Peter Reid Dickson

Toward a General Theory of Competitive Rationality

The author develops a theory of competitive rationality that proposes a firm's success depends on the imperfect procedural rationality of its marketing planners. Theories of economic psychology and information economics are integrated with the Austrian economic school of thought and with marketing management concepts and scholarship. Implications for managers and scholars are discussed.

AN extraordinary event in the history of civilization is occurring—the deference of one of the modern world's two great rival systems of political economy, the command economy, to the free market economy. Many ideologies and economic systems have fallen as the result of conquest and colonialism, but few have been abandoned by choice. The free market economy's central principle and driving force is competition, the intensity of the rivalry between sellers for the demand of buyers. What creates this rivalry is an excess of supply in a market or market segment that forces rival sellers to compete for the custom of specific buyers. Thus competition results from an initial supply-demand disequilibrium, that is, an initial market inefficiency. That proposition stands in sharp contrast to the more familiar proposition that competition leads to supply-demand equilibrium.

The purpose of this article is to develop a general theory of oligopolistic competition that explains how a free market works. The theory is based on disequilibrium analysis and the marketing planning skills of economic rivals. Marketing planning is the imperfect procedural rationality used to decide what to produce and how to communicate and deliver the product or service to a marketplace. According to Simon (1976), procedural rationality is appropriate deliberation. Imperfect procedural rationality is deliberation under conditions of limited knowledge and uncertainty. Competitive rationality is the imperfect procedural rationality of economic rivals.

The basic premise of the theory of competitive rationality is that variation in the response rate of buyers and sellers to changes in supply and demand creates opportunities that can be imperfectly exploited by the motivated, alert, and hustling decision maker. Competitive rationality is a cognitive construct described in terms of goal-setting, environmental analysis, and implementation. However, it has its roots in S-O-R behaviorism that emphasizes drive, perception, response, and learning.

Toward a General Theory

The following theory of competitive rationality is general in two senses. First, it draws on and integrates several fairly well-accepted paradigms, theories, and metaphors—Adam Smith's "invisible hand," Schumpeter's entrepreneurial "creative destruction,"

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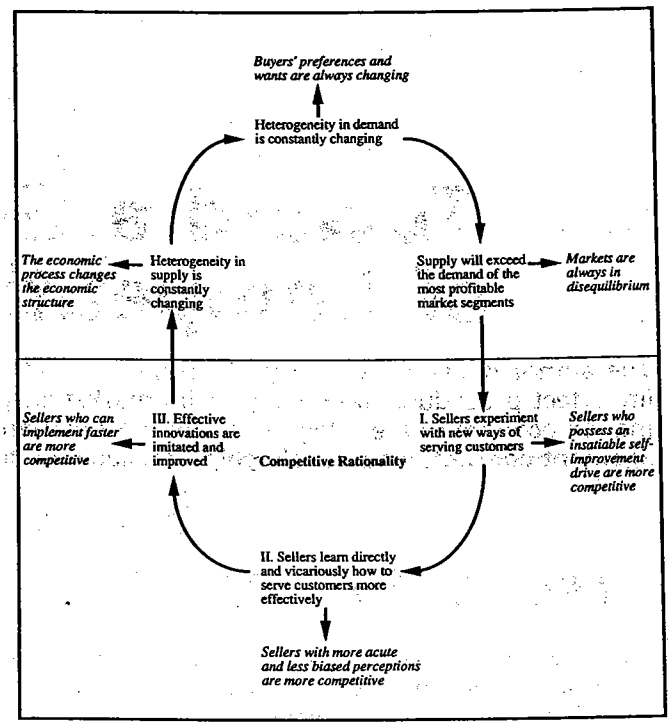
Hayek's "competition as discovery," Alchian's "imitation of lucky innovation," Stigler's "search to reduce uncertainty," Simon's "bounded rationality" and "satisficing," and Nelson and Winter's "routines-as-genes." Each casts a different light on the nature of competition and, when combined, they provide new insights.

Placing such economic and psychological theories into a general nomological network is no small challenge. It requires the assimilation of very different vocabularies and grammars that describe similar constructs and phenomena. For example, what the theory of entrepreneurship calls "learning," information economics might describe as "reducing uncertainty," behavioral economics would call "reducing the bounds on rationality," and marketing would call "environmental analysis." Such cross-referencing reveals remarkable parallels between theories, particularly between marketing management thought (see Alderson 1957; Bartels 1988) and the Austrian school of economic thought (see Hayek 1978; Kirzner 1978, 1981, 1985; Reekie and Savitt 1982; Schumpeter 1934, 1942).

The theory is also general in that it proposes a set of premises and propositions that have yet to be expressed systemically in a set of mathematical equations. To rush such specification might produce a theory so constrained by its simplifying assumptions that it would have many of the limitations of the static equilibrium theory it is intended to supplement, if not supplant.[1]

FIGURE 1
The Basic Premises, Propositions, and Corollaries of a Dynamic Theory of Competitive Rationality[a]



[a]The top of the diagram represents macromarket behavior. The bottom of the diagram represents a firm's microprocedural rationality.

A Dynamic Model of Competition

Figure 1 is a model of the dynamic competitive process in a typical oligopolistic market. Each of the statements in the circular flow is both a premise for the reasoning that follows and a proposition derived from the previous reasoning. The propositions also generate corollaries, the most important of which are indicated in Figure 1. The cycle has no clear beginning or ending, so let us start with the premise (or proposition) that heterogeneity of supply is always changing.

Sellers' offerings are always changing in nature and quantity, some faster than others. Hence, a corollary is Marx's famous proposition that the rise and fall of the fortunes of different sellers changes the economic structure. The change in economic structure changes the social and political structure of a society.

The changing nature of sellers' market offerings changes demand, but not uniformly. The premise of changing heterogeneity in supply leads to the proposition of changing heterogeneity in demand because different buyers respond in different ways and at different rates to a change in the supply of a product or service. Such heterogeneity in the response of buyers changes the nature of market segments and their attractiveness. As sellers prefer more risk-adjusted profits to less risk-adjusted profits, they will shift their selling and marketing efforts to what are evidentially the more attractive segments or market niches. The shift creates an imbalance of supply and demand (a market imperfection or disequilibrium) and an intensification of the rivalry to serve and gain the patronage of such customer segments.

The intensification of seller rivalry creates the drive to experiment with product design, service, or price. The sellers that are most motivated by such rivalry and the desire to earn profits or increase market share strive the hardest in their search for new ways of effectively and efficiently serving customers. That motivation to improve encourages sellers to learn directly from environmental stimuli—their own experimentation, rivals' experiments, and the experiments of sellers in other markets. The sellers that are most alert

[1]There have been many excellent critiques of the orthodox models of competition (e.g., Arrow 1959; Clark 1961; Eliashberg and Chatterjee 1985; Joskow 1975; Kirzner 1981; Langlois 1986; Simon 1979). A discussion of the weaknesses and strengths of those models is beyond the scope of this article.

to such cues are the most competitive. Alertness requires acute, unbiased perception of change in the marketplace and the studious consideration of the impact of such change on all facets of market decision making.

Mere formulation of strategy, however, is insufficient. The enterprise must implement the product and marketing strategies and tactics that are imitations and improvements on what has been learned from studying the market. An important corollary is that companies that are very good at implementing (getting things done) have an inherent competitive advantage. They are able to change and adapt faster than other companies. Such cumulative seller adapting and adopting leads us back to our original premise that heterogeneity in supply is always changing. We now consider each of the stages of the theory in greater detail and, in particular, how goals, perception, learning, and implementation skills influence competitiveness.

Heterogeneity in Response and the Dynamic Market

If buyer demand changes heterogeneously (some buyers learn faster, some have a greater interest in product usage, and some have more discretionary income) and seller supply changes heterogeneously (some sellers learn faster, some have more resources, and some are prepared to take greater risks), the market will always be in a state of supply-demand flux. The greater the differences in rate of change across individual sellers' supply and across individual buyers' demand, the greater will be the complex lagged, iterative, interactive effects between overall supply and demand. Those direct and repercussive effects cannot be assumed ever to settle down into a state of static equilibrium.[2] In fact, given that the changes in supply influence the changes in demand, which will then change supply, a reasonable assumption is that the market will be in a constant state of change, but the rate of change of supply and demand will vary over time.

The resulting lack of fit between supply and demand presents opportunities for any supplier and buyer who responds quickly. The reason is that there will be ignorance about the current fit between supply and demand (market imperfections), which is reduced by the insightful and fast-reacting seller. The seller's rewards for enlightening the market are entrepreneurial profits. However, the entrepreneur must have more than insight. The consumer must be made aware of a seller's superior offering through efficient and effective distribution, personal selling, and advertising.

If we assume that the more profitable market segments (see Day, Shocker, and Srivastava 1979; Dickson 1982; Dickson and Ginter 1988; Wind 1978) will attract suppliers, there will always be an excess of supply over demand in one or more market segments. The resulting imbalance in supply and demand, which is in favor of the buyer, forces sellers to experiment with new ways of serving the customer (see Figure 1), which will further disturb the market. Thus, the assumptions of response heterogeneity and the profit motive are all that is needed to create and sustain a progressive market economy.

To summarize, the neoclassical theory of the firm is, in large part, the study of heterogeneity in buyer demand and heterogeneity in seller supply. In contrast, a theory of dynamic competition is the study of heterogeneity in changes in demand and heterogeneity in changes in supply. The focus shifts to the study of variation in the adaptability of individual sellers over time. We study that variation by examining the competitive importance and imperfect rationality of three elements of seller decision making—goals, environment analysis and learning, and the design of implementation routines (see Figure 1)—each of which is discussed in the following sections.

The Competitive Importance of Goals and Experimentation

In a series of brilliant papers, Simon (1964, 1976, 1978, 1979) argued that because of the information and cognitive bounds of planners, decisions often are reduced to subproblems and solved by choosing a satisfactory option:

> We do know how the information processing system called Man, faced with complexity beyond his ken, uses his information processing capacities to seek out alternatives, to calculate consequences, to resolve uncertainties and thereby—sometimes, not always—to find ways of action that are sufficient unto the day, that satisfice. [Simon 1979, p. 511]

Though the reality of bounded rationality is undeniable, the sufficiency of "satisficing" as a typical response to such uncertainty can be questioned.

The Efficiency Objective

For simplicity, we view the efficiency objective as the firm's attempts to control and reduce production and marketing costs; however, our argument can be gen-

[2]The heterogeneity dynamics of supply and demand are

$$\{\delta di/\delta t\text{: } i = 1, \ldots, n\}_{t+1} = f(\{\delta sj/\delta t\text{: } j = 1, \ldots, m\})_t$$

and

$$\{\delta sj/\delta t\text{: } j = 1, \ldots, m\}_{t+2} = g(\{\delta di/\delta t\text{: } i = 1, \ldots, n\})_{t+1},$$

where $\delta di/\delta t$ equals change in demand of buyer i, $\delta sj/\delta t$ equals change in supply offering by supplier j, and { } indicates the set of response functions across all n buyers and m sellers. As $\delta di/\delta t$ varies across i and $\delta sj/\delta t$ varies across j, the interactive effects between the vectors $\{\delta di/\delta t\}$ and $\{\delta sj/\delta t\}$ are assured to continue into future time periods. Those iterative interaction effects ensure an inviable solution (Day 1987).

eralized to an input-output definition of efficiency. Lowering average and marginal costs enables the firm to reduce price or to increase profits, and allows more options and slack in decision making. Cost-cutting innovations are particularly attractive because their effects are more predictable than those of other innovations. Moreover, a firm has greater control over costs than it does over other aspects of production and marketing undertaken in the marketplace. Cost innovations are also less likely to be detected and imitated immediately than product or marketing strategy innovations.

Does an aggressive firm satisfice on cost control? Hardly. The simple and rational desire for greater profits leads to the creation of a culture and incentives that encourage decision makers to strive constantly to find ways of reducing costs without affecting the potency of the output. This objective is made more feasible by modern information systems that have reduced the bounds on cost control by providing accurate and prompt feedback on the effects of efforts to control and reduce costs (Ames and Hlavacek 1990).

Note that this view of relentless cost management cannot be accommodated in the satisficing model by simply assuming that the firm keeps raising its efficiency aspiration levels. A firm is likely to change its aspiration levels, but they are still only minimum performance standards, often linked to management and worker reward systems. Once its aspiration levels (performance standard goals) are met, the firm that prefers more profits over less will not stop seeking ways of reducing costs. Such motivation and behavior are antithetic to satisficing because the reality is that the firm is never satisfied with its current performance.

The Effectiveness Objective

Is satisficing on the effectiveness of product design, service, and other marketing tactics also sustainable? In an uncertain, changing, and competitive environment, what is sufficient today may not be sufficient tomorrow. Given the uncertain behavior of competitors, can a decision maker be sure that what is being done today will indeed be sufficient?

Buyer preferences, choice, and satisfaction are dependent on the behavior of all sellers. Hence, a seller recognizes that it is in a contest with its rivals to fulfill expectations and create satisfaction. What, then, is satisficing on customer satisfaction? Presumably it is staying noticeably ahead of rivals in such efforts. As illustrated in Figure 1, the expectations and behavior of both buyers and sellers are always in flux; thus, the entrepreneurial firm must be constantly testing new ways of improving both its market effectiveness (improvement of product and service) and efficiency. Interestingly, the constant improvement of product and service also comprises the first two points in the W. Edwards Deming management method (Walton 1986).

When deciding on market strategy, organizations seldom simply adopt a satisfactory solution. They often consider several alternative feasible strategies and, within the bounds of their knowledge and economic and political goals, choose the most attractive alternative (Hutt, Reingen, and Ronchetto 1988; Lindblom 1959; Quinn 1980; Taylor 1976). Such "bounded optimization" is also a standard prescription for how to solve case studies in an MBA case course and how to plan (Stasch and Lanktree 1980; Sutton 1990). According to Quinn (1981) and Mintzberg (1978), the chosen strategy then is subjected to opportunistic adjustment as it is implemented.

However, an important feature of Simon's satisficing choice heuristic is indisputable. There are clear resource and institutional constraints on a firm's behavior. In targeting market niches, prioritizing new projects, or changing routines, the decision maker undertakes a fuzzy form of resource-constrained marginal utility maximization. The proposed behavior must fit the firm's abilities (organizational strengths and weaknesses) and the firm's resource capabilities (financial and human capital). External regulatory and other institutionalized market constraints also must be satisfied (see Venkatraman and Camillus 1984). Constraints such as standard practices and routines in the channels of distribution must be recognized and considered.[3] The competitive challenge for the decision maker is to outperform rivals in (1) recognizing the internal and external constraints and (2) making sure the firm's marketing decisions and market behavior satisfy them. In that sense, its behavior is satisficing. However, competition is both driven by and forces continued experimentation, learning, and self-improvement that is never satisfied. As we shall see, much of the learning is vicarious and much of the self-improvement is imitation (see Figure 1, II).

The Competitive Importance of Analysis and Imitation

Competitive innovation-imitation depends on the accuracy of a firm's environment analysis. Little attention has been paid to how marketing decision makers scan the entire marketplace environment, structure such analysis, and actually use the new market research technologies in their innovation-imitation decision making. The differences in orientation of market re-

[3]In a state of perfect competition the constraints are so great that the seller has no choices. It is a market taker, rather than a market maker. Ironically, "satisficing" is therefore also applicable to the neoclassical model's state of perfect information and perfect competition.

searchers and managers toward the use of market research technologies raise important questions about the perceptual acuteness and rigidity of many firms (see Deshpande and Zaltman 1984). In this section, we first discuss the assumption that rational perception, albeit imperfect, drives the innovation-imitation process. We then explain several of the imperfections that can reduce the efficiency of seller innovation and imitation.

In a famous article, Alchian (1950) argued that chance, rather than rationality, has a great influence on competitive advantage and the development of a market. The marketplace environment favors the firm that is lucky enough to be in the right place at the right time with the right strategy, in the same way that nature favors the seed that falls on fertile soil. Other enterprises analyze the "elements common to these observable successes" and imitate them. Imperfections in the imitation lead to new discoveries, which are themselves imitated.

Though Alchian makes an ingenious argument that market evolution and competition depend greatly on chance, his very description of the imitation process assumes some procedural rationality. Rivals observe and analyze the common elements of success. Alchian's theory assumes imitators develop a *post hoc* understanding of what creates success. To be consistent, it should allow innovators to conclude (hold *a priori* beliefs) that changing their behavior in response to a technological or market "insight" will be successful. At least the strategic management literature accepts that a great part of competitive advantage arises from such private information and conjecture (see Wensley 1982). The theory should also allow imitators' conjectures on the causes of success and, from such learning, improvements on the innovation.[4] Hence, the argument that a marketplace depends solely on chance must be qualified. As Louis Pasteur succinctly stated in describing scientific discovery, chance favors the prepared mind. The innovator or imitator that has a superior understanding of what is "knowable" about production and the market (i.e., superior knowledge schemas) is more likely to spot opportunities and correctly interpret causality. In contrast, the uncertainty associated with imitability can lead to imitation mistakes, persistent differences in interfirm efficiency, and economic rents (sustained above-normal profits) to the innovator whose rivals are unable to understand its formula for success (Lippman and Rumelt 1982).

Schmitz (1989) has also developed a model that demonstrates the importance of the *imitating* entrepreneur in determining the growth rate of an economy and, by implication, the intensity of competition (see also Baumol 1986, 1988; Kirzner 1978). He points out the importance of technology transfer between markets and the role of the communication infrastructure in the economy as a facilitator. The development of interindustry "benchmarking" learning techniques has accelerated the diffusion of new methods of production, quality control, customer service, and distribution across markets. International communication also has led to a tremendous acceleration in learning and competitive dynamics. Indeed, the transfer of production and marketing technologies across world markets may be one of the most important effects of globalization.

Hayek's Competition as Discovery

The importance of the link between innovation and imitation has been studied by scholars of the Austrian school of thought. Hayek (1978; see also Von Wiese 1929) viewed competition as a procedure that discovers market facts and forces the market to learn and adapt. The entrepreneur changes the bounds of rivals' rationality. As Hayek (1979, p. 189) states:

> Of course, it is one of the chief reasons for the dislike of competition that it not only shows how things can be done more effectively, but also confronts those who depend on their incomes on the market with the alternative of imitating the more successful or losing some or all of their income. Competition produces in this way, a kind of personal compulsion which makes it necessary for numerous individuals to adjust their way of life in a manner that no deliberate instructions or commands could bring about.

In other words, competition operates like an "invisible hand." The connection between competition, imitation, and learning was observed in Shell Oil's study of 30 companies that had survived in business for more than 75 years. What impressed the Shell planners was the ability of those companies to learn about their changing marketplaces (De Geus 1988). The management teams in those companies were able to change their "shared mental models" of the marketplace faster than their competitors, including their view and models of consumer behavior and competitor behavior and, perhaps most important, their view of themselves. Such fast insight also gave them more time to innovate, imitate, and avoid crisis management.

According to De Geus, the essence of marketing planning is learning about market change *and* adapting quickly, and "the only (sustainable) competitive advantage the company of the future will have is its managers' ability to learn faster than their competitors" (p. 74). That phrase is pure Hayek and very consistent with Alchian's vicarious learning. It also suggests a different way of interpreting some important

[4]Such causal understanding is often established by simply asking buyers why they like an innovation or by asking an engineer how the innovator has lowered its production costs.

work on diffusion of technologies (i.e., imitation) in markets by Gatignon and Robertson (1989; Robertson and Gatignon 1986). Those authors observed a relationship between the seller competitive environment, the buyer competitive environment, and the receptivity of sellers and buyers to innovation. They propose that the competitiveness of the environment determines receptivity. Schumpeter, Hayek, and Kirzner argue the reverse—that the receptivity of sellers and buyers to innovation is what determines the competitiveness of the seller and buyer environments.

Environment Analysis and Perceiving Change

Recent research into management styles has also examined the innovator-imitator model (e.g., McDaniel and Kolari 1987; Miles and Snow 1978). "Analyzers" monitor the aggressive innovators ("prospectors") and adopt their ideas. They often add new competitive features (which make their offering incrementally more attractive than the pioneer) or through cost efficiencies sell the product at a lower price.

The deliberate and judicious procedural rationality (Simon 1976) exhibited by Miles and Snow's "analyzer" suggests an important constraint on the efficiency of innovation-imitation. For learning and imitation to be efficient, the innovator's distinctive offering, strategy, tactics, or routines must be tested. If the innovator is immediately imitated (as happens with women's fashions), the type of discovery and learning described by Alchian and Hayek will not occur. A common example is when an innovator tests the selective demand elasticity of the market by lowering price, and rivals immediately imitate (see Dickson and Urbany 1991; Urbany and Dickson 1991). Thus, efficient market learning depends as much on the assumption that imitators will behave *prudently* and *judiciously* as it does on the assumption that entrepreneurs will be *insightful* and *adventurous*. An important determinant of such behavior is how a decision maker analyzes the environment and perceives change. That analysis involves uncertainty and perceptual biases.

Uncertainty as a Search Motivator and a Search Constraint

The orthodox theory of utility is a theory of expected utility, but it can be extended to consider the variance and biases in the distribution of expectations (see Simon 1976). Such an extended model can be applied to understanding a decision maker's ability to analyze the environment and perceive change. The ability to perceive change in the marketplace depends on the current knowledge and expectations of the perceiver. In the applied marketing planning literature, detecting such deviations from expectations is described variously as "surfacing issues" or identifying threats and opportunities that become the focus of decision making (Brown 1979; Stasch and Lanktree 1980; Sutton 1990).

The theory of information economics (Phlips 1988; Stigler 1961) posits that sellers respond to uncertainty by seeking to reduce it through obtaining information. A well-informed seller will have higher knowledge (an asymmetric information advantage over rivals) and, hence, less uncertainty about what to expect. Uncertainty depends on buyer and seller marketplace behavior *and* a seller's awareness of that behavior. The more "alert" (Kirzner 1978) or "informed" (Stigler 1961) a firm is, the greater will be its ability to detect significant change.[5] The same principle applies to an innovator evaluating the effect of its own behavior. Alertness is also related directly to a firm's ability to segment the market (systematically explain demand heterogeneity) and identify, target, and reach current and emerging market niches.

A problem with current information economics theory is that the variance in seller behavior that motivates both buyer and seller search behavior also limits a seller's ability to detect distinctive behavior. Perceived uncertainty encourages a seller to search (Stigler 1961). However, perceived uncertainty also reduces the ability of a seller to *detect* distinctively new rival or buyer behavior (because expectations about the status quo are uncertain). A seller cannot detect change if it does not know what is normal. That may explain why the effect of uncertainty on search and behavior may be nonmonotonic (see Johnson and Russo 1984; Urbany, Dickson, and Wilkie 1989).

For the same reason, in a very turbulent market, the ability of a firm to detect and mimic "successful" new behaviors correctly is greatly reduced (Anderson 1988). Such turbulence is one of the extraordinary challenges facing a firm in a market that has recently been deregulated (e.g., the airline or trucking industries in the U.S. in the 1980s and the fledgling free markets in Eastern Europe). The new market is initially chaotic, and the market planner finds it extremely difficult to detect meaningful cause-effect relationships and develop stable mental models of the marketplace. Too many variables are changing and there are too few datapoints.[6]

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[5]If x is the behavior of a rival, the ability of a firm to detect such distinctive behavior will be a function of

$$(x - E(x))/(\sigma x),$$

where E(x) is what the observer expects to see and σx is a function of the past variation in x and an inverse function of the observer's alertness to x (perceptual acuteness). This equation ignores perceptual biases that would require the inclusion of higher order moments in the function.

[6]What this suggests is that a turbulent market learns and responds only to extreme effects. It can learn about the effect of a dramatic new technology (as the effect of a catastrophe on an environment can be observed). However, an entrepreneur's more subtle or incremental innovations are less likely to be detected and imitated. This point has important profit implications.

McKee, Varadarajan, and Pride (1989) observed that Miles and Snow "analyzer" firms outperform other organization types in mildly volatile markets but do not exhibit superior performance in highly volatile markets. A plausible explanation is that even the very best marketing planning does not work in highly uncertain and turbulent markets (see also Alchian 1950; Lippman and Rumelt 1982). In such markets, success depends more on luck than on the ability to analyze and plan (i.e., competitive rationality).

Problems in detecting success may also explain why rivals focus on sales rather than profits as indicators of success. Sales and inventory turn are much easier to measure, more immediately observable, and more visible, concrete outcomes than profitability (Urbany and Dickson 1990). However, the use of sales rather than profits to measure success can lead to major misallocations of resources (see also Jacobson and Aaker 1985).

Environmental Analysis and Perceptual Biases

In recent years, some very creative research in economic psychology and marketing has revealed important biases in the use of information and decision making (Hogarth and Makridakis 1981; Kahneman, Slovic, and Tversky 1982; Makridakis 1990; Russo and Schoemaker 1989; Schoemaker 1990). Though the focus has been on consumer information processing (Puto 1987; Thaler 1985), the theories can be applied also to a seller's analysis of the marketplace environment. For example, decision makers tend to frame problems as threats or opportunities, overweighting certain information and depreciating other information (see Barnes 1984; Chakravati, Mitchell, and Staelin 1981; Hoch 1987; Krueger and Dickson 1990; Samuelson and Zeckhauser 1988; Tversky and Kahneman 1986).

Incomplete environmental analyses (Aguilar 1967; Dickson and Kalapurakal 1991) and using a single perspective in framing a decision (Linstone 1984; Nutt 1990) are even more basic and very common perceptual biases. They are manifest in prescriptions to focus on the consumer or on the competition (see Day and Wensley 1983, 1988; Levitt 1960). Because the marketplace consists of consumers, competitors, distribution facilitators such as retailers and wholesalers, information agents such as consultants and trade associations, and regulatory institutions, changes in the behavior of *all* of those parties must be scanned and analyzed by the marketing planner. How a seller focuses on its competition and consumers can also bias its ability to identify changes in demand and supply. One of the important contributions of Porter's competitive analysis has been to encourage decision makers not just to consider the immediate competition but also to be alert to potential competition from innovations and from suppliers and buyers vertically integrating (Porter 1980). Similarly, the market segmentation framework that decision makers impose on the market constitutes a fundamentally important framing bias because it is constantly used to develop and assess strategy (see Dickson 1982; Weitz 1985; Wind 1978). For example, a small company may segment the market into much smaller segments or niches that a large company would not view as substantial enough to serve or as too difficult to serve. More sensitive market segmentation is likely to lead to greater alertness to changes in the behavior of the targeted segments and the market as a whole. This may help explain why small companies are more alert and hence adaptive.

Another important dimension of environmental analysis and market alertness is perceptual rigidity. Classic studies of perception have demonstrated that we see what we expect to see (Mackworth 1965; Mayer 1983). Such anchoring biases result in some market analysts being slower to recognize changes in the marketplace than others (Levitt 1960). Nonadaptive decision makers are trapped in the past, be it their own, their firm's, or the industry's view of the marketplace. The insightful entrepreneur's perception of the market and expectations are not as subject to such biases.

Skilled, experienced decision makers have an intuitive ability to scan the total marketplace environment and identify significant changes in it. They are also skilled at drawing higher order strategic implications from such new information (Isenberg 1984). In particular, they are adept at interpreting information from many different perspectives and therefore are less subject to framing biases (Kiechel 1985). They are skilled problem finders (Arlin 1977) and hence more "alert" (Kirzner 1978). They still may have only a limited understanding of the market, but chance favors the prepared mind and their minds are better prepared than their competitors'.

The Competitive Importance of Implementation Planning

Just as the variance in ignorance of sellers and buyers presents opportunities for the marketing entrepreneur, so does the variance in responsiveness. As the entrepreneur keeps changing the market, the lagged response of some followers becomes obsolete. Their now-inappropriate response has an effect on the market that can be exploited further. Thus, even if we assume a market with perfect information, entrepreneurial opportunities will still be created by the differential implementation abilities of sellers. Conversely, the faster and smarter the competition, the fewer are the op-

portunities for exploiting knowledge and response imperfections.

Competition is more than just learning; it also involves developing the ability to implement quickly (see Figure 1). This view of competitive advantage is similar to the "hustle as strategy" model proposed by Bhide (1986) and competition as fast-cycle capability (Bower and Hout 1988). Bhide's argument is that in many industries such as financial services, firms cannot build a sustainable competitive advantage by pursuing a grand strategy. Competitors can imitate too quickly. For example, the Reserve Fund of New York invented money market mutual funds in 1972 and 10 years later had 300 competitors and less than 1% of the market.

Bower and Hout (1988, p. 112) describe how companies such as Toyota have gained considerable competitive advantage by speeding information, decisions, and implementation through an operating cycle.

> Toyota and other fast-cycle companies resemble the World War II fighter pilots who consistently won dogfights, even when flying in technologically inferior planes. The U.S. Air Force found that the winning pilots completed the so-called OODA loop—Observation, Orientation, Decision, Action—faster than their opponents. Winning pilots sized up the dynamics in each new encounter, read its opportunities, decided what to do, and acted before their opponents could.

Just as Simon (1964) used operations research's linear programming (LP) algorithm to describe problem solving as satisficing constraints, we can use operation research's critical path method (CPM) to describe competitive implementation (Dusenberry 1967; Feltz 1970). The decision maker intuitively maps out the operational flows, seeks ways of "crashing" (reducing) the critical path time for implementing a competitive strategy, and closely monitors progress. Consistent with that method, the CEO of Hewlett-Packard, John Young, has introduced a new term, "BET" (breakeven time: time from concept development to breakeven in the marketplace), in his attempts to improve his company's fleet-footedness (see also Stalk 1988).

Many companies are reaching out to firms in other industries to learn how they are able to implement faster. That approach is a form of technology transfer across industries—the transfer of the technology of how to get things done quickly (Dumaine 1989). In Nelson and Winter's (1982) more scholarly terms, planning is the search for more effective and efficient routines, the genes that determine how the firm evolves. They are transmitted through the marketplace by imitation. The creative planner takes present routines and production rules and by "gene splicing" creates new production, distribution, advertising, and marketing routines, tactics, and functions. Firms that are open-minded and good at such creative gene splicing are more competitive.

Routine Rigidity and Functional Fixedness

Organizations can be trapped by prevailing operational routines (Boeker 1989; Bonoma 1981; Gersick and Hackman 1990) that limit their ability to innovate, imitate, and implement. Such functional fixedness can be psychological, intraorganizational, and/or interorganizational. One of the most powerful psychological effects that can be observed in human behavior is the inability of the actor to shift mentally from a successful, but inefficient, habitual production rule or activity sequence and "see" a more efficient way of solving a problem or achieving a goal (Luchins and Luchins 1970). Such "mental inertia" is more than an issue of habit. The problem is one of motivation and the economic incentive to change behavior. The drive to continue to innovate will be reduced to the extent that innovation is perceived to threaten the sales and profits from past innovations. Thus, a highly profitable firm may be most vulnerable to attack because it has "tree huggers" who are not willing to change their behavior or the firm's behavior (Loomis 1991; Rumelt 1987). Changing routines within an organization may be resisted also because it will provoke conflict between functions and factions (Anderson 1982; Nelson and Winter 1982; Quinn 1981).

Stasis or equilibrium can occur in a market when there is an explicit or tacit truce between the current players to maintain the status quo (see Thomas and Soldow 1988). In such markets, functional rigidity becomes institutionalized and the prevailing practices or routines may not be the most efficient (Anderson 1988). Conversely, the more dynamic a market, the more a firm must depend on its ability to react quickly. Action planning skills enable it to undertake more experimentation, to retreat quickly from unsuccessful experiments, and to imitate and react quickly.

As mentioned previously, such market maneuvering is not just a defensive skill. Peters (1987) has pointed out that the successful marketing planner must not simply tolerate chaos; he or she must relish creating further chaos for his or her competitors (see also Jauch and Kraft 1986). Though empirical evidence is lacking, a credible case can be made that extremely adaptive and responsive Japanese firms have, through their sustained innovation, created such market turbulence that they have driven their rivals into self-destructive modes of decision making and market behavior—that is, organizational nervous breakdowns (see Fink, Beak, and Taddeo 1971). The rival's competitive rationality crumbles under the sustained pressure, which leads, as we discuss next, to major changes in the structure of the market (see left side of Figure 1).

Creative Destruction and Efficiency

Schumpeter (1934) coined the phrase "creative destruction" to describe the effect of entrepreneurs on a market (Baldwin 1987; Oakley 1990; Plater and Rahtz

1989). When entrepreneurs introduce innovations in product design, production, or marketing practices that are more attractive to the marketplace or reduce costs, the current substitutes cease to be as competitive. The old economic structure is destroyed and replaced by a new structure (see Figure 1).

For Schumpeter, capitalist development consists of spurts of entrepreneurial, innovative energy that reward the risk taker until the imitators catch up (see Robinson and Fornell 1985; Schmalensee 1982). The Austrian theory states that private knowledge is the source of entrepreneurial rents. The innovator profits from the ignorance of its rivals (Rumelt 1987). However, the innovator's first-mover advantage depends not only on superior insight, but also on its ability to respond quickly (implement quickly).

If an innovator does not move quickly, and keep moving, the early imitators can play a major role in "remaking" or "creatively destroying" the market (Kirzner 1978, p. 128). Moreover, if they have more resources or already have a large market share, it is their imitative reactions that will have the most impact on changing the market and on the rate of change and competitive dynamics in the market. The rate of creative destruction or innovative momentum that results from a single firm's decision therefore depends on its current share of sales in a market and how radically it changes its behavior. This also explains how imitators are able to appropriate entrepreneurial economic rents (above normal profits) from the innovator.

Retailers and other intermediaries may also play a major role in competition by accelerating imitation. To remain competitive themselves, they demand that their suppliers rapidly imitate successful new designs or marketing programs. In addition, retailers encourage imitation because a supplier with an exclusive, sustainable competitive advantage weakens the retailer's negotiating position. Some mass merchandisers or discounters exercise such control over market access that they often can appropriate a significant amount of an innovation's economic rent from the entrepreneur (see Porter 1980; Williamson 1979).

Kirzner (1978, 1985) argues that the efficiency of the market depends on the extent to which market forces drive the market toward new allocation patterns and more efficient price equilibria:

> A decision-maker knows that no decision can be carried out if it creates less attractive opportunities for the market than those offered by his competitors. It also implies that he knows he must offer opportunities *more* attractive than those of his competitors [the marketing concept] . . . market participants are thus forced by the competitive market process to gravitate closer and closer to the limits of their ability to participate gainfully in the market. [Kirzner 1978, p. 12]

Kirzner defines the entrepreneur as a market participant who does anything different from conventional practice. The entrepreneur's original insights and alertness to market opportunities and imperfections reduce the current disequilibrium that is the result of market ignorance (Kirzner 1978, p. 73). The market testing and learning may be slow and imperfect, but is inherently efficient.

The Invisible Hand, Competition, and the Marketing Concept

Another obvious explanation of why a market economy works is that it encourages human enterprise by rewarding initiative, creativity, and hard work (Friedman and Friedman 1980). A more complex "invisible hand" explanation, commonly attributed to Adam Smith, is that such pursuit of self-interest benefits many other people. Though the notion frequently is used as an economic and moral justification for market economies and capitalism, in actuality Smith made only two significant references to the invisible hand. The first reference, in *The Theory of Moral Sentiments* (Smith 1867, p. 163), described a "trickle down" theory that the spending of the wealthy leads to an equitable distribution of their wealth across the economy (as though distributed by an invisible hand). The second reference, in *The Wealth of Nations* (Smith 1937, p. 423), explained that capital flows to the enterprise that is expected to generate the greatest risk-adjusted return. That process (like an invisible hand) benefits society by reducing supply-demand imbalances.

What is of most interest is not what Adam Smith had to say about the invisible hand, which was vague and ambiguous in its meaning (Ahmad 1990), but what he did not say. He did not define it as competition. Notwithstanding, modern scholars have proposed that competition is, indeed, the invisible hand in the marketplace that constrains an individual's pursuit of self-interest (Rosenberg 1979, p. 24).

Smith's theory was that the invisible hand, somehow or other, leads to the coincidental promotion of both the public interest and the private interest. Our theory is that oligopolistic rivalry forces a seller to serve the interests of customers noticeably better than its competitors. Such customer service improvement is a very conscious, deliberate, relentless process with a clearly intended end; it is not incidental, coincidental, accidental, or unintended. In the marketing management literature that idea has been called the "marketing concept" (Drucker 1954; Houston 1986; Keith 1960; see also Kirzner above). In "rediscovering" the concept, Webster (1988, p. 5) states that a market-oriented company is customer-focused, market-driven, and "places the interests of the customer ahead of all other claimants on the resources of the enterprise." Kohli and Jaworski (1990) have defined a "market

orientation" as the generation and dissemination of intelligence about customer needs and the firm's response to such information. Narver and Slater (1990) observed in an exploratory study what has been long assumed—market orientation improves market performance.

The marketing concept can be linked to the invisible hand by recognizing that it is competition that *forces* a customer or market orientation. The greater the rivalry between sellers, the greater will be the customer focus and service. The presence or threat of competition results in increased customer focus, innovative customer products and services, lower prices, and, consequently, more efficient utilization of resources.

That proposition addresses the debate as to whether companies should adopt a competitive or a customer focus (Day and Wensley 1983; Weitz 1985). A competitive focus is not an alternative to a customer focus; the greater the competition, the greater the firm's need to focus on and serve the customer better than the competition through higher quality, more services, and lower prices.

The explicit connection between competition, the marketing concept of serving the customer, and self-interest has not been recognized by scholars, including Smith. A major tenet of his *Theory of Moral Sentiments* is the obligation of the individual to consider and serve the interests of others. But in a fascinating omission, he did not apply that ethic to a seller's obligation to its customers. Nor did he ever state that, whether or not a seller is morally disposed to do so, competition forces a seller to serve the interests of consumers. The theory of competitive rationality proposes that the firm earns profits (entrepreneurial rents) from the insights (i.e., private information) produced by a consumer focus.

Modern marketing scholars and teachers may disagree with the preceding rationale for the marketing concept. In many textbooks, the marketing concept frequently takes on the characteristics of a moral maxim that serves to dignify and legitimize the marketing profession and discipline. Theoretically, the marketing concept is much more than that; morally, it is much less.

Conclusions

According to Simon (1976, p. 141), "understanding imperfect competition means understanding procedural rationality." In the proposed theory, competition between firms is not explained by procedural rationality. Competition *is* between the imperfect procedural rationality of rivals. The study of competition has tended to center on the outcomes of decision making, such as product differentiation, channel coalitions, market share, brand equity, and financial resources (see Day and Wensley 1988; Weitz 1985; Williamson 1979, 1985). An important measure of a firm's competitiveness is an audit of its current resources, as they constrain what is possible. However, the decision making that produces and employs the resources is a more direct determinant of competitiveness (see Chandler 1990; Itami and Roehl 1987). Current resources are the result of chance and the quality of past marketing planning. As luck is by definition stochastic, sustained long-term success depends on the history of a firm's motivation to learn, ability to learn, and ability to implement—that is, its complete rationality.

Implications for Management

Encouraging the self-improvement drive. Firms that are more competitive have a stronger drive to improve their marketplace performance, information systems and decision makers that are more sensitive to changes in the environment, and superior implementation skills. The drive to improve depends on personal motivations, which in turn depend on personality, the reward system, and the leadership and encouragement provided by superiors.

The theory of competitive rationality supports the adoption of the clan culture proposed by Ouchi (1979, 1980) because it is best suited to uncertain market environments. Organizations with a more bureaucratic corporate culture may flourish in very stable, predictable markets (see Jaworski 1988; Ruekert, Walker, and Roering 1985), but sooner or later their markets will be disturbed by the actions and reactions of innovators and imitators. The clan culture is suited not only for coping with an uncertain market, but also for *creating* uncertain markets. That point has not been fully appreciated in the organization culture and control literature. It suggests that firms with a clan culture are more competitive over the long term.

Organization rewards should be related to rate of improvement in performance (rather than level of performance), as such incentive systems will naturally attract and motivate the type of personality that is never satisfied with the status quo. The theory of competitive rationality also suggests that individual employees should receive special rewards for insights and ideas that lead to innovations in product design quality or cost savings, but group profit-sharing is also needed to encourage interdependence and efficient implementation. For similar reasons, paying chief executives huge salaries may encourage persons who aspire to be a CEO, but can have a disastrous effect on organization morale, cooperation, initiative, implementation, and adaptability.

Increasing perceptual acuteness. Organization learning and alertness depend on the experience of the decision makers. Market experience increases a manager's ability to detect change, but it may also distort or bias perception. Hence, a firm should seek and retain open-minded market expertise (Prietula and Simon 1989). A significant percentage of the intellectual capital of the modern American corporation is spent in opportunistic profit-seeking from creating tax loopholes, exploiting information asymmetries in financial and property markets, and financial restructuring of current assets (Hayes and Wheelwright 1984). Such profit-seeking behavior is matched by the rent-seeking behavior of government (i.e., syphoning off resources to create bureaucratic empires; Bhagwati 1982). As a result, the meritocracy of the firm and the economy has changed. Legal and accounting expertise has been valued and promoted at the inevitable expense of product, market, and technological expertise. The theory of competitive rationality makes clear predictions about the likely consequences—the firm will be less alert, less agile, and less competitive in its served markets.

The formal and informal flows of information within the organization are also a critical determinant of the competitive alertness of a firm. A first and crucial step a firm can take to improve its competitive rationality is to remove the functions or individuals who have created information "gates" that they open and close at their discretion. They profit from keeping the gate closed (otherwise they would have no incentive to be a gatekeeper!) and such individual profit is at the firm's expense. Before a firm considers investing in major new decision support systems to increase the alertness of its organization, it should simply improve the flow of information that it already captures (see Barabba and Zaltman 1991; Dickson and Kalapurakal 1991). It might also invest in training that encourages an open-minded use of readily available information (see Russo and Schoemaker 1989).

Increasing implementation speed. The firm should also undertake a zero-budgeting exercise with the objective of dramatically decreasing the time needed to implement new programs. The ability to react quickly (agility) is paramount when a firm cannot predict and plan for discontinuities in competitor and buyer behavior. Responsiveness can compensate for a firm's imperfect knowledge about the market and its bounded rationality. To be able to react quickly, a firm must have managers who have a profound understanding of the technology of implementation, both general and specific to the industry. The adaptation of Deming principles to marketing management should help identify the historic problems with implementation and how they might be solved (Walton 1986). The hiring and retaining of highly motivated managers who have considerable industry-specific experience is essential (see also Chandler 1990). Such managers are harder driving, more alert to opportunities and threats, and better able to get things done. The proposed theory also suggests that though a firm must be able to act and react quickly, quickly does not mean impulsively or recklessly. The ideal combination is prudent "wait and see" learning combined with the ability to react quickly to what has been learned.

Planning itself is a higher order routine (Nelson and Winter 1982) involving procedures for gathering information, using knowledge, being creative, screening ideas, and implementing. Consequently, a firm may be able to increase its competitiveness dramatically by improving its higher order planning and decision-making routines. Practically, the most effective way of doing so is to study how admired companies in other markets make decisions and to imitate their planning procedures. Learning how to improve decision making can be undertaken by direct contact with other companies. It can also be achieved by hiring consultants or by sponsoring academic and applied research into the marketing planning behavior of firms. For example, there is evidence that, in comparison with a discrete process, a decision-making process that is continuously adapting to new information and feedback reduces the biases in decision making (Hogarth 1981). Such evidence suggests that a continuous planning procedure is superior to a procedure that relies on a major annual planning exercise.

Implications for Scholarship

Given the importance of economic competition in the new world order and the implications of the proposed theory, the need to study seller procedural rationality so as to improve it is plain and paramount. Simon (1976) has admitted that we are not sure how to explain the observed variability in the imperfect procedural rationality (i.e., marketing planning) across organizations and over time. Joskow (1975) has called for research on how firms vary in their decision making. Some of the factors that explain such variability in competitive rationality are intensity of rivalry in a market, production technologies employed, organization culture (e.g., group decision-making dynamics), the human and artificial intelligence resources of the firm (e.g., information systems), and the personality and skills of the decision makers.

The proposed theory advances the Austrian theory of competition in several important ways. First, it applies competitive rationality to all firms rather than focusing predominantly on the behavior of the entrepreneur. It recognizes that a firm is often innovative in its imitation, which creates further market opportunities (rather than simply exploiting the opportuni-

ties exposed by the imitator). Second, it reduces competitiveness to its basic behavioral (S-O-R) elements, which are a relentless drive to improve through testing new offerings and routines, alertness, unbiased and acute perception, choice of segmentation framework, creative problem solving, and the ability to respond quickly. Third, it identifies and explores some psychological aspects of alertness, market learning, and imitation that the Austrian theory has not addressed. Fourth, it posits that understanding the nature of the heterogeneity in the response of both sellers and buyers is necessary to specify the dynamic competitive model—a daunting task. By definition, the market learns from the entrepreneur, but it is the diffusion of that knowledge and the resulting responses that create much of the disequilibrium. Fifth, it offers a dynamic model that integrates macro-market behavior and micro-competitive rationality into a coherent set of premises, propositions, and corollaries.

However, the theory of competitive rationality is far from complete. Other elements of imperfect procedural rationality that must be developed further are the creative processes leading to strategy formulation and the evaluation and screening of such strategy. Research questions of particular interest are how to create company cultures and goals that relish change and how to increase the perceptual alertness of decision makers, reduce their perceptual biases, and increase their implementation planning skills. The theory may also encourage some innovative econometricians to abandon the price equilibrium paradigm in favor of the more complex mathematics of sets of supply and demand functions whose interactions and intra-actions model change heterogeneity and disequilibrium.

The rapprochement between orthodox microeconomists, followers of Schumpeterian economics, the new wave of behavioral economists, information economists, information processing researchers, and marketing scholars that must occur for real progress to be made already seems to be occurring. It is evident in the awarding of Nobel prizes in economics and the interdisciplinary communication occurring in doctoral programs, scholarly journals (see Joskow 1975; Weitz 1985; *Journal of Business* 1986), and business periodicals such as the *Harvard Business Review*, *Fortune*, *Forbes*, and *Business Week*. However, the institutional and intellectual barriers to progress (e.g., vested interests) are great (cf. Swedberg 1990). Their respectful removal (an intellectual Perestroika) will be achieved by the emergence and embracing of new theories of economic competition that are firmly rooted in the realities of marketplace decision-making behavior.

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