well beyond the realm of practice. Most notably, it contributes to the advancement and clarification of RBT on several fronts:

- It explains why resource substitutes are a factor in *attaining* as well as *sustaining* competitive advantage.
- It clarifies the 'rareness' condition for attaining competitive advantage (Barney, 1991). In so doing, it redirects the concern over resource similarity among rivals from *type* to *function,* a more encompassing factor determining effective scarcity.
- It adds precision to the meaning of resource 'value' in relation to competitive advantage, by tracing the use and value of resources to the satisfaction of customer needs.
- Finally, it deepens our understanding of the mechanisms by which resource substitution impacts the sustainability of competitive advantage.

Attaining vs. sustaining competitive advantage

RBT has focused largely on the conditions for sustaining competitive advantage. There is general agreement that resource substitution is a key consideration determining the sustainability of an advantage (Dierickx and Cool, 1989; Barney, 1991; Amit and Schoemaker, 1993; Peteraf, 1993). What is less apparent is that resource substitutes are a determinant of competitive advantage as well, independent of the sustainability issue.

Few resource-based theorists have paid explicit attention to the conditions necessary and sufficient for competitive advantage of the temporary kind. A notable exception is Barney (1991, 1997). From his pioneering efforts, it is now widely-accepted that two conditions regarding a firm's resources are necessary and sufficient for competitive advantage: they must be both *valuable* and *rare* (Barney 1991, 1997; Grant, 2002).[12] The precise meaning of these terms, however, remains unresolved.[13] Proper definition of terms is critical to the advancement of theory. As we show below, a deeper understanding of the competitive effects of resource substitutes can inform our resolution of these issues.

Competitive advantage and the 'rareness' condition

RBT differs from other theories of firm performance in its concern with Ricardian rents resulting from the scarcity of superior resources. Resource scarcity, then, is the *sine qua non* of resource-based theory. Despite this, there has been little effort to define 'scarcity' in precise terms. Barney (1991), again, is the exception.

Barney (1991) does not use the word 'scarce', but employs the word 'rare' in its stead. He uses this term to mean 'uncommon', in the sense of held by only a limited number of firms. He asserts that valuable and rare resources 'will be sources of at least temporary competitive advantage' as long as the number of firms possessing them 'is less than the number of firms needed to generate perfect competition dynamics in an industry' (Barney 1997: 149).

In practice, this has led to a focus on the incidence of rivals with the same *types* of resources. Barney's (1997: 148) 'Question of Rareness', for example, asks 'How many competing firms already possess particular valuable resources and capabilities?' A byproduct of this concern with rareness of type is trust in the power of resource uniqueness. Barney (1991) argues, for example, that although the uniqueness of valuable resources is not necessary for competitive advantage, it is sufficient.

While Barney's (1991, 1997) underlying principles are sound, the focus on resource type is misleading. Neither rareness nor even uniqueness of a given type of valuable can assure competitive advantage. To see this, consider the effect of perfect resource substitutes.

Identical products can sometimes be produced from different types of resource bundles (say capital-intensive vs. labor-intensive production methods). If resources of one type can serve as perfect substitutes for resources of a different type, then it is immaterial if one of these types is rare, so long as the other is readily available. Scarcity is necessary for competitive advantage, but it is not scarcity of resource *type* that really matters. It is scarcity in terms of resource *functionality* or *utility.*

Resource uniqueness is no guarantee of even temporary competitive advantage. A sufficient supply of equally efficacious *resource substitutes* will prevent rents to the unique resource from ever rising above competitive levels. While only scarce resources provide competitive advantage, the scarcity must extend beyond resource type to include a scarcity of equally serviceable substitutes as well.

This analysis implies a need to expand the notion of resource 'rareness' beyond the confines of 'type,' to include 'use' or 'function' as well.

[12] Grant (2002) uses the term 'relevant' instead of 'valuable.'

[13] Peteraf and Barney (2003) make some attempt at clarification.

With equifinality among resources of different types, then the rareness condition for even temporary competitive advantage must include resource substitutes. Marginal resources will never be called into use when there is a sufficient supply of perfect substitutes available to meet the excess demand for an otherwise 'rare' functional counterpart.[14]

Competitive advantage and the 'value' condition

It is equally important to understand the 'value condition' for competitive advantage (Barney, 1991). Barney (1991) defines 'value' implicitly, according to whether a firm's resources and capabilities enable it to respond to environmental threats or opportunities. Our work adds further precision to the meaning of this term. This should be clear from our prior discussion, which we summarize briefly below.

'Value' is a demand-side concept. What is unique about the demand for resources is that it is a *derived demand*—derived from the demand for its final product (Pindyck and Rubinfeld, 1992). This implies that the customers of the final product determine the value of the resources used to produce it. The utility of a resource depends upon its utility in terms of satisfying a given set of customer needs.

Resource substitution as a threat to sustainability

Finally, we return to the topic of resource substitution, to consider more deeply its effect on the sustainability of competitive advantage. How is it that scholars have overlooked the effect of resource substitutes on the attainment of competitive advantage, while acknowledging their importance for sustainability? This seeming contradiction is consistent with assuming away the existence of resource substitutes from the outset, while admitting the possibility of their future development. Our analysis calls into question the first assumption. Certainly, the initial presence of resource substitutes is feasible. On a case-by-case basis, it is also verifiable.

Ironically, even though resource substitution is regarded as the greatest threat to sustainability, little is known about the mechanism at work. The focus of attention has been, instead, on threat of imitation, which is regarded as a more immediate threat. Imitation receives more attention, in part, because it is more analytically transparent. By drawing attention to resource substitutes, we hope to remedy this.

The mechanism by which resource imitation affects sustainability is quite straightforward. Imitation erodes scarcity by increasing the supply of superior resources until demand is fully satisfied. As excess demand for superior resources declines, the need for inferior resources declines as well. Inferior resources are retired from service, eliminating both resource heterogeneity and the rents that they had supported.[15] In short, resource imitation eradicates the scarcity that enables a resource-based competitive advantage (Peteraf, 1993; Winter, 1995).

The few writings on how resource substitution affects sustainability have treated it in tandem with imitation, making only minor distinctions between them. The widely used VRIO model (Barney, 1997), for example, treats substitution as a form of imitation comparable to direct duplication. Ghemawat's (1991) treatment is similar, although he is more specific as to the mechanism involved. He characterizes substitution as an indirect attack on resource scarcity that parallels the direct attack coming from imitation.

Our framework suggests that the mechanism behind resource substitution is somewhat more complex. Resource substitution does indeed attack scarcity. This should be clear from our prior discussion of the relationship between resource substitutes and the 'rareness' condition for competitive advantage. As explained, a sufficient supply of functionally equivalent resource substitutes negates the rareness condition necessary for competitive advantage. It follows, then, that future resource substitution threatens the sustainability of a competitive advantage, even if resource substitutes are not present from the outset. Temporary competitive advantage results from a scarcity of functionally equivalent resources in use. Bringing additional substitute resources into production eliminates both scarcity and competitive advantage.

[14] See Peteraf (1993) and Winter (1995) for a more detailed explanation of the role of resource scarcity in RBT.

[15] See Peteraf (1993) for a diagrammatic representation of this process.

It is important to recognize, however, that resource substitution also operates in a more dramatic fashion, attacking not just the scarcity of a resource but its value. Consider radical technological substitution. With a radical change in technology, resources that were once valuable may no longer be so. Skilled stone-cutters, for example, may find that their skills are superfluous, once the process is mechanized. In this case, the threat of substitution is far greater and the effect more draconian.

When resource substitution is incremental, only the rents erode. The resources remain in productive use and support normal returns even after their competitive advantage is gone. When resource substitution takes a more radical form, the entire value system breaks down.

The mechanism involves not an attack on scarcity, but a more direct attack on whether or not a resource still has value. With incremental resource substitution, the supply of the original type of resource is effectively augmented. With radical resource substitution, the demand for the original type of resource is withdrawn! Resource substitutes attack scarcity when they supplement the original resource; they attack value when they replace it altogether.

DISCUSSION AND CONCLUDING REMARKS

Many years ago, Levitt (1960) made a notable contribution to the field of marketing by observing that businesses compete not on the basis of similar products, but on the basis of whether their products meet similar customer needs. We offer a resource-based analogue to this observation:

> Firms compete not on the basis of similar resources, but on the basis of whether their resources can be employed to meet similar customer needs.

That is, competition is driven not by similarities in resource type, but by similarities in resource functionality. Just as Levitt's contribution allowed managers a wider vision of their business opportunities, so our addition gives a broader picture of competitive threats.

This insight drives the design of our framework for scanning dynamic competitive environments, where broad competitor identification is an imperative. By linking Levitt's (1960) market-side approach to business definition with our resource-side analogue, the framework accommodates a wide range of competitive types. It encourages an expansive view of the competitive terrain, helping managers to overcome their natural myopia and avoid competitive blindspots. It permits more timely and more effective defensive action, through greater awareness of emerging competitive threats. It allows managers to seek out cooperative opportunities and avoid cutthroat competition.

By calling attention to customer needs, the framework also facilitates the design of strategies to influence customer perceptions regarding their needs and their choice sets. That is, managers can use this approach in conjunction with sophisticated marketing tools to influence the structure of the competitive field. This is consistent with a large and growing segment of the strategy literature that emphasizes the value of a customer-focused approach (Day, 1990).

There are, of course, limitations to any framework. Like most tools, our framework is best used in conjunction with other analytical lenses, to provide the fullest possible picture of environmental, organizational, and competitive conditions. The framework does not address, for example, competition that comes from suppliers (or indeed from customers themselves). It does not accommodate other kinds of market participants that might eventually compete for customer attention, until they move onto the grid. Complementors, for example, at times turn into competitors, as United Airline's brief foray into the hotel industry illustrates. Since complementors more often play a cooperative role, including them in the analysis can widen the range of solutions for competitive problems (Brandenburger and Nalebuff, 1996).

Moreover, the firm-level focus of our framework limits its ability to predict competitive threats that are associated more with general patterns of technological change than with any particular opponents.[16] Technological life cycles, for example, imply predictable opportunities for entry. In dynamic environments driven by such cycles, an appreciation of these entry points will enhance managers' awareness of their firm's vulnerability. With these points in mind, managers can use our

[16] We thank Sid Winter for pointing this out.

framework more efficiently to identify those rivals most likely to avail themselves of the opportunities.

Models of multimarket competition may also provide a useful supplement to our framework (Baum and Korn, 1999; Gimeno and Woo, 1999). While our framework can identify *as* competitors those that compete on a multimarket basis, it does not specifically identify them *as such.* Greater attention to cross-market aspects of competition can improve a defender's ability to mount an effective strategic response against a capable multimarket competitor.

An advantage to our framework is that it can identify firms that do business in more than one quadrant. Ralston, for example, competed until recently against Kellogg in quadrant I with its branded cereals, as well as in quadrant IV with private label offerings. An examination of moves and countermoves across quadrants may reveal the existence of another type of cross-market competitive interplay that has not been recognized or explored yet, either theoretically or empirically. This may open up a new and exciting avenue of research. More significantly, it may also suggest a new or underappreciated set of competitive opportunities for managers and practitioners to exploit.

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