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# Selecting Competitive Tactics: Try a Strategy Map

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# Selecting Competitive Tactics: Try a Strategy Map

## **Abstract**

When developing strategy, a manager considers how various tactics will affect short-term performance and broad strategic direction. The skilled manager keeps those factors in mind and, simultaneously, gauges what the competition is up to. The authors describe a mapping technique that will help managers to do just that. Not only does the technique provide an accessible measure of relative competitive standing, but it also allows managers to simulate tactical changes and analyze their probably impact on business performance.

## **Disciplines**

Business | Business Administration, Management, and Operations | Business and Corporate Communications | Business Intelligence | Marketing | Organizational Behavior and Theory | Strategic Management Policy

# Selecting Competitive Tactics: Try a Strategy Map

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WHEN DEVELOPING STRATEGY, a manager considers how various tactics will affect short-term performance and broad strategic direction. The skilled manager keeps those factors in mind and, simultaneously, gauges what the competition is up to. The authors describe a mapping technique that will help managers to do just that. Not only does the technique provide an accessible measure of relative competitive standing, but it also allows managers to simulate tactical changes and analyze their probable impact on business performance. *Ed.*

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**A** COMPANY'S COMPETITIVE environment—that is, the industry characteristics and the behaviors of competitors in a given business—is the key determinant of that company's strategy and performance. However, as any manager can attest, knowing this simple fact and acting on it are two different things. Clearly, to survive in a competitive environment, a strategic planner must not only identify an industry's relevant performance measures, but also develop tools to understand the relationships among them.

We have developed one such tool: a "strategy map" that describes how performance measures (such as return on investment and market share), strategy tactics, and actual competitors' performance are related. In theory, given sufficient business data, a strategy map of this kind could be generated for any industry. In this article we will:

- present a map for an actual industry, showing competitors' locations, relevant measures for determining performance, and a "compass" that can help managers develop competitive strategies,
- discuss why this particular configuration is useful, and
- explain how strategy maps can be generated.

## What Is a Strategy Map?

Perhaps the best way to understand a strategy map is to examine one for an existing industry. The use of actual corporate data precludes identifying the industry mapped out in Figure 1, but Table 1 shows its general characteristics. Mature and fragmented,

it resembles the following industries: metal cans, adhesives and sealants, folding paperboard boxes, bricks and structural clay tile, and cement. We chose this general type for three reasons: a large percentage of industries are fragmented; the largest single group of industries is mature and industrial; and fragmentation is strategically interesting (in other words, problematic).

Figure 1 shows fourteen competing businesses—identified by the numbers—and eight performance measures—identified by the points. (We will consider the arrows and the axes presently.) The map is developed in such a way that the closer a business is to a performance measure, the better it does on that measure (and vice versa). For example, business 14 does very well on both real sales growth and change in market share, while 9 and 12 do better on return on investment (ROI), and 11 does better on return on sales (ROS). Firm 4, on the other hand, does relatively poorly on everything.

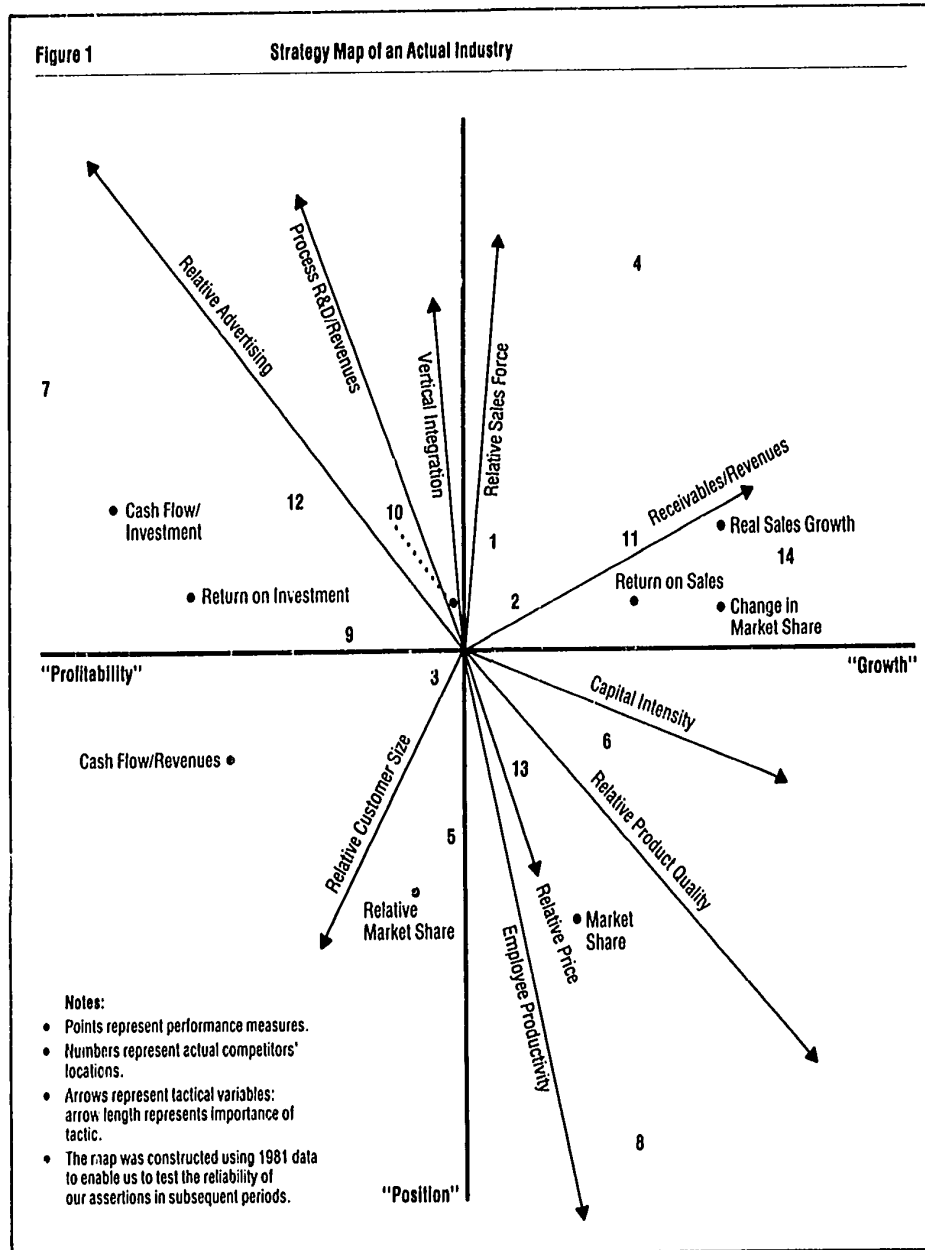
To see how such a map can be developed, consider a simple, intuitive example. Suppose you have the performance information shown in Table 1 for two competing firms. You simply develop a graph showing the location of the firms relative to the performance measures. Figure 2 meets that requirement. Of course, as the number of firms and performance measures increase, the development of a map by hand becomes difficult, if not impossible. While the map in Figure 2 is not really worth the effort, the one in Figure 1 is, since you can "see" what is going on better than if you were looking at the data in tabular form (say, in a spread-

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sheet like Lotus 1-2-3).

It is clear from Figure 1 that a number of tradeoffs *must* be made when pursuing the different performance measures. That is, the only way business 14 can improve its ROI is to suffer some reduced performance on real sales growth and change in market share. We caution to point out that this condition is industry specific; such a tradeoff may be unnecessary in other industries. However, this pattern *is* consistent with both theory and prac-

tice for many industries. And, as most managers will attest, it is extremely difficult to improve all performance criteria at the same time. The map allows a manager to gauge what tradeoffs he or she will make in pursuing a given strategy—or what tradeoffs a competitor is making—and therein lies its major benefit.

The distribution of the performance measures in Figure 1 suggests what overall strategies businesses might pursue. The horizontal dimension ap-

pears to be profitability versus growth: cash flow/investment, cash flow/revenues, and return on investment are toward the left end of the axis; return on sales, real sales growth, and change in market share are toward the right end of the axis. As one moves from left to right, growth is pursued at the expense of profitability, and vice versa. Measures of competitive position—market share and relative market share—appear near the lower half of the vertical axis, which we have labeled “position.” There is no readily defined strategy associated with the upper half of the vertical axis.

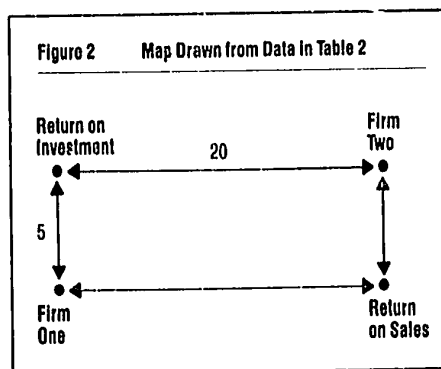
Table 1	Characteristics of Industry Examined
	<b>Highly Fragmented</b>
	• Only 18% of industry sales were from the top four sellers
	<b>Mature Stage of the Product Life Cycle</b>
	• Low growth—7%
	• Cost-price squeeze—mean = -9%, sd = 4%
	• Industry instability is low—0.19
	• No new products
	<b>Simple Technology, Easy to Imitate</b>
	• No patents for processes
	<b>Few Economies of Scale</b>
	• Direct costs relative to the three largest competitors—mean = 101%, sd = 4%
	• Cost disadvantage ratio = 1.0
	• Minimum efficient scale of plant = 11
	<b>High Transportation Costs</b>
	• No imports and exports
	• Regionally served markets
	<b>Businesses Key Link to Markets for Their Companies</b>
	• Forward integration for the company—mean % of purchases internal = 85%, sd = 8%
	• Forward integration for the business—mean % of sales internal = 7%, sd = 2%
	• Relatively large industry

We can now broadly classify the strategies that competitors appear to be following. Businesses 7 and 12 are enjoying higher profitability; business 14 is pursuing growth through high real sales growth and a large change in market share; and businesses 5, 8, and 13 have high market shares. Business 4's manager, on the other hand, has a major strategic problem. Businesses 3 and 10—which are not as far out as 4, but are not close to any measure—are poor performers.

At this point, a manager looking at the map (exclusive of the arrows) has a fairly good idea of the competitive environment's structure, as well as of

the competing businesses' relative distribution within that environment. In fact, the clustering of several businesses indicates the existence of what Porter calls strategic groups.<sup>1</sup> This evidence, in turn, gives the manager a yardstick for comparison and can suggest new positions that may be reasonable to aim for. The question then becomes, “What tactics are necessary to change—and improve—my competitive position?”

Table 2	Hypothetical Performance Data on Two Competing Firms	
	ROI	ROS
Firm 1	5	20
Firm 2	20	5



### How Business Location Relates to Tactical Variables

In Figure 1, the arrows represent tactical variables that, taken together, determine business performance. Examples include price, advertising, and research and development. Arrow length represents the individual variable's impact on performance—in other words, the importance of the tactic for movement in the direction of the arrowhead. We refer to this set as the “strategic compass.”

In this particular industry, employee productivity, process R&D/revenues, relative advertising, and relative product quality appear to have the largest impact on performance. This finding makes sense, since the industry is mature and fragmented. For example, one would expect process R&D to be more important than product R&D because of product maturity and the drive toward efficiency in the latter stages of the product life cycle.

The angle that the strategic vector (arrow) makes with each major axis corresponds to the relation-

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ship between the tactical variable it represents and the axis dimension. For example, a growth strategy would involve increasing both receivables and capital intensity (gross book value). This relationship makes sense: the business is adding marginal customers by increasing receivables; it is expanding the plant by increasing capital intensity to handle the business it hopes to generate. This particular strategy is appealing, because all businesses in this study were operating near maximum capacity and so needed to expand their plants in order to grow.

Conversely, a profitability strategy would entail reducing those two strategy variables and simultaneously increasing relative advertising and process R&D/revenues. Decreasing receivables/revenues should help reduce the marginally profitable customers; decreasing capital intensity will dampen its well-known detrimental effect on profitability. Increasing advertising, on the other hand, can inexpensively achieve product differentiation when products and their technologies are basically simple. In addition, increasing process R&D/revenues should improve production efficiency.

Finally, a market-share leadership strategy would focus more on heavy-use customer groups (i.e., high relative customer size) and employee productivity, and less on vertical integration and relative sales force. It seems reasonable to decrease attention to

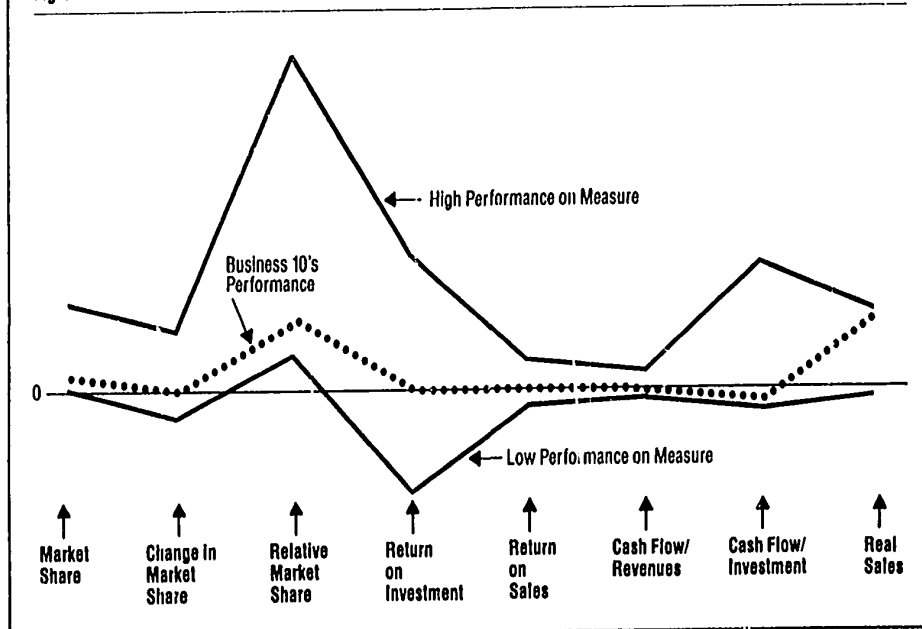
vertical integration: Both the product and its manufacturing are relatively simple. And, since these businesses are the last link in their companies' vertical chain, there are few opportunities to add value either backward or forward through additional manufacturing. On the other hand, using a relatively smaller sales force for higher market-share positions seems counterintuitive. However, at the mature stage, businesses can maintain superior market-share positions with relatively fewer salespeople. That is, by selectively focusing on heavy-demand segments of their market, they should be able to "get more for less."

As should be evident from the preceding discussion, the strategy map gives a clear picture of the specific nature of the industry it represents. To the degree that mature fragmented industries are simi-

**Table 3** Business 10's Actual 1981 Performance Data

Market Share	5.00
Change in Market Share	0.00
Relative Market Share	20.00
Return on Investment	0.60
Return on Sales	0.30
Cash Flow/Revenues	-1.40
Cash Flow/Investment	-2.50
Real Sales Growth	21.00

**Figure 3** Business 10's 1981 Performance Compared to the Highs and Lows for the Industry

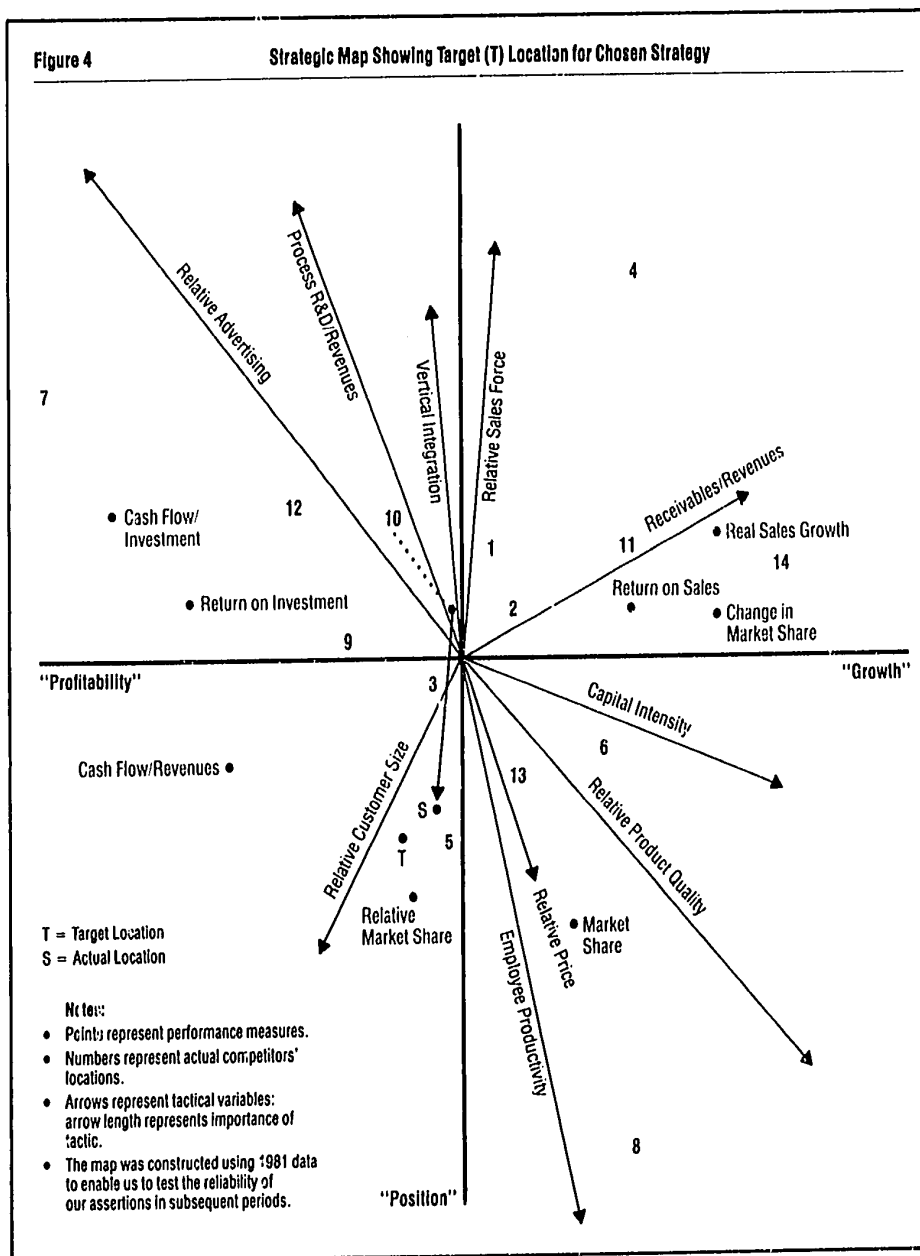


lar, the map in Figure 1 is representative of a type. From an analytical viewpoint, the map relates competition, strategy (in the form of tactics), and performance in a single gestalt, which to our knowledge is not accomplished by any other technique.

### Changing Location

Strategic mapping allows the manager to simulate different strategies' probable impact on perfor-

mance—and therein lies its power. Consider the case of business 10. Figure 3 shows its performance relative to its thirteen competitors' in 1981. (Data has been disguised for confidentiality.) Table 3 gives the specific performance values for the business. It is apparent that business 10 is a below-average performer at best. The manager may conclude that a change in location would make sense. Specifically, he or she may want to move toward a profitability strategy via increased cash flow and ROI (for ex-



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ample, increasing ROI to 15 percent and changing cash flow from negative to positive). However, since market share is already low, the manager wishes to move without sacrificing share. The map gives us an intuitive feel for what will have to happen. That is, the new location will probably be in the third quadrant of the map, since this position would tend to balance the key performance measures involved (cash flow/investment, ROI, cash flow/revenues, relative market share, and market share). Suppose that the manager wishes to see what would happen if the business moved to location T in Figure 4. Table 4 shows the disguised data for business 10's tactical variables. The middle column represents the variables' current levels, which are responsible for the business's current location. The other two columns represent reasonable changes (up or down) that the business can make in setting strategy for the given time period (in this case, one year).

Tactical Variable	Levels		
	Low	Current	High
Relative Product Quality	40.00	60.00	100.00
Relative Price	9.60	10.00	10.40
Relative Advertising	3.00	4.00	5.00
Relative Sales Force	4.00	6.00	8.00
Employee Productivity	21.00	28.00	35.00
Process R&D/Revenues	.00	.00	.40
Receivables/Revenues	6.80	8.88	10.80
Capital Intensity	35.00	58.00	78.00
Vertical Integration	32.00	36.39	41.00
Relative Customer Size	1.00	2.00	3.00

Note: Discrete levels of the tactical variables have been used. This is realistic in the sense that managers would not look at an infinite number of possible combinations of changes, but rather would think in discrete quanta. For example, price changes are typically adjusted along discrete strata, rather than infinitely along the entire possible range.

Location T's coordinates from the map (for clarity in the drawing we have not presented the scale) are fed into the computer program. Using the parameters set in Table 4, the program adjusts the tactical variables until it gets as close to the desired location as possible. Location S represents that point. Table 5 shows the appropriate changes in tactical variables, as well as simulated performance levels, for location S. At this point the manager can evaluate the changes that must be made in tactics, along with the expected results in performance.

Examining Table 5 more closely, we see that the suggested strategy would create the increase in mar-

ket share, ROI, and cash flow called for by a profitability-oriented strategy. It would also require keeping relative advertising at the current level; lowering relative product quality, relative sales force, and receivables; and raising relative price, employee productivity, process R&D, capital intensity, relative customer size, and vertical integration—in other words, moving the business toward a low-cost position in a focused market. The suggested changes in the tactical variables, and the accompanying movement of the business, are consistent with the prevailing theory on how businesses stuck in a fragmented industry should behave.<sup>3</sup> Notice that tradeoffs in performance do occur. For example, both real sales growth and ROS decline. We knew from the map that in all likelihood this would happen.

Obviously, other desired locations would generate different performance results and strategic changes. However, unreasonable moves would not be possible. For example, if business 4 tried to move to location T, its ability to make the required adjustments in tactical variables would be severely limited. In fact, if T were specified, the closest possible location would still be in the first quadrant. We hasten to point out that there may be a good reason for business 4's present location—all businesses in this industry are at the bottom of the vertical chain, so their performance goals may be determined by other corporate considerations.

<b>Strategy</b>	
Relative Product Quality	40.00
Relative Price	10.40
Relative Advertising	4.00
Relative Sales Force	4.00
Employee Productivity	35.00
Process R&D/Revenues	.40
Receivables/Revenues	6.80
Capital Intensity	78.00
Vertical Integration	41.00
Relative Customer Type	3.00
<b>Performance</b>	
Market Share	7.464
Change in Market Share	2.464
Relative Market Share	28.337
ROI	15.752
ROS	-3.086
Cash Flow/Revenues	1.996
Cash Flow/Investment	3.635
Real Sales Growth	-5.320



## Creating a Strategy Map

Strategy maps are generated using a technique known as multidimensional scaling, which is commonly used by marketing specialists to create product maps.<sup>3</sup> The program listing used here is called GENFOLD2. Developed by DeSarbo and Rao, it is available to those interested in using this approach.<sup>4</sup>

- **The Data.** Clearly, a manager using this approach needs to have industry data on the competition's performance and on the relevant tactical variables. However, the key issue is defining the relevant information for your firm's industry or market. No single source of data can or should be used for every business. For firms with highly developed competitor intelligence systems, the information is already being gathered. For firms without such a system, this approach presents an opportunity to develop one.<sup>5</sup> In the latter case, managers can start by using public resources, particularly government documents and trade sources. One very good starting point is Information USA, Inc., which publishes *The Data Informer: For Information-Hungry Decision Makers*.<sup>6</sup> Corporate business databases are becoming more readily available, but may be restricted either to project participants or to certain industries or markets.

For this demonstration, we used data drawn from the Profit Impact of Marketing Strategies (PIMS) project, an annual, large-scale statistical study of environmental, strategic, and performance variables for individual strategic business units.<sup>7</sup> Our example draws from what is known as the yearly database. The businesses come from a single fragmented, mature industry identified by use of a four-digit SIC code. We used fourteen businesses that had complete data on all of the performance and tactical variables over a four-year period. That period of time was not needed to develop the map, but rather to help validate the results. More than fourteen businesses exist in this industry; we used just fourteen for two reasons. First, the data was complete. Second, since this is a mature, fragmented industry where competition tends to be constrained within a local area (as opposed to the entire U.S. or world market), the use of a subset would not distort the results. Obviously, the appropriate number of businesses to use will depend on the specific situation confronting the manager.

We chose the tactical variables shown in Table

6 because they represent the best selection available in the database for these businesses and because they are consistent with Porter's generic strategies. The Appendix gives specific operational definitions. They were distilled from a larger list of twenty-nine theoretically and empirically appropriate variables. We used both correlation and theoretical analyses to identify tactical variables whose impact on performance was essentially the same. For example, employee productivity and manufacturing costs/revenues were almost perfectly negatively correlated over the eight performance measures used.<sup>8</sup> We chose between the two based on how each correlated with other variables, and on what seemed reasonable according to theory and practice.

The performance measures we used fall into four categories typically discussed in the literature: market position, profitability, cash flow, and growth. We chose two measures for each category. (These are also shown in Table 6 and defined in the Appendix.) The measures include the main ones that managers typically use for evaluating performance at the business level. When we ran a regression analysis to verify a significant relationship between tactical variables and performance measures, the average  $R^2$  was .85.

Tactical Variables	Performance Measures
Differentiation	Market Position
Relative Product Quality	Market Share
Relative Price	Relative Market Share
Relative Advertising	Profitability or Return
Relative Sales Force	ROI
Efficiency and Asset Parsimony	ROS
Employee Productivity	Cash Flow
Process R&D/Revenues	Cash Flow/Revenues
Receivables/Revenues	Cash Flow/Investment
Capital Intensity	Growth
Scale/Scope	Change in Market Share (%)
Vertical Integration	Real Sales Growth (%)
Relative Customer Size	

Note: For operational definitions of these terms, consult the Appendix.

The foregoing represents careful preprocessing of the data to get the best possible set of variables. Obviously, for different industries, different variables may be relevant. It is important to select them carefully and to use common sense about what the numbers really mean. One cannot simply throw

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in all possible variables, then have the computer pick out what it "thinks" is the best subset. The higher the quality of the measures used, the more specific the results will be. For example, if actual prices are used, then an actual price will be suggested in moving to a specific location. Managers must also consider the data's time frame. If a change in a variable would not be effective for several periods, the data must be adjusted appropriately.

• **The Program Analysis.** The data relating to tactical variables and performance measures, entered into the computer, is used to generate maps with different numbers of dimensions. This variety is necessary because, depending on the complexity of the material, a one-, two-, or three-dimensional map may best configure the industry. The two-dimensional solution given in Table 2, for example, can also be shown in one dimension. (A variation in possible frameworks is characteristic of maps and mapping in general.)

Typically, the choice of configuration depends on a combination of things. The two major criteria usually are, first, common sense—whether a particular map is consistent with managerial intuition and experience—and second, how much of the variation in the data is accounted for by a particular map. For our data set, we chose two dimensions because this representation made most sense in terms of the literature and our knowledge of the industry and because it accounted for most of the variation (95.83 percent). In this case, both the one- and three-dimensional solutions were less helpful on both accounts.

• **Validation.** After the map is developed, its results must be validated. Practitioners have an advantage here, in that they can run small-scale tests. However, we suggest starting even earlier by running a few tests with the given data.

We did so by rerunning the analysis holding out business 10. (We selected that particular business because its fit with the analysis was neither very good nor very poor. We determined the fit by investigating the variance-accounted-for statistic by business, which is an output of the program.) The analysis, run with the thirteen remaining businesses, produced a variance-accounted-for value of 96.74 percent. Next we inserted the data for business 10 (the holdout) into the solution that had been based on the thirteen businesses. When we compared the two configurations using canonical correlation as an approximate measure, the correlation exceeded .99 on all dimensions, which simply means that the two maps matched up almost perfectly.

We used a second approach to examine how well we could predict business 10's performance merely knowing its tactical-variable values. Again using the map developed from only thirteen businesses, we calculated the business's predicted locations and its subsequent performance, then compared our results with the actual values. Since we had collected four years worth of data on the businesses, we were able to perform a predictive validation for business performance.

Table 7 shows business 10's tactical variables for the years 1981 through 1984. Major changes include:

- increases in relative product quality from 60 to 80 between 1981 and 1982, and maintained at 80 for the subsequent years;
- increases in employee productivity each year;
- dramatic increases in process R&D expenditures in 1983 that were basically maintained in 1984; and
- decreases in capital intensity each year.

These strategic changes over time are depicted by the firm's path in Figure 5. In 1981, business 10 is located near the origin. In 1982, the loca-

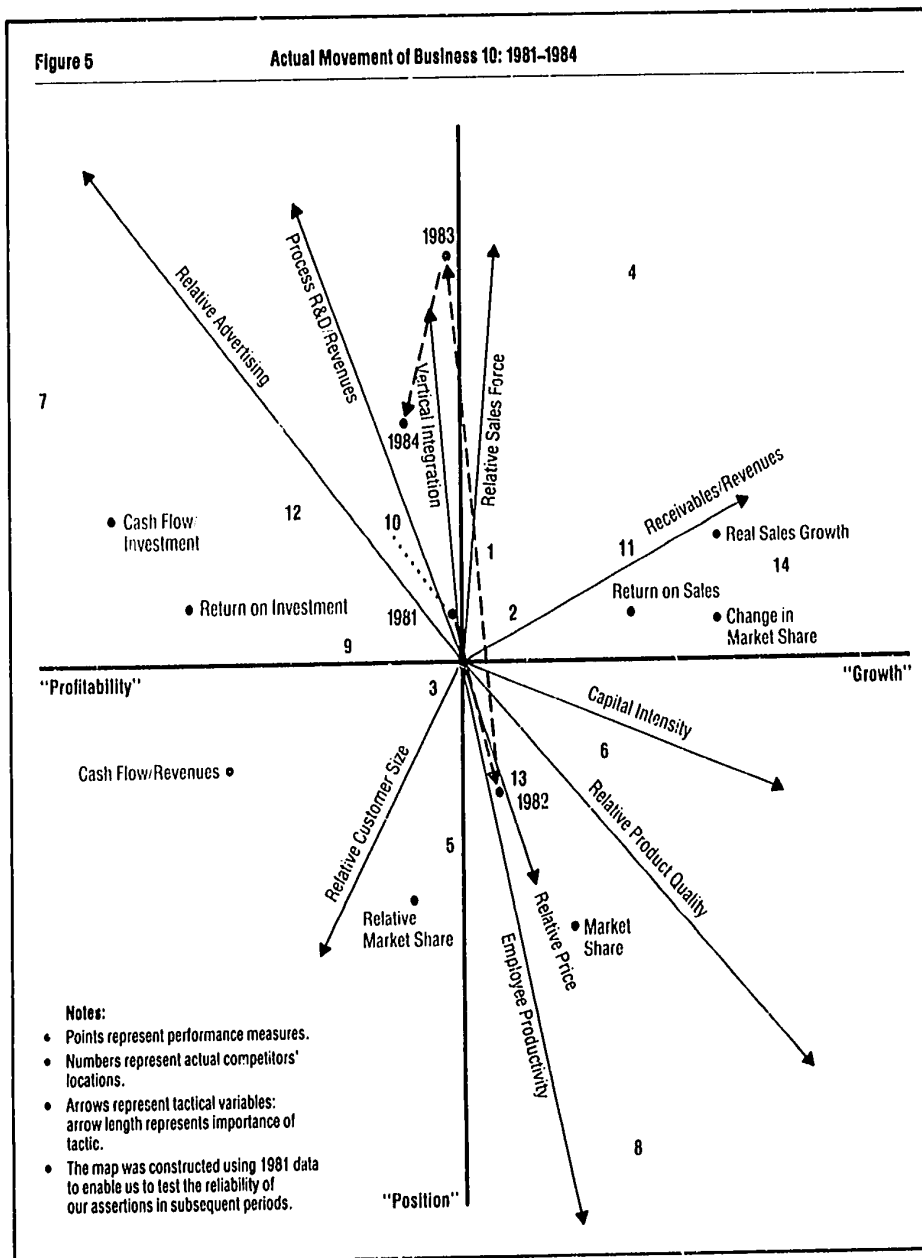
Table 7 Actual Changes in Business 10's Tactical Variables 1981-1984

Tactical Variable	1981	1982	1983	1984
Relative Product Quality	60.00	80.00	80.00	80.00
Relative Price	10.00	10.00	9.00	10.00
Relative Advertising	4.00	4.00	4.00	4.00
Relative Sales Force	6.00	6.00	6.00	6.00
Employee Productivity	28.66	35.88	38.27	41.77
Process R&D/Revenues	0.00	0.00	1.20	1.10
Receivables/Revenues	8.84	9.29	9.29	9.70
Capital Intensity	58.00	54.00	48.00	45.00
Vertical Integration	36.29	40.56	36.90	35.77
Relative Customer Size	2.00	2.00	2.00	2.00

tion changes to a new point in quadrant 4, reflecting one-year increases in product quality and employee productivity. Notice how this movement pushes the business in the outward direction of the two corresponding arrows. In 1983, the business moves from quadrant 4 to quadrant 2 as the result of a dramatic increase in process R&D expenditures that occurred in 1983. Again, this increase moves the business in the direction of the process R&D arrow. Finally, in 1984 the business moves

back toward its original 1981 position. This change is due to a slight decrease in process R&D expenditures and further increases in employee productivity. A comparison between these movements and the actual values reveals virtually no difference in results.

• **Summary.** To recapitulate briefly, one develops a strategy map by gathering data on key performance and tactical variables for the industry, noting the appropriate lag structure. Obviously, busi-



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nesses that participate in large-scale databases like the PIMS project, or that have highly developed competitor intelligence systems, have an advantage— they are not starting from scratch. Personal computers make the gathering of such data much simpler. Once collected, the user inputs the data to the computer program, which may be obtained as described in reference 4. Next, the choice of the map's appropriate dimension is made. Finally, the result is tested for its applicability to the competitive situation as understood by the manager, its ability to make good predictions on a hold-out sample, and, ideally, its viability when tested against actual data.

### Discussion

While this application of strategic mapping is a step forward in helping managers to make better decisions, its use must be kept in perspective. We do not believe that any computer program can or should function as a competitive decision maker. In addition, a map's usefulness over time depends on the nature of the data used, as well as on industry dynamics. The map produced here would have a life expectancy of about one to one and one-half years. For stable situations, or ones in which data is developed over a long time period so that the historical trajectory of the industry is understood, longer periods would be possible.

Despite these reservations, it should be clear that the strategy map overcomes a major problem in most quantitatively oriented strategic analysis—namely, it presents the relationships among performance measures and the tactical variables that determine strategic thrust. In fact, most other current research tends to focus on what the performance measures or tactical variables are, but not on how they fit together to create the competitive environment. By integrating these relationships into a single map, the manager gets a feel for the forces at play in the competitive environment and for how those forces affect performance. However, the bottom line is, "Are the results a reasonable, accurate, and insightful portrayal of industry relationships?"

While this question is difficult to answer in an absolute sense, we can check reasonableness against what we know about the industry. For example, in our data the location of the performance measures is fairly straightforward. That is, ROI and cash flow measures tend to operate in the same direction, while real sales growth, ROS, and change in

market share cluster together, but in the opposite direction. Similarly, market share and relative market share also hang together. Hence, their arrangement in the environment appears to make both intuitive and theoretical sense.

Perhaps more interesting are the *importance* and *direction* of the tactical variables. These, too, make sense as they stand for a fragmented, mature industrial industry. For example, if the general strategy is to maximize profits in such an industry, then we would expect the key variables for achieving this goal to be increased process R&D/revenues, relative advertising, and relative customer size—and these are the longest arrows. That is, process R&D improves efficiency; relative advertising improves differentiation inexpensively; and relative customer size focuses the business on the heavy-user category of customers. Hence, if we used Porter's generic strategies, this one would be characterized as low-cost leadership to a specific target segment, heavy users.

Other tactical-variable relationships are also both interesting and consistent with conventional wisdom for this type of industry. For example, sales force and customer size work in almost opposite directions, as one would suspect. Vertical integration is interesting in that it is not near any performance measure. This finding is consistent with the literature, which suggests that vertical integration, in and of itself, does not have an impact on performance. Rather, its effect is conditioned by other factors in the industry.<sup>9</sup>

It should be apparent that the strategy map is an extremely useful tool that can tell managers much more even than we have discussed here. In particular, the relationships among the tactical variables are rich sources of information. Considered fully, they will provide new insights about the nature of specific industries and markets. ■

## Appendix: PIMS Variables

### Tactical Variables

#### • Differentiation

*Relative Product Quality*—Percentage volume from superior products minus percentage from inferior products.

*Relative Price*—Weighted average of three largest competitors = 100 percent. Example: If this business's prices average 5 percent above those of lead-

ing competitors, then the value is 105 percent.  
**Relative Advertising**—Relative to the three largest competitors, did this business spend from “much more” to “much less” on advertising using a five-point ordinal scale.

**Relative Sales Force**—Relative to the three largest competitors, did this business spend from “much more” to “much less” percentage of its sales on sales force effort using a five-point ordinal scale.

- **Efficiency and Asset Parsimony**

**Employee Productivity**—Value added divided by the ratio of net sales (+ lease revenues) to sales per employee (\$1000).

**Process R&D/Revenues**—Indicates all expenses for improving the efficiency of the manufacturing and distribution. The figure is disguised in the database by a factor unique to each business.

**Receivables/Revenues**—Average receivables for the year, net of allowances for bad debts.

**Capital Intensity**—Gross book value of plant and equipment divided by new sales (+ lease revenues).

- **Scale/Scope**

**Vertical Integration**—Value added divided by net sales (+ lease revenues).

**Relative Customer Size**—Breadth of this business's served market, relative to the weighted average of the three largest competitors on a three-point ordinal scale from “narrower than competitor” to “broader than competitor.”

### **Performance Measures**

- **Market Position**

**Market Share**—Percentage market share for this business.

**Relative Market Share**—Percentage market share for this business divided by percentage market share for the top three competitors.

- **Profitability or Return**

**Return on Investment (ROI)**—Net operating income divided by average investment (book value).

**Return on Sales (ROS)**—Net income divided by net sales (+ lease revenues).

- **Cash Flow**

**Cash Flow/Revenues**—Net income times (.5) minus average investment (year n) minus average investment (year n-1); divided by net sales (+ lease revenues).

**Cash Flow/Investment**—New income times (.5) mi-

nus average investment (year n) minus average investment (year n-1); divided by average investment.

- **Growth**

**Change in Market Share**—The sum of the absolute values of the yearly changes in percentage market share for: this business, largest competitor, second largest competitor, third largest competitor; divided by number of years in the span.

**Real Sales Growth**—Percentage change found by dividing net sales (+ lease revenues) by percentage index of prices (1973 = 100 percent).

### **References**

- 1 M.E. Porter, *Competitive Strategy* (New York: The Free Press, 1980).
- 2 Ibid.
- 3 See Y. Wind, *Product Policy: Concepts, Methods, and Strategies* (Reading, MA: Addison-Wesley, 1982), pp. 83–91.
- 4 For program listing, contact Professor W. S. DeSarbo, Department of Marketing, The Wharton School, University of Pennsylvania, Philadelphia, PA 19104; W.S. DeSarbo and V. Rao, “GENFOLD2: A Set of Models and Algorithms for the General Unfolding Analysis of Preference/Dominance Data,” *Journal of Classification* 1 (1984): 146–186.
- 5 There are several texts in this area, including L.M. Fuld, *Competitor Intelligence: How to Get It, How to Use It* (New York: John Wiley & Sons, 1985).
- 6 *Information USA, Inc.*, 4701 Willard Ave., #1707, Chevy Chase, MD 20815; (301)657–1200.
- 7 For more information regarding PIMS, see C.R. Anderson and F.T. Paine, “PIMS: A Reexamination,” *Academy of Management Review* 3 (1978): 602–612; and S. Schoeffler, “Cross-Sectional Study of Strategy, Structure, and Performance: Aspects of the PIMS Program,” in *Strategy + Structure = Performance*, ed. H. Thorelli (Bloomington: Indiana University Press, 1977), pp. 108–221.
- 8 This result would be expected from the arithmetic relationship between the two.
- 9 See E. Anderson and B.A. Weitz, “Make-or-Buy Decisions: Vertical Integration and Marketing Productivity,” *Sloan Management Review*, Spring 1986, pp. 3–20.