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System Dynamics and Marketing Productivity

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The marketing function in many companies has come to consume what many believe to be a disproportionately high share of corporate resources, inviting intense scrutiny from corporate cost-cutters. Further, there appears, at a macro level, to be a low correlation between the level of spending on marketing and measures of overall financial performance or competitive position; many firms are getting low, even negative returns on incremental marketing spending. Finally, more than ever, marketing as a corporate function and societal institution is regarded more as a "necessary evil" than a value-creating activity. All of these factors and more have focused renewed attention on the critical issue of marketing productivity. In this paper, we propose that the use of systems modeling could help alleviate the productivity crisis in marketing.

The Productivity Crisis in Marketing

Every business can be viewed as consisting of three broadly defined areas—in colloquial terms, "finders, minders and grinders," or in more traditional terminology, marketing, management, and manufacturing or operations. In the quest for greater efficiency and higher quality, other functional areas within business have undergone fundamental, frequently wrenching change in the past few decades:

- Manufacturing / operations has become substantially more efficient (through automation, the use of just-in-time approaches, product redesign for assembly and manufacture, flexible manufacturing systems, service process blueprinting and so on) as well as quality-focused; as a rough estimate, it now accounts for about 30% of total corporate costs, down from approximately 50% after World War II.
- "Management" (defined here to include finance, accounting, human resources and support functions such as legal departments, as well as R&D) has raised its efficiency through "downsizing," "rightsizing," outsourcing and business process reengineering. As a result, the approximate share of corporate costs attributable to management has fallen from 30% to 20%.
- That leaves about 50% for marketing (up from 20%), including the costs of product development, outbound logistics, order fulfillment, selling, distribution, advertising, sales promotion, public relations, customer service, etc.

Marketing costs more today, but it also carries more of the competitive burden. The marketing function's importance—along with the size of its budgets—has increased as companies have faced higher levels of competition in increasingly global markets. Its status as the generator of corporate revenues, profitability and visibility has tended to shield marketing from the deep cuts other departments have endured in the past decade.

This situation, we strongly believe, will not persist. In fact, there are clear signs already that CEOs are demanding major cost savings and a higher level of accountability from marketing than ever before. Numerous companies are downsizing the sales force and closing regional sales offices; others are downsizing the headquarters marketing function and transferring personnel and functions to the sales force. In many companies, other functional areas have moved to adopt more outward-looking customer orientations. They are being called upon to perform tasks traditionally associated with marketing, in the expectation that they will do so more effectively and economically. For example, marketing's two major traditional areas of focus—competition and customers—are now the primary concerns of strategic planning and business operations respectively.

Symptoms of Marketing Malaise

- Many companies today practice "Just-in-Time" manufacturing but "Just-in-Case" marketing. While manufacturing inventories have fallen steeply in the past two decades, retail and wholesale inventories have not kept pace; in some cases, they have actually risen in the same time period. Companies are failing to adequately leverage their efficient demand-driven production systems by coupling them with similar marketing systems; they continue to practice forecast-driven marketing. Once these forecasts are enshrined into formal targets and budgets, companies deploy their marketing arsenals to achieve those (almost always top line) goals—too often at the expense of profitability and the long run health of the business.
- Companies misallocate marketing resources. For example, advertising is most effective when there is a strong product to sell; however, a McKinsey study found that advertising spending is highest where product differentiation is lowest. For most products, differentiation based purely on image cannot be long sustained; as a result, customers are becoming ever more willing to purchase private label products, which are unencumbered by advertising and selling costs and thus offer great value to consumers and retailers alike.
- Companies engage in wasteful and even harmful sales promotion activity. Packaged goods manufacturers spend billions of dollars issuing hundreds of billions coupons each year. Of these, fewer than 2% are redeemed, the vast majority by shoppers who would have brought the brand anyway. Shoppers who are pure deal seekers, and are unlikely to ever purchase the brand without a large incentive redeem the other 20% or so.

Systems Thinking & Marketing

With concern over marketing productivity at a peak, we must look at new ways of managing the marketing function as well as tracking its performance and the amount of value it adds to the corporation. Measuring value added is different from simply looking at profits for a given time period. Profits are short term. Value is derived from sustainable, longer-term benefits to the firm. These benefits may be financial in nature, such as a stream of cash flows, or intangible, such as brand equity or goodwill within a community.

A search of the marketing literature reveals an almost complete absence of research applying systems thinking to marketing contexts. Meade and Nason (1991) apply a systems approach to develop a unified theory of macromarketing. Slater and Narver (1995) discuss it briefly in the context of market orientation and the learning organization.

This gap is surprising in light of the fact that marketing as a discipline is highly suited to use of systems thinking concepts and constructs. Marketing decisions have indirect, delayed, nonlinear and multiple feedback effects. Behara (1995) suggests that systems thinking has maximum impact when applied to:

- High stakes issues that require a significant amount of management time;
- Issues involving high degree of complexity and dynamic behavior;
- Situations involving multiple interconnected operational issues;
- Issues that span multiple disciplines;
- Situations involving chronic problems; and
- Problem situations that have resisted traditional solutions.

From a systems perspective, some of the factors that have contributed to marketing's productivity problems (at least relative to other functional areas) are:

1. Longer cycle times: It takes a long time before the results of a new product introduction or a new advertising approach become apparent. It takes additional time to come up with alternative approaches to replace the failed ones. As a result, learning via feedback loops takes place very slowly in marketing.

2. High level of complexity: The high level of complexity inherent in marketing processes also contributes to slower learning; it is difficult for managers to understand the true causes of suboptimal market performance.

3. Greater people intensity: Since marketing activities are inherently more people intensive than most other business functions, they suffer from Baumol's "service paradox." Baumol (1967) noted that since service industries tend to be labor-intensive, their production costs rise disproportionately when wages in the economy as a whole rise. This suggests that marketing, being principally a service-intensive function, is bound to fall behind those functions that are more capital and technology-intensive.

A Systems Oriented Approach to Modeling and Measuring Customer Equity

We believe that systems dynamics offers a very useful approach to model the customer acquisition and retention process. The conceptual model presented on page 5 attempts to capture the impact of marketing spending on customer acquisition and retention. The input variables are the amounts of marketing resources devoted to acquisition and retention of customers. The outputs are the revenues realized during the time period of interest (usually one year) as well as the impact of spending during the time period on the expected net present value (NPV) of the customer base (which is equivalent to customer equity, as discussed above). The latter includes the effects of adding customers to the customer base, changes in revenue per customer and changes in the expected longevity of customers given the churn rate. When compared with a year earlier figure, this provides a measure of value created by marketing during the effort period. In some cases, current revenue may be relatively low, but the NPV goes up significantly, suggesting that the benefits of marketing efforts will accrue in the future.

In other cases, current revenues may look strong, but the NPV may have remained flat or even fallen, suggesting that long-term performance will deteriorate.

In this framework, marketing productivity can be defined as the ratio of the change in customer base NPV for a “response period” and the marketing spending during a corresponding “effort period.”

References

William J. Baumol, "Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crisis," American Economic Review, 57 (June 1967), 415-26. which asserts that over time, service activities become less productive relative to capital intensive ones.

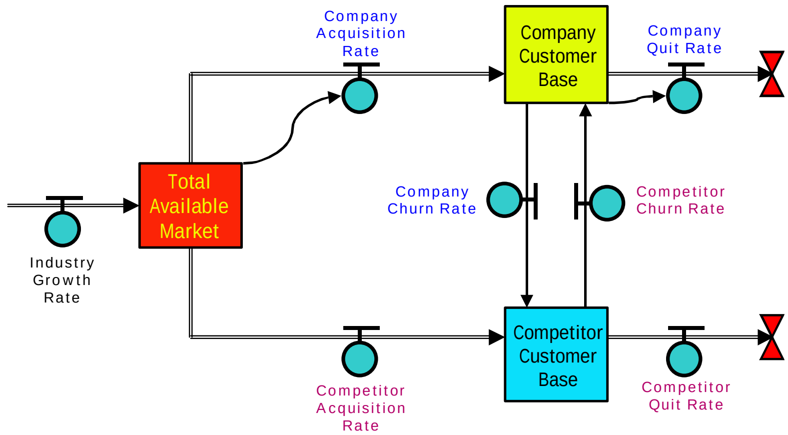
Ravi Behara (1995), “Systems Theoretic Perspectives in Service Management,” *Advances in Services Marketing and Management*, Vol. 4, pg. 289-312.

William K. Meade II and Robert W. Nason (1991), “Toward a Unified Theory of Macromarketing: A Systems Theoretic Approach,” *Journal of Macromarketing*, Vol. 11, Fall, pg. 72-82.

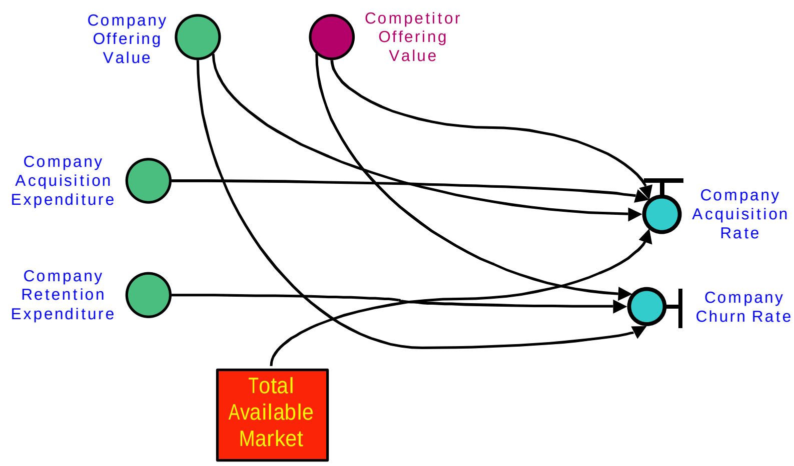
Stanley F. Slater & John C. Narver (1995), “Market Orientation and the Learning Organization,” *Journal of Marketing*, Summer, Vol. 59, No. 3; pg. 63.

Matt Walsh, “Point of Sale Persuaders,” *Forbes*, October 24, 1994, pg. 232-234.

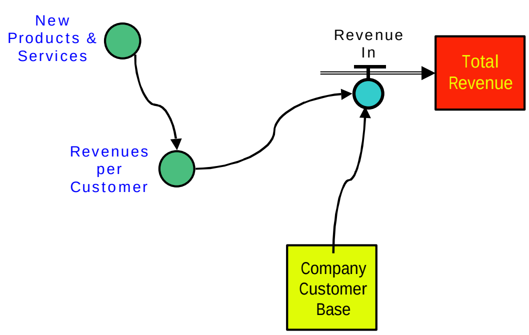
Illustration of Systems Modeling Approach



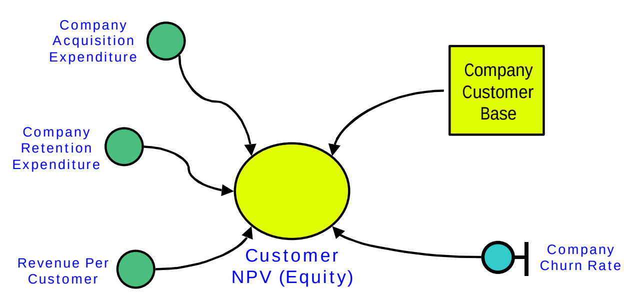
Modeling Acquisition & Churn



Modeling Revenue per Customer & Total Revenue



Modeling Customer NPV



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