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# Weak Signals Versus Strong Paradigms

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The best description of the current state of research in many fields of management is that of a silent, ongoing battle between **weak signals** from the realm of management practice and strong, well-developed paradigms in established fields of scholarly inquiry. Often, early signals that portend a major shift in substantive areas of interest to management practice are either ignored or interpreted with existing academic tools and established paradigms. Furthermore, scholars tend to be preoccupied with the reliability of measurement within the framework of a given paradigm. **Weak signals** from the realm of practice suggest that scholars should also be as concerned with the validity of what is measured. I illustrate this dilemma by describing the nature of **weak signals** that affect such fields of inquiry as strategic marketing (or strategy). In the process, I outline some exciting areas for research as well.

## *THE CHANGING NATURE OF COMPETITION*

It is no exaggeration to say that competitive reality has undergone significant changes during the last decade, and the pace will continue unabated. Many industries are undergoing massive transformation. The underlying driving forces are obvious. Deregulation, global excess capacity, global competition, mergers and acquisitions, changing customer expectations, technological discontinuities, disintermediation, demographic shifts, and changing life and work styles have had a significant impact on industry economics (Prahalad and Hamel 1994). It is safe to say that no industry can escape the impact of a subset of these underlying drivers of industry transformation. These forces are changing industries (e.g., retailing, airlines, brokerage), creating new industries (e.g., color printers, personal digital assistances [PDAs], data bases), and opening up new and large growth markets for existing businesses (e.g., in China, India, the Eastern Block, Latin America).

The underlying drivers behind industry transformation are also enabling new, non-traditional competitors to emerge. These competitors do not start with the same assumptions about industry economics as do the incumbents. For example, Acer (a Taiwan-based personal computer and peripherals company) does not start with the advantages of Apple, IBM, or Compaq. They have been labeled a late entrant in a crowded game; yet, they have managed to become a major global player in the industry -- 14th in market share terms and 5th in manufacturing share. Similar strategic choices that run counter to "good theory" constantly occur. For example, should Samsung enter the crowded car business? Should Taiwanese firms or South Korean firms invest in liquid crystal displays, a market totally dominated by a few large Japanese firms such as Toshiba, Sharp, and NEC? These emerging competitive dynamics pose a challenge to such fundamental questions in strategic marketing and strategy as

1. What is the measure of the market influence of a company?
2. What is the appropriate unit of analysis for measuring competitiveness?
3. When does competition start for market share and profits?
4. Do competitors always compete? When do they collaborate? Why?
5. What is the measure of business failure? Or success?
6. Are there barriers to entry? Or barriers to imitation?

My goal is to identify weak signals in management practice, which either require modifications to existing approaches to scholarly inquiry or demand the development of new theory. By definition, weak signals cannot be extensively documented. I provide examples to illustrate my perspective. Some experiments of a few competitors, which I use as illustrations here, may not evolve into general patterns of competitive behavior, and some may remain idiosyncratic, but relevant, in a few industries. However, I contend that there is growing evidence to warrant a serious reexamination of existing scholarly wisdom.

*What is a Measure of Market Influence?*

This question has been a critical issue for strategy and marketing academics for more than three decades. Market influence -- the capacity of a firm to affect industry dynamics, that is, costs, pricing, customer preferences, pace, and direction of change -- is tied closely to profit performance and is, therefore, an important question for managers to address. Two statements -- (1) market share is a measure of market influence and (2) relative market share is a proxy for competitive strength -- capture a significant portion of thinking in this area.

If researchers accept these two premises, market share as an influencer of profit performance (i.e., return on investment) then becomes obvious. In fact, a significant portion of the studies in strategic marketing focuses on examining this relationship (for a summary of this line of reasoning, see Buzzell 1987; Buzzell, Gale, and Sultan 1975; Philips, Chang, and Buzzell 1983). Because market share is a critical idea, precision in defining market share should be sought. For example, is there a clear distinction between market share and brand share? In consumer electronics, Sony primarily sells under one brand name. Thus, brand share is a good proxy for market share. On the other hand, Sony's rivals, Matsushita (Panasonic, Technics, and National) and Philips (Philips, and Magnavox) use multiple brands, and brand share is not a proxy for market share in these cases. Furthermore, does market share mean domestic market share (in most studies market share represents share of the domestic, that is, the U.S. market) or global share? Can firms have significant global share that is measured as a percentage of total size of the market worldwide, but have low share in one major market? For example, Philips and General Electric (GE) are close global leaders in the lighting business -- in terms of global market share -- but neither has any meaningful share in that business in Japan. Should managers worry about global share?

Although definitions of what is an appropriate measure of market share are important, competitive developments during the past decade suggest that researchers must go beyond market share to understand the patterns of industry influence. Because of a large trend toward "outsourcing" during the 1980s, primarily in the United States and partially in Europe, there is an emerging mismatch between market share and manufacturing and development share in most industries. Firms manufacture for their current and potential competitors; they also buy from their current and potential competitors. Samsung manufactured microwave ovens for GE. Acer manufactures peripherals for a wide variety of competitors. JVC and Matsushita manufactured video cassette recorders (VCRs) for RCA, GE, Magnavox, and others. This trend toward original equipment manufacturers or private label manufacturing is a major shift in the patterns of influence. The question is: What are the long term competitive implications in an industry when firms develop manufacturing and development share that is not limited to their market share?

Funneled by the need of many businesses for specialization and the reduction of investment intensity, namely, the cost of development and manufacturing facilities, a growing trend of a few suppliers dominates the market for key products and sub-systems. Intel represents this trend. Intel is not in the personal computer (PC) assembly (e.g., IBM, Compaq) or purely PC marketing business (e.g., Dell, Packard Bell). Intel manufactures a key module. However, Intel's influence in the PC industry is significantly greater than any single PC manufacturer. Although Intel represents an extreme case of this trend, there are many others, and the pattern is accelerating. Canon's share of the printer engines (approximately 80%) or Matsushita's share of compressors (approximately 45%) are some examples. (See Table 1 for a representative list.) The key issue is that market share in "end products" (e.g., air conditioners, refrigerators, PCs) may tell, at best, a partial story. Share of "core products" or key modules may have as much influence on industry direction. There is an emerging belief among managers, which is not yet well researched or documented, that core product market share and end product brand share are better predictors of profitability than the traditional measure of end product market share.

Table 1

WORLD MARKET SHARES OF CORE PRODUCT SPECIALISTS *

| Company | Core Product(s) | Global Market Shares |
|---|---|---|
| Murata | Ceramic Capacitors | 50% |
| Minebea | Miniature Beatings | 65% |
| Nideq | Spindle Motors for Winchester Drives | 85% |
| TDK | Printer Heads | 60% |
| Futaba | Fluorescent Displays | 60% |
| Mabuchi | CD Motors | 70% |
| Sony | CD Mechanisms | 60% |
| | Lasers | 65% |
| | CCD Image Sensors | 60% |
| Kyocera | Ceramic Packs | 70% |

* *Compiled by the author from various sources.*

Although my discussion so far has been on measuring the influence of a firm in an existing market, researchers can also ask: What is the measure of a firm's capacity both to create new businesses -- thus, satisfying new customer needs and creating new sources of profits -- and influence the evolution of new industries? A measure of the capacity to create new businesses is a measure of the core competencies that the company possesses (Prahalad and Hamel 1990). Although competence share of firms is less easily quantified, it can be benchmarked.

Core product share and core competency share may provide a better indication of the ability of a firm to manage its long-term profitability. Core products and competencies influence a firm's capacity to create new products and businesses, as well as to participate in and influence the pattern of industry evolution. Existing measures of market influence focus primarily on short-term profitability.

Technological discontinuities and deregulation have created yet another dimension of market influence. Many new industries cannot evolve without standards -- be it interactive television, home shopping, or cellular phones. How do these standards evolve? Market-based standards evolve through a process of competition -- the famous, and often cited, example being the competition between VHS and Betamax formats for video recording. Such battles are on-going, because new standards are needed in the emerging multimedia industry. During the last five years the competition for standards has intensified. For example, complex, competitive battles for standards are being waged for recording formats, such as the mini-disc proposed by Sony, and competed for by Digital Audio Tape (Sony) and Digital Compact Cassette (Philips), or the high density laser disk format competed for by Toshiba and Time Warner and Philips and Sony. Yet another such competitive battle is evident in the PC industry between Intel and Motorola. Typically, a consortium of firms led by the developer of a standard competes with a consortium of firms supporting a different standard. Format and standard battles are critical because the winning format, called the *defacto standard,* will have a significant share of the profits. Format share, therefore, becomes a critical idea in understanding profitability. It is important to note that as market-based standards evolve through a process of interconsortia competition, there is room for more than one standard, such as DOS and Apple Macintosh (for a detailed discussion of this issue, see Hariharan 1990; Hariharan and Prahalad 1994).

Measures of market influence and profitability have to extend beyond traditional measures of market share. For example, when is it appropriate to use the subsequent items as measures of market influence?

* End product market share in the domestic market.

* End product market share in the global market.

* End product brand share.

* End product manufacturing share.

* Core product share.

* Competence share.

* Format (standards) share.

An example of this way of looking at market influence is provided in Table 2.

Table 2
MATSUSHITA'S INFLUENCE IN VCR INDUSTRY -- 1984

| | Global share of Matsushita and JVC * |
|---|---|
| End Product Market Share | 24.0% |
| Manufacturing Share | 41.7% |
| Corn Product (decks) Share | 85.0% |
| Format Share | 80.0% |
| Competence Share | ? |

** JVC is a partly-owned subsidiary of Matsushita. Both were promoting the VHS format. Hence the shares are combined.*

The complexity of the evolving competitive system forces researchers to challenge the wisdom of using a simple measure, such as market share, as a prescriptive and a diagnostic tool. Measures of a firm's ability and influence in creating value to customers is the appropriate focus. The nodes of influence are not always at the end product level. Furthermore, the "market" is neither static nor easily defined.

*UNIT OF ANALYSIS FOR UNDERSTANDING COMPETITIVENESS*

The bulk of strategic marketing literature deals with competition in clearly defined, existing markets. The underlying assumptions are that (1) the market is distinct (there is clarity for customers and competitors) and (2) competition occurs at the level of product lines and/or businesses. Four statements capture this line of reasoning:

1. Competition is about gaining share in existing businesses.

2. Business boundaries are well defined.

3. Customers and competitors are known.

4. Competitiveness is at the level of a business (not at the level of a firm or of a family of firms).

These situations were true when there was a stability to market structure, but the new competitive reality includes volatility and evolving market structures.

At an elementary level, large firms are competing, not as stand alone entities, but as a "family of firms." The traditional Japanese firms have been part of "keiretsus," and this trend is now spreading in the West. Because of the emerging recognition of the value of dedicated and sophisticated suppliers to competitiveness, many U.S. and European firms are embracing the idea of competing as a family of firms in traditional businesses. Ford Motor Company, for example, is predicating its new strategy, Ford-2000, on the basis of a preferred group of suppliers who will work with them around the world and enhance their competitiveness. So, what is the appropriate unit of analysis for evaluating competitiveness?

The driving forces that influence industry evolution and structure described previously influence the nature of changes occurring to the clean and neat boundaries researchers have come to associate with businesses. For example, the critical questions today are: Should Citicorp in financial services look at Microsoft or AT&T as competitors? Should Apple see Sony as a competitor? Should Sears see Cable Networks as competitors? Is the financial services industry driven by access to money or information technology? The distinction between office products, consumer electronics, telecommunications, and entertainment is eroding. For example, what is a PC? Is it a consumer product? An entertainment product for children and adults? A business and productivity machine?

The excitement and the conceptual difficulty in managing today are that industries are evolving. Functionalities and customer benefits are commingled. For example, the same product -- a PC -- can have multiple uses and, therefore, multiple customer perceptions of the value associated with it. It is imperative that researchers consider not only served markets, but also evolving markets; not only existing benefits to customers, but also newer (potential) benefits to customers. Existing conceptions of "served markets" are not a good basis for understanding competitiveness in industries that are evolving.

The evolution and commingling of the traditional and new industries also raise an interesting debate regarding the migration of functionalities. For example, it is well accepted that the traditional television and PC will, in the not too distant future, be one product, capable of multiple functions -- entertainment, education, or work. Sony, Philips, and Matsushita would like to influence this migration from the consumer electronics perspective. Silicon Graphics, Compaq, and Apple would like this migration to be influenced by the PC industry. Microsoft would like the software producers to be in the driver's seat. Groups of firms starting from different vantage points have different preferred routes toward the same goal, thus, there is competition to influence the migration paths.

Does competition occur only at the level of product lines and businesses or also at the level of corporations? Does Sony compete with Matsushita or Philips as one corporate portfolio pitched against another in battles to manage migration paths? Or, do they compete to set standards? Should they? When measuring the competitiveness of a business, should researchers consider the portfolio of the firms of which that business is but a part? These questions are of great concern to managers in large firms. What is the competitive benefit of a portfolio of businesses, or, stated simply, a diversified corporation, against a stand alone business? If the benefits of a diversified portfolio, or "related" businesses, transcend financial strength, a measure of inter-corporate competition, in addition to business-to-business competition, must be incorporated.

The previous signals raise the subsequent questions:

1. Are industry boundaries clear and static? Are customers and competitors identifiable? Or are industry boundaries blurting and evolving?

2. Do firms compete as "distinct entities" or as families of suppliers and end product firms?

3. Is there competition for managing migration paths?

4. Is competition taking place at product line, business, and corporate levels? Do these levels of competition influence each other?

5. Can there be competition between clusters of firms (as was discussed previously) to influence standards and industry evolution?

There is a need for reevaluating the unit of analysis in studies of the competitiveness and dynamics of competition.

*COMPETITION TO CREATE NEW INDUSTRIES*

Traditional analysis of competition assumes that products and services exist before competition can take place; but it is obvious from the previous discussion concerning the competition to manage migration paths and determine standards that competition can exist without clearly defined products or services. The belief that competition is (1) about market share in existing product-markets and (2) for market share and profits characterizes most of the current research. Such research provides a limited view of the emerging patterns of competition. New businesses and industries do not just happen. Rather, they have long gestation periods; they evolve.

In a variety of new industries it can be easily shown that there are at least three phases of competition. In Phases 1, firms experiment with ideas. Competition at this phase is for product concepts, technology choices, and the building of a competence base. Here, the race is to get a deeper understanding of trends and emerging opportunities. The goal is to gain intellectual leadership and the ability to influence the creation of an industry. However, for these new industries to evolve and become viable, firms must go beyond competence building and often compete to develop standards. In Phase 2, competition is for building a viable and powerful coalition of partners that supports a standard against other standards. Partners in the coalition are often competitors in the end product markets. Competition at this stage is as much across clusters of firms as among firms within a cluster. For example, in intercluster competition, clusters of firms supporting the Sony format compete against clusters of firms supporting the Matsushita format; an Intel cluster competes against a Motorola cluster. At this stage, the goal is to shorten the migration path. Once the standards evolve through market share battles across clusters, then the preoccupation of competition becomes profits. This stage, competition for market share for end products and profits, is Phase 3 (for a discussion of this issue, see Hamel and Prahalad 1994).

There are two important issues associated with this view of competition. First, competition cannot be understood unless a longitudinal view of how the various competitors evolved and what their competence bases are is taken. One such study of the VCR industry is shown in Figure 1. Notice that this competitive battle started in the 1960s and that mass appeal products appeared only in the 1980s. Second, competition at the three phases is motivated primarily by

different criteria, and success may mean very different things. Competitive success in Phases 1 and 2 cannot be measured in profit terms alone. Gaining intellectual leadership, creating a standard and a large installed base that allows for profit-taking in the future, is as critical as profits in these phases.

*Do Competitors Always Compete?*

Industry structure analysis has traditionally classified an industry as consisting of suppliers, competitors, and customers. Competitive rivalry is thought to be between existing competitors and, in some cases, new entrants and substitutes (Porter 1980). The relationship between customers, competitors, and suppliers is tense, but involves negotiating the best bargain. The current view of competition is that in a given industry structure, the relative roles of suppliers, customers, and competitors can be well defined; therefore, the focus of competitive analysis is on current competitors.

However, in the evolving industries, the lines between customers, suppliers, and competitors are extremely blurred. Are IBM and Apple competitors or collaborators? They may compete fiercely in the market for PCs, but, at the same time, they are collaborators in multiple consortia -- with General Magic (PDAs) and Motorola (Power PCs). Are Sony and Philips competitors? Yes; but they work together in developing optical media standards and supply components for each other. They are, therefore, suppliers, customers, collaborators, and competitors -- all at the same time. This complex interplay of roles, often within the same industry or in evolving industries and often based on a common set of skills, creates a new challenge. What are the rules of engagement when competitors are also suppliers and customers? What is the balance between dependence and competition?

*What is Failure or Success?*

All questions of performance and competition have to come to terms with competitive failure. Bankruptcy is an obvious case. However, there are subtle questions, such as, is the launch of a new product a failure if it does not succeed in gaining market share? In making profits? Is a product failure the same as a failure of strategy? Although these are not questions that researchers ask explicitly, implied in most work are such assumptions as

1. Product failure in the market is the same as failure of strategy.

2. Product failure is measured in market share, diffusion rates, and profitability.

By these definitions, Newton from Apple would be considered a major failure and Betamax from Sony, an unquestioned disaster. Is Digital Compact Cassette from Philips a failure? Newton did not hit the fight price-performance points for the consumer, because Apple had overpromised and underdelivered. But is the notion of PDA a failure? Should a strategy be separated from the first product and service experimentation in the market place? Was Newton really a marketing "scout" let loose to scan the market and identify customer needs more precisely? Although Apple might have pulled back because of this bad experience (even though Newton 120 may be doing much better), the PDA market is growing with more imaginative products. The issue is what constitutes failure in evolving markets?

Sony did fail with Betamax, but the competencies it gained in the development and marketing of Betamax allowed it to create an eight millimeter camcorder that has been a phenomenal success. Sony applied skills from the camcorder to a whole host of new products. Can firms recover from specific product failures if they protect and redeploy the core competencies that underlie the product in new applications?

Researchers must rethink the concept of failure. Failure is a more involved concept than the inability of a specific product to achieve market penetration. Expeditionary marketing for new functionalities depends on recognizing that not all early products will succeed, and the trick is in learning at a low cost (Hamel and Prahalad 1991).

Managers and academics must learn to address the subsequent questions:

1. How do managers and academics distinguish between product failure and a failure of strategy? Between product failure and low cost experimentation?

2. Is there a difference between product failure and the reusability of underlying competencies?

3. What is the distinction between product failure, business failure, and competence failure?

*Are There Barriers to Entry?*

The concept of barriers to entry has been one of the cornerstones of the strategy and marketing literature. A wide variety of barriers exist and can be erected, including size (relative market share), capital intensity, advertising intensity, control over proprietary technologies, and distribution coverage (Bain 1956; Porter 1980; Yip 1982). There are two assumptions to this view:

1. There are only a few "recipes" to competing in a given industry. Incumbents with a well honed strategy can, therefore, erect barriers to new entrants.

2. Size of incumbents is a deterrent to others.

Although this prescription has survived for a long time, many innovative firms seem to be delightfully oblivious to the barriers to entry that would preclude them from an industry: Wal-Mart in retailing, Apple in computing, McCaw in communications, Nucor in steel, Canon in copiers, Virgin and Southwest in airlines, and Samsung in semiconductors are firms that seem to violate this dictum. The list can be longer. Are there really barriers to entry or only barriers to imitation? Almost all of these firms invented a "new game" -- a new approach to participating in an existing industry. They redefined the value proposition to the customers by changing the price-performance relationship, changing the delivery modality, or using a new technology. In other words, they competed differently. There was a barrier to entry only if they tried to compete by the rules of the incumbents. In most cases it was the incumbents -- Sears, NBC, IBM, AT&T, U.S. Steel, Xerox, American Airlines, Motorola, NEC, and Fujitsu -- who had difficulty adjusting. Instead of barriers to entry, the incumbents faced barriers to reconfiguration and had problems adjusting to the new competitive reality. The barriers to entry the incumbents had created became a "trap" for themselves: The infrastructure of investments that was supposed to protect them became the "cross they had to carry." The agile, not the big, appear to win.

Managers and academics must ask themselves

1. Are there barriers to entry or imitation?

2. Is size, an installed base, and an infrastructure a barrier to adaptation?

3. What is the relative importance of size versus speed? Resources versus imagination?

*CONCLUSION*

There are three basic issues of great interest to managers and academics, all of which are influenced by what I term "weak signals." Weak signals are confronted by well established academic traditions; however, the signals cannot be ignored. They focus attention on market influence, a firm's ability to create and manage market influence, and the evaluation of market influence.

First, given the changing nature of competition, what is *market influence?* Is market share still a valid measure? Does it measure a firm's ability to create value for customers? What are appropriate measures of market influence in a given industry?

Second, how can a firm's ability to *create and manage* market influence be measured? Firms manage intellectual leadership and industry migration, change industry rules, and side-step barriers to entry. There has been very little systematic study of the process by which firms create market influence, develop new industries, and transform existing industries.

Third, how do managers and academics *evaluate* market influence? What is an appropriate unit of measurement -- business, firm, or family of firms? What is success or failure? Do we need to distinguish between product, business, and competence failures?

I attempted to provide an indicative list of the substantive issues that have been ignored or side-stepped in research. Some of the issues are considered too broad and, therefore, not likely candidates for systematic and rigorous research. This evokes yet another question: Should researchers attempt to tackle important and broad questions by breaking them into meaningful bite-size pieces, or should they ignore them? I believe there is a need for a broad framework in which to think about the emerging concept of competitiveness. Within such a framework, a wide variety of focused studies can be executed with rigor. The challenge to academic research in the area of strategy and strategic marketing is real, and it is here.

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