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Competitive Intelligence and Forecasting Systems: Strategic Marketing Planning Tool for SME's

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Abstract - One of the drivers of both strategic planning and success in the marketplace is the role of competitive intelligence systems (CIS). CIS activity and its value to consumer/competitive intelligence are well established. In a survey of a broad cross section of firms, it was found that two thirds of the companies indicated a dramatic increase in level of activity and nearly three fifths (54%) said the impact of marketing intelligence systems (MI) contribute heavily to tactical and strategic decision making (Lackman, Lanasa, and Saban, 2000). Small and medium enterprises (SME's) traditionally have neglected CIS partly because of the cost and the complexity. However, a low cost, less complex tool is operative in an SME as illustrated in this paper. An integral part of CIS is forecasting capability which needs to be built into a CIS in order to effectively serve strategic planning. This paper specifies the basic elements of a CIS and the forecasting modules required for the system's effectiveness, including the external and internal modules of a basic CIS and the forecasting models needed to support each CIS module in an integrated format all feasible for an SME

Keywords - Competitive Intelligence, Marketing Intelligence, marketing information systems

Relevance to Marketing Educators, Researchers and/or Practitioners -

Fierce competition has made it impossible for SME's to exist without a clear strategic direction which, in turn, is driven in great part by an effective CIS neglected partly because of the cost and the complexity. However, a low cost, less complex tool is operative in an SME as illustrated in this paper.

Introduction

Strategy implementation is not an easy task for business organizations. Many companies survived in the past without a clear sense of where they were going because of an unlimited resource pool. Different resource allocations and the fierce competition of today have made it impossible to exist without a clear strategic direction. This is especially true for SME's who face a highly competitive environment with limited resources, including those needed to implement an effective CIS. The planning process is a clear, uniform continuous process driven by market strategy for all companies that is dictated by customers and the portfolio mix of the customer (Warner, 1987). One of the drivers of both strategy and success in the marketplace is the impact of market intelligence. A broad based study of firms found that two thirds of the companies indicated a dramatic increase in level of CIS activity and nearly three fifths (54%) said the impact of marketing intelligence systems (MI) contribute heavily to tactical and strategic decision making. 44% indicated MI contributed somewhat to decision making and only 2% felt MI contributed little to strategy and success in the market place. Regarding MI data sources, customers, manufacturing, and R&D are the central source with marketing accountable for MI in half the firms (Lackman, Lanasa, Saban, 2000). The magnitude of that impact depends to a great degree on the relevance and completeness of the CIS design. It also depends on the integration of forecasting capability into the CIS design.

Background

Businesses strategies are often determined by a company's reaction to events beyond their control rather than by solid market intelligence and strategic planning. This approach is contradictory because firms plan in order to gain competitive advantage (Day, 1984). Decision making gets more and more complex as the size of the business and market share increases as does the inverse when downsizing and market share decreases. This implies a critical need for strategic focus on customer/competitive analysis which critically depend on rigorous marketing intelligence (Bernhardt, 1994). Sound marketing decisions enabled by an effective CIS is the best source of competitive advantage. Essentially, CIS is a knowledge management system which consists of a complex process that includes collection, storing and distribution of competitive intelligence for corporate operation and management. The implications of knowledge management include process, bottlenecks, information technology integration and development of a Web-based knowledge management system. (Chou and Lin, 2002). Developing and implementing a successful Web

knowledge management system can improve a company's competitive advantages and therefore increase its profits. The main challenge is to design a high-quality Web-based knowledge management system. Planning and marketing intelligence is absolutely required if a firm wants to stay in step with dynamic market conditions. Recent experience has taught decision makers a hard lesson. A 2002 survey of 140 corporate strategists found that the average strategist was completely surprised by three unanticipated high-impact events in the past 5 years (Fuld, 2003). CIS provides firms with information for sound decision making including anticipation of otherwise unforeseen high impact events (Gilad, 1991). A company without clearly defined strategies will not likely meet its objectives for growth and profitability (Holloway, 1986). A driving force in meeting strategic objectives is the CIS. High tech start-up firms reported that competitive intelligence was a key strategic factor in successful marketing plans demonstrating the relevance of CIS to SME's. While a CIS may evolve into a more complex system described by Chou and Lin, our scope is confined to identifying just the essential elements of a CIS for the purpose of providing a building block to a more sophisticated system.

Elements of an Effective CIS

To maximize opportunity, companies must first assess their strategic position in order to decide where and how the company should position itself. The best practices company utilizes a standard strategic marketing planning process (Schoell and Gultinan, 1995) containing the following elements:

- 1) Situation or Environmental Analysis
- 2) Goal setting
- 3) Marketing Planning
- 4) Marketing Strategy

An effective CIS must support each of these standard steps. The following is an example of such a CIS. Bear in mind that the output screens in the example would be web-based which would accommodate all the input variables.

The Situation Analysis/Environmental Analysis Step

The Situation or Environmental Analysis step is perhaps the most complex part of the planning process. However, it is the foundation upon which the remaining three steps depend. Specifically, the forecasts of these external variables drive the company and product forecasts which are the foundation of the remaining steps. A recent study demonstrates the importance of dependent-independent variable linkage between marketing planning steps represented in the CIS modules (Heinrichs and Lim, 2003). The relationship between the independent variables (web-based data mining software and business models) and the dependent variables (strategic performance measures) were found to

demonstrate a positive interaction effect between tools and models application on strategic performance capability. A similar experience took place in this exercise. In this first module, the need for all of the external variables affecting the firm (economy, technology, regulation, industry) must be assessed and translated into useful data. For a CIS to provide effective decision support, it needs a Situation Analysis module that can capture relevant data and forecast the direction of the external variables. These forecasts provide the basis for the standard SWOT analysis-strengths, weaknesses, opportunities and threats (Jaworski and Lee, 1993).

The first module of the CIS supports the Situation or Environmental Analysis step. This module must capture data for the indicators of macro economy and industry and contain the models needed to forecast those indicators. Table 1A provides an illustration of the sub-module of this module, the macro economy. The first output screen (Figure 1) requires a forecast of all the variables that are needed to forecast industry sales because industry sales are used to forecast company sales. This has been simplified for clarity of exposition to one macroeconomic variable-Gross Domestic Product growth (GDP %) in Table 1A, Block I, col. 2. The drivers or independent variables determining GDP% growth (C= consumption, I= investment, and Consumer Confidence, col. 4, 5, 6) should also be shown to give the user a sense of their relative importance to GDP%. Although the macroeconomic model used here is relatively simple (less than twenty simultaneous equations), it is not necessary for the user to be familiar with the technical forecasting model.

There should also be a capability in this CIS module for the user to select which GDP% growth scenario to include in the marketing plan (low, medium, high) in Figure 1, Block II, col. 2-4. This is needed to provide the decision maker flexibility regarding her assessment of the environment.

Table 1A: Sub-module 1: The U.S.Economy

I. MOST LIKELY OUTLOOK

Economic Drivers % Consumer

<u>Year</u>	<u>GDP % Growth</u>	<u>C</u>	<u>I</u>	<u>Confidence</u>
'10	4	6	9	84
'11	3	5	5	79
'12	2	3	4	71

C= consumption, I= investment

II. SCENARIOS

GDP % Growth

<u>Year</u>	<u>Low</u>	<u>Medium</u>	<u>High</u>
'10	3	4	5
'11	2	3	4
'12	1	3	4

The second module of the CIS also supports the Situation or Environmental Analysis step. This module must capture data for the indicators of the industry and contain the models needed to forecast those indicators. Table 1B provides an illustration of this sub-module applied to the U.S. automobile industry. The first output screen (Table 1B) requires a forecast of the all the variables that are needed to forecast industry sales because industry sales are used to forecast company sales. This has been simplified for clarity of exposition to one industry variable-U.S. automobile industry. As in the macroeconomic model, the industry model used here is relatively simple (single equation with four independent variables). It is not necessary for the user to be familiar with the technical forecasting model.

There should also be a capability in this CIS module for the user to select which GDP% growth scenario to drive the automobile industry (low, medium, high) in Table 1B, Block II, col. 3. This is needed to provide the decision maker flexibility regarding her assessment of the industry. This also provides a platform for competitive analysis including creation of a pressure mapping system (D'Aveni, 2002) which can reveal the underlying competitive dynamics of an industry. It offers a variety of mechanism by which organizations can and do affect their competitive landscapes, leading to greater competitive advantage.

Table 1B. The U.S. Automobile Industry

I. MOST LIKELY OUTLOOK

Industry Drivers

<u>Year</u>	<u>Auto Sales Total (\$ Bil.)</u>
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'10	297
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'11	306
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'12	316
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- Key Drivers - Low Economic Growth

<u>II. Customize Scenarios</u>	<u>Variables</u>	<u>Your Value</u>
	GDP%	_____

The Goal Setting Step

The Goal Setting step is also a complex part of the planning process because its main focus is generating the company sales forecast. It is the foundation for the two steps remaining: the product forecast output of the Marketing Planning step and the scenario writing capability required for the forecast output of the Marketing Strategy step. Specifically, the forecasts of the external variables drive the company and product forecasts. At this stage, the CIS turns toward internal information which must be assessed and translated into useful data. The amount and complexity of internal information which must be assessed and translated into useful data increases substantially because of the introduction into the CIS of internal marketing mix data. These data, commonly referred to as the 4 P's-product, place, promotion and price, are the major independent variables determining product sales forecasts. In the case of product, developing data driven measures for product performance is often complex. Choices of variables to measure range from direct ratings of the product to customer satisfaction scores. In this example, direct ratings are chosen to represent product. In the case of promotion, the choice of variables to measure is even more widely varied, i.e. from outlays on advertising to awareness and interest ratings. In this example, advertising outlays is chosen. Regardless of the measure, promotion inevitably involves lagged relationships with sales that pose challenging modeling tasks.

The model used in the CIS at this level is a simulation model. The model has four modules:

- 1) market forecasting
- 2) product specification
- 3) promotion and place
- 4) pricing and final forecast

The Simulation Module 1 (Simmod1) is based on an extension of the traditional adoption/diffusion model (Bass et. al., 1994) which incorporates only part of the marketing mix as independent variables. Simmod1 generates the company sales forecast as a function of five inputs: total market size derived from the industry forecast in CIS Module 1B, adoption and diffusion rates derived from primary data surveys of buyers, product life cycle stage 1 market entry price, and product life cycle stage 2 price determined by management. Table 2 provides an illustration of this module which produces the company's target sales forecast or sales goal.

CIS support of the company sales goal is arguably one of its major value added contributions. The corporate sales function builds its strategic sales plan around the company sales forecast. The strategic sales plan includes the total company sales volume that the sales organization is expected to achieve. This also sets the stage for the marketing planning step which by providing division or SBU level forecasts by product enables the sales organization's allocation of sales quotas to sales divisions, territories and individual representatives. Not only does CIS enable this important sales plan step, it provides sales management with an objective basis for developing compensation plans that increase the likelihood that sales goals will be met at the corporate, SBU/division and territory levels.

A CIS that effectively supports the sales organization will benefit by its reciprocal support and increase the probability of a positive assessment of the performance of the CIS by its corporate client managers.

The CIS needs to provide more than the forecast. Identification of key factors affecting the company sales forecast is also required. Factors cited in Table 2, II cite factors included in the industry model that effect the forecast of the industry as well as the competitive position of the company. If the company is relatively more (or less) successful at cutting costs and/or improving gas mileage than the industry, its sales are likely to be greater (less than) forecasted.

Table 2: Company Forecast

I. Forecast

<u>Year</u>	<u>GM Sales (\$Bil)</u>
'10	48.02
'11	48.08
'12	48.11

II. A Key Competition Factor

Cost per gallon

<u>Year</u>	<u>Reduction</u>	<u>increase in MPG</u>
'10	2%	3
'11	3%	4
'12	2%	5

The Market Planning Step

The Market Planning step is at the heart of the marketing planning process because its main focus is generating the product sales forecasts which are the foundation of product manager planning. It is also the foundation for the final step: the final product strategy developed by each product manager and the scenario writing capability required for the forecast output of the Marketing Strategy step. In this step, the forecasts of the external and internal variables drive the product forecasts.

At this stage, the CIS amount and complexity of internal information which must be assessed and translated into useful data increases substantially because of the introduction into the CIS of internal marketing mix data. Simmod2-4 provides the product sales forecasts.

Simmod2 provides the product design input to the model. Product ratings, as mentioned previously, are chosen metric to measure this variable. These ratings contribute to the final product forecast and are estimated using marketing research.

Simmod3 provides the promotion and place input to the model. Managers input budgets for promotion (direct sales and sales promotion budgets) and for place (distribution budget) consistent with sales goals.

Simmod4 provides the price input to the model and the final product sales forecast. Managers make price decisions based on baseline prices and elasticity's (price and cross) estimated by econometric studies.

Table 3 provides an illustration of this module which produces the company's three year product forecast or sales goals for General Motors Buick Division's

LaCrosse model. In the interests of simplicity, these forecasts are made under the assumption of no changes in the 2010 marketing mix or strategy in 2011 and 2012. This assumption will obviously be relaxed in the final marketing planning step: marketing strategy.

Table 3. Product Forecast: Buick LeSabre

<u>Year</u>	<u>LaCrosse Sales (\$Bil)</u>
'10	.386
'11	.401
'12	.425

Table 4 provides an illustration of this module which produces the SME supplier of ignition sensors to GM three year product forecast or sales goals with the same assumptions of no changes in the 2010 marketing mix or strategy in 2011 and 2012. This assumption will obviously be relaxed for the SME in the final marketing planning step: marketing strategy.

Table 4. Product Forecast: Ignition sensor (\$Billion)

'10	0.0083
'11	0.0089
'12	0.0093

The Market Strategy Step

As in the Marketing Planning step, it is even more important that the CIS provide more than the product forecast in the Marketing Strategy step. Identification of key factors affecting the company sales forecast is critical if the marketing manager is to take strategic advantage in her target market. Factors cited in Table 5-I cite factors included in the product model that effect the forecast of product sales as well as the competitive position of the product. If the company's CIS identifies customer dissatisfaction with price and collaborates this factor with the likely associated demand condition of relatively high price elasticity, the company will recognize the appropriateness of a market penetration strategy before rivals do and be relatively more successful pursuing the associated price cutting. The result is likely to be that sales will be greater than forecasted as illustrated in Table 6

Table 5. Strategic Competitive Factors

I. Key Competitive Factor

Customer Dissatisfaction
Improve with price
Price Competitiveness

II. LaCrosse Sales Forecast under GM Market Penetration Strategy
Price Scenario

<u>Year</u>	<u>LaCrosse Sales (\$Bil.)</u>	<u>Price</u>	<u>Action</u>	<u>Comment</u>
'10	.386	24500	No change	
'11	.440	22500	Cut price	Wise decision
'12	.461	21500	Cut price	Wise decision

Table 6. Product Forecast: Ignition sensor under GM Market Penetration Strategy

Year	Sales (\$ Bil)
'10	0.0083
'11	0.0093
'12	0.0099

Conclusion

A CIS with integrated forecasting capability is critical to the competitive survival of the firm. The prototype CIS illustrated here is offered as building block toward an effective decision support system enabling a company's competitive advantage. The CIS provides four modules that support each of the four basic strategic market planning steps.

This applies to GM and the SME supplier to GM. Module 1 supports the Situation/Environmental Analysis step providing competitive advantages such as identification of key industry factors that improve the accuracy of the industry forecast and due to linkage with the company forecast. An integral part of the CIS's second module is a simulation model which supports the second planning step: Company goal setting. This applies to GM and the SME supplier to GM. This simulation model's first module generates the GM and SME company sales forecast made more accurate by the improvement in the industry forecast. This benefit improves both marketing and sales planning. The simulation's remaining three modules, 2) product specification, 3) promotion and place, and 4) pricing and final forecast, support the remaining planning steps. The Marketing Planning step driven by the marketing mix inputs provided through the CIS provides the

product forecasts that enable product marketing plans. These modules enable the Marketing Strategy step by identifying strategic marketing mix factors that provide the company with an advantage over rivals. The example offered was CIS identification with customer dissatisfaction with price, a resulting increase in price elasticity providing the LaCrosse product manager with an opportunity to execute the strategy appropriate for these market conditions-Market Penetration which resulted in a 14% increase in 2011 sales as illustrated in Table 4-II. The SME supplier benefited from that GM strategy.

Limitations

To fully capture the expected benefits of a CIS should eschew conventional marketing research which is too narrowly focused on tactical and operational issues, on data rather than analyzed information and too often conducted in response to an apparent market threat or opportunity rather than an ongoing basis (Wee, 2001).. Overcoming this myopia is integral to maximizing the benefits of CIS for large firms like GM and SME's.

Furthermore, it is not contended here that all companies can utilize the CIS. For example, companies with high level of e-commerce dependence will have reporting requirements for e-market places which are so unique that most standard CIS architectures will not perform up standard (Alwar, 2000). SME's may find themselves similarly subjected to customer specifications.

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