

A SYSTEM DYNAMICS PERSPECTIVE ON FIRM GROWTH THROUGH ADVERTISING AND WORD OF MOUTH

B. GOPAL KRISHANA, Prof in Humanities and Management, MIT Manipal University Manipal, Karnataka.

H.C. SHIVA PRASAD, Prof in Humanities and Management, MIT Manipal University Manipal, Karnataka.

GIRIDHAR B KAMATH, Asst. Prof in Humanities and Management, MIT Manipal University Manipal, Karnataka.



A B S T R A C T

It is a universally accepted fact that advertising is the heart of marketing function and it can never be compromised upon. Researchers have also believed that the role of word of mouth can never be undermined. Customer goodwill that is reflected through the word of mouth is studied in this paper. It is a proven fact that customers who have had bad experiences share their experience with more number of people than those customers who have had better experiences. In this research word of mouth is considered as a dependent variable and many other independent variables impacting it is studied. This paper examines the impact of advertising and word of mouth on sales through simulations carried out using a stock and flow diagram built through system dynamics methodology. This paper highlights the importance of the roles played by advertising and the impact of positive word of mouth on the sales and profitability of the firms.

Introduction

In India currently the automobile manufacturers are facing many advantages, the main being the rapid growth in the market. Indian families are increasingly becoming dual income families where both husband and wife are working. Young IT professionals are ready to invest in automobiles and the lucrative EMI schemes are generating a lot of interest in people towards buying automobiles rather than depending on the public transport system. However, fuel prices and stiff competition amongst the automobile manufacturers is a matter of concern for the automobile industry. Automobile companies advertise heavily to capture the attention of the potential customers. The question now is the optimum amount that an automobile manufacturer can spend on advertising.

In this current era where every industry is concentrating profoundly on cost cutting, the focus is on every possible function that can help companies reduce their product cost. The question many industries are facing now is to decide on the right amount to be spent on their marketing activities. On one hand excessive marketing may not bring in the expected revenues and on the other hand, insufficient marketing may bring in low returns along with the fear of competitors capturing the market share. This paper aims basically at an Indian automobile manufacturer and tries to look at the relationship between the advertising and the sales generated. An attempt has been made to

conceptualize and build a small model using System Dynamics and the various simulations are carried out to study the underlying relationships between the various relevant parameters.

Literature Review

The three main parts in any business organization, namely, marketing, management, and manufacturing. The major areas of focus for any organization- customers and competition are nowadays taken care by the business operations and strategic planning themselves and the onus is on the cost cutting working closely with marketing department[Sisodia and Hurley, 2002]. Problems related to marketing or advertising and promotions can be to a large extent simplified by look at the system as a whole rather than concentrating at specific problems in hand. Thus System Dynamics has a vast scope in improving marketing productivity.Sisodia and Hurley (2002) argue that longer cycle times, high level of complexity and greater people intensity are some of the factors that contribute to marketing's productivity problems.Li. (2000) has mentioned four factors based on which an organization's performance can be measured. They are invariably the sales volume, the profit after tax, the market share and the return on investments. Akimova, (2000)also has stressed on the aforesaid factors.

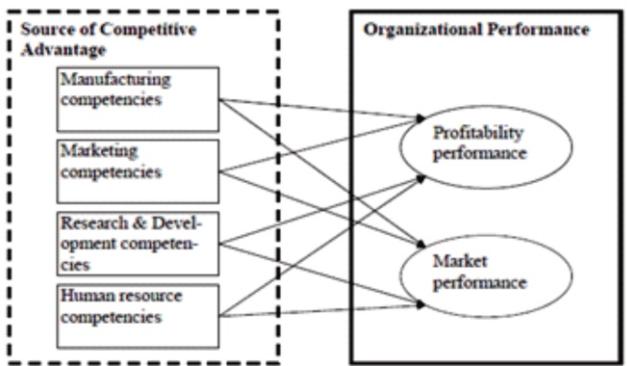


Figure 1: Conceptual model depicting relationship between functional competencies and firm performance

Source: Nguyen, 2008.

According to Nguyen (2008), as shown in Figure 1, manufacturing, marketing, R&D and human resource competencies are very vital in measuring an organization's performance and play roles of huge importance and none of them can be ignored. As suggested by Grobler (2010), in the available literatures it has been widely accepted that flexibility, quality, delivery and costs are the factors that are of prime importance to the firms.

The study of related works carried out by the authors of this paper found that word of mouth or between-customer communication, is a probable factor that influences consumer decision-making. The available literatures highlighted that establishing a causal link between word of mouth and consumer choice is a daunting task. However, it is observed that word-of-mouth communication had a lasting impact on consumer purchasing behavior. Word-of-mouth (WOM) has been defined as "informal communication between private parties concerning evaluations of goods and services" (Anderson, 1998, p. 6). Word-of-mouth can be considered as a dependent variable depending on parameters like quality, price and various other factors. According to Liu (2006), marketing professionals face a daunting task of being able to generate a positive word of mouth among consumers.

Research shows that customer satisfaction and word-of-mouth are closely related to each other. However, the form of the relationship might be different at different levels of satisfaction. Hart et al. (1990) argued that, people who have had not so good experiences with a brand or product shared their experience with nearly 11 people, whereas the customers with relatively good experiences told just 6. Anderson (1998) stressed upon the fact that, the extent of word of mouth is principally motivated by the

customer's satisfaction with the product. Thus the companies must advertise effectively and aim at generating a positive word of mouth by producing better quality products keeping in mind the customer satisfaction and eventually delighting the customers.

Methodology Used

The paper uses the System Dynamics (SD) methodology. System dynamics models contain both quantitative and qualitative elements. Here the dependent variable and the independent variables are linked to each other based on their cause and effect. This basic figure is named as the cause and effect diagram. In the later stage these parameters are related to each other through mathematical equations and the data is collected and fed in to the system. In this research the researchers have used VENSIM PLE for drawing the stock and flow diagram where the parameters are related to each other through mathematical equations.

Forrester (1961) believed that reality is made up of circles, but people usually see straight lines. This research emphasizes on the fact that instead of seeing the systems as mere straight lines, an attempt must be made to study the causalities related with the system so that no parameter having a direct or indirect impact on the system is left out.

In this paper, after identifying the key variables that influence an automobile manufacturer both in internal and external environment, a stock and flow diagram is drawn and the variables are connected to each other through mathematical equations and then simulation is carried out with various input parameters and the behavior of the system to these changing parameters is studied. The stock and flow diagram is as shown in Figure 4.

Results Influence of Advertisements on sales

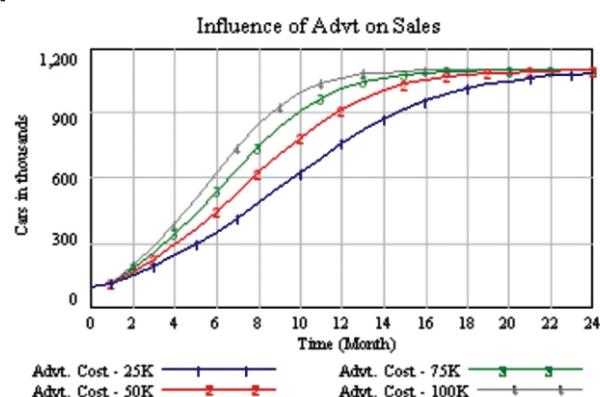


Figure 2: Influence of advertising cost on sales

Automobile sector in India is a booming field and has vast scope of expansion. With the younger generation

mostly educated and with high incomes, are potential customers of these automobile manufacturers. With high and stiff competition from various players in the market every automobile manufacturer is investing more and more on advertising and marketing promotional mixes. The automobile manufacturer under consideration is an established player with a high market share, faces the challenge of attracting the technology driven younger generation. The automobile manufacturer has to capture the imagination of the newer generation or it faces the threat of losing it to competitors in terms of advertising and marketing.

As shown in the Figure 2, when the simulation was conducted with advertising cost as 25K, it is seen that the sales increases gradually at a steady rate and the firm will reach its sales target in about 22 months. When the simulation was run with 50K, it is seen that the sales of cars will increase correspondingly and go up to a certain level. Similarly when simulations were carried out with advertising costs raised to 75K and 100K it is seen that the sales go up in a comparatively quicker time but then stabilizes after a few months. The simulation graphs imply that the increasing investments on advertisements do help in raising the sales level but after a certain point in time the sales stabilizes. However it evident from the graphs that the increasing investments on advertisements can help the automobile manufacturer to reach its sales target quite early and at a quicker pace.

Influence of Word-of-Mouth on Sales

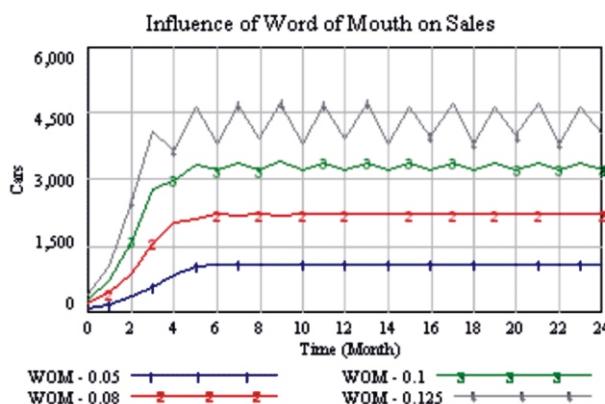


Figure 3: Graph showing influence of word-of-mouth on sales

As seen in the literature review, word-of-mouth communication is a very powerful tool that affects the sales of an automobile company. MSIL with 50% market share faces threats from many competitors ranging from old

players to latest entrants in the market. Hence it becomes very important for MSIL to capitalize on the good will it has generated so far with good quality fuel efficient cars and continue providing excellent customer service thus generating a good positive word-of-mouth.

The SD model was simulated at four different levels of word-of-mouth and its influence on sales was studied. From Figure 3, it is very much evident that with increasing levels of word-of-mouth, the sales also increases initially but then stabilizes over a period of time. At higher levels of word-of-mouth, it is observed that after the initial peak, the sales seem to stabilize, however, with an observable fluctuation in the sales level. It can be seen that with increasing levels of word-of-mouth the sales fluctuation after reaching a certain high point, increases.

Conclusion

The model developed in this research was based on the several related variables in the field of sales and advertising pertaining to the automobile industry. The simulation results highlighted the importance of advertising on the sales of the product. The results also highlighted the importance of word of mouth on sales thus complimenting the fact that advertising and word of mouth are both very crucial for the sales increase and thereby the profitability and the market share of a firm. The model developed can be further studied by adding other related parameters that were not included in this particular study.

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