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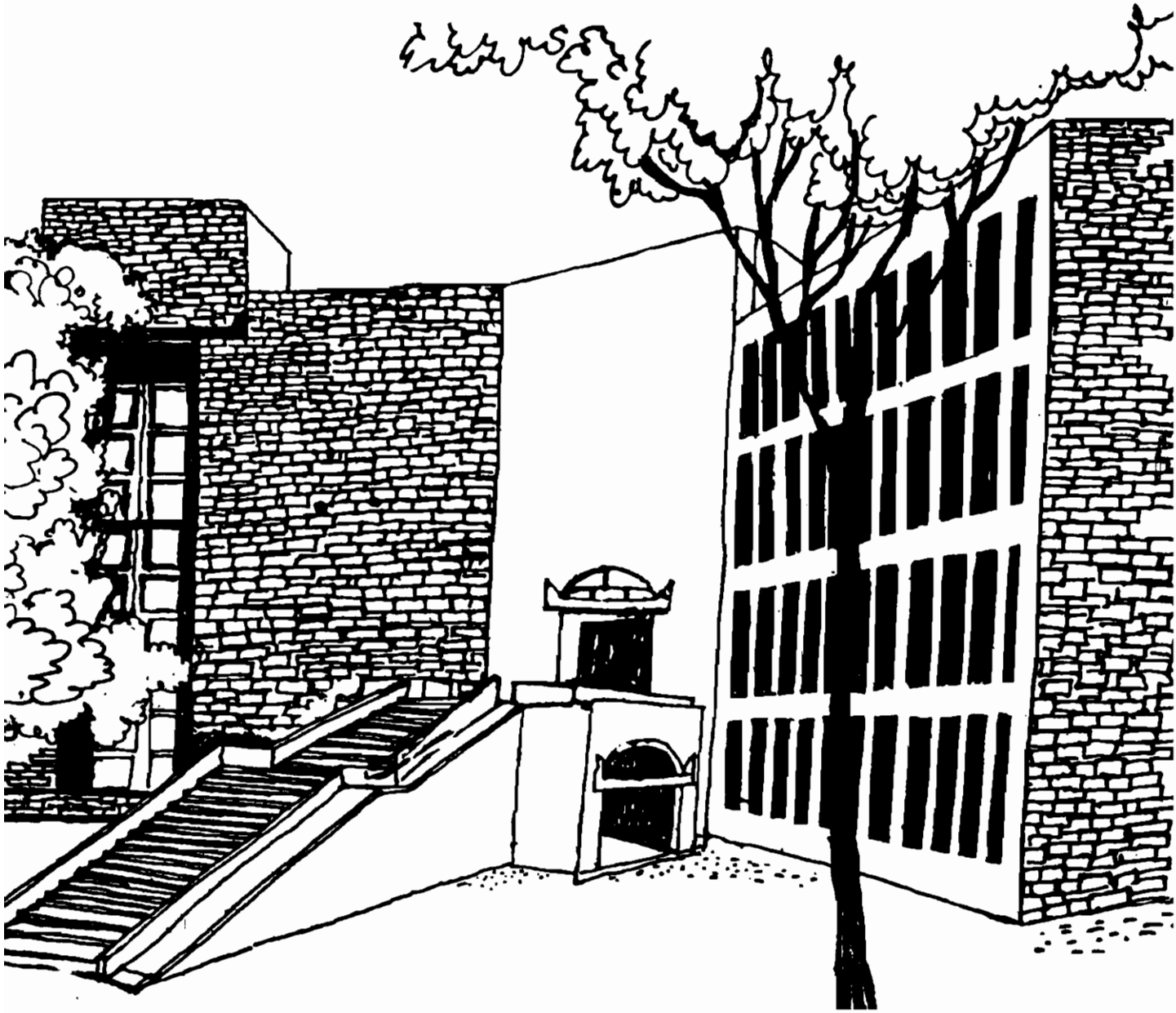

IDENTIFICATION OF 'BEST PRACTICES': A STUDY OF PASSENGER CAR DEALERS IN INDIA

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Abstract

Automobile manufacturers and car dealers entering fast growing, emerging markets often face several crucial decisions. A key question in this context is: what are the characteristics of an efficient dealer? In this paper, we identify best practices in dealer management in the Indian automobile industry. The research is based on a survey among dealers and manufacturers in India. We link dealer strategies to dealer performance, using Data Envelopment Analysis as a technique where elements of dealer strategy are treated as inputs, and performance parameters as outputs. Efficient dealers were identified based on this model. Three patterns or configurations of efficient dealers emerged: the *laissez faire*, where manufacturers leave dealers to function independently with minimum regulation or control, *market leaders* with high investments in facilities who are associated with high sales, and *agile dealers* with relatively low sales, low investments and high levels of training. Using regression, we also identified important factors that seem to lead to better performance. These factors were investments in sales and after sales facilities, dealer training, dealer expenditure on advertising and promotions, and dealer participation in decision making. The results also indicate that there is a need to benchmark distribution practices to help dealers improve their performance.

INTRODUCTION

Several automobile manufacturers have recently made significant changes in their production and supplier management systems These developments have been well researched and documented. However, the other part of the value chain, namely the distribution network, has not received enough research attention. At the same time, the role of the dealer in the distribution system and the management of the distribution network in the automobile industry has also witnessed a major change. Several factors have contributed to these changes, including slackening demand in developed markets, rapid growth in emerging markets and product proliferation. Some responses to these changes include adoption of some Japanese or European practices, and the Saturn experiment of General Motors. This research is based in the context of a fast growing, emerging market with several new entrants who are in the process of building distribution networks. At this critical juncture, manufacturers face several choices, and any decisions made now will lock them into a particular type of distribution network. A key question therefore is: what type of dealers are likely to succeed in emerging markets, and how should they be managed? In this paper, we address this question and propose some approaches to channel management that are likely to work well in a fast growing, emerging market like India.

The passenger car industry has a unique pattern of distribution network compared to other consumer products. The distribution channel usually has only one intermediary, the dealer, who sells the car to the final consumer. Therefore, most manufacturers deal directly with a multitude of independent franchised dealers. This makes the management and administration of such a system a complex affair, and significantly affects channel performance. Customers purchasing cars also require a wide variety of services before and after purchase. In order to provide sales and after-sale service of high quality to the consumer, passenger car dealers must develop effective strategies to achieve satisfactory performance. Because the manufacturer has a vital interest in the effectiveness and efficiency with which the dealers perform, the manufacturer needs to evaluate dealer performance, and identify 'best practices' among dealers. In their seminal paper on auto distribution, Moyer and Whitmore (1976) observe : "Although the great size and complexity of this (automobile) distribution system are universally acknowledged, little consideration has been given to the overall effectiveness of those channels that handle automotive products."

The purpose of this research is to identify 'best practices' in car distribution The specific research questions we addressed were:

Which type of dealers are more efficient in their operations? What strategies are likely to succeed? What are the relationships between strategy and performance?

Until recently, the Indian automobile industry had only three major manufacturers. However, that has changed and several established manufacturers from the US, Europe, Japan and Korea have either entered the market or have announced their intention of doing so. This has naturally led to several changes in the market in terms of customer choice, advertising, product positioning and distribution practices. However, some aspects of distribution have remained the same, although they may change in the long run. First, nearly all dealers sell cars made by a single manufacturer, and do not carry competing brands or models. This is true of old dealerships and of new ones that sell models produced by new entrants. Second, there are no 'mega' dealers with a large chain of outlets as seen in more developed markets. Most dealers have one outlet although a few have two or three. Third, it is very rare for manufacturers to own any outlets. Thus investments in dealer facilities has largely come from independent owners.

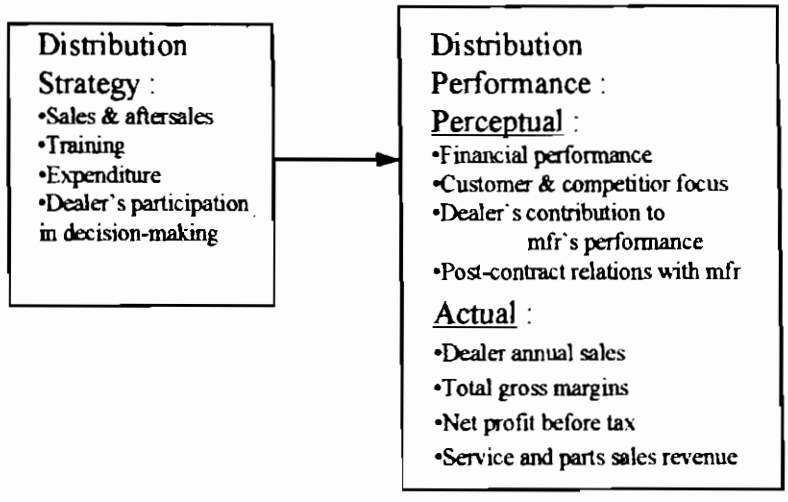
There are some key decisions manufacturers face in this context. Since expertise in managing dealerships in a competitive environment is limited in the industry, manufacturers have to decide what type of new dealers to appoint. Since several new entrants are expected, manufacturers have to decide whether they want to slowly and carefully build the right type of dealerships, or rapidly expand dealer networks in order to gain first mover advantage. The results of this paper are therefore based in the context of a fast growing emerging market, with several new entrants who are in the process of building distribution networks, and an industry which currently has limited expertise in managing dealerships in a competitive environment.

THE CONCEPTUAL MODEL

The following figure depicts the model used in this research. It seeks to link significant elements of dealer strategy to dealer performance. This is later used to identify best practices and efficient

dealers. The distribution strategy of dealers is measured in terms of the sales and after sales facilities at dealers, the training imparted by dealers to their employees, their expenditure on promotions, and the extent to which dealers participate in crucial decisions with the manufacturer. These factors, as shown later, were identified from a list of possible elements of dealer strategy. The dealers' perception of performance and their actual performance was also measured. Perceived performance was in terms of financial indicators, degree of customer and competitor focus achieved, dealer's contribution to manufacturer's performance, and post contractual relations with manufacturers. These items were also identified from a list of possible elements of dealer performance. Absolute or actual performance was in terms of sales, gross margins, net profit before tax and service and parts revenue.

CAR DEALERS



METHODOLOGY

For understanding 'best practices', a mail survey was chosen as the appropriate methodology. A list of all car dealers in India was obtained from the Association of Indian Automobile Manufacturers. The names of the concerned person(s) in charge of these dealerships were also obtained from them. About 200 dealers were then contacted by mail, with a brief overview of the research, and with a request to them for participation in the dealer survey. About 60 dealers agreed to participate in the

research. Questionnaires were sent only to those dealers who expressed their willingness to participate in the research, and 24 usable responses were received and used for the study.

Exploratory research was also carried out on a small sample of car dealers in the city of Ahmedabad. The content validity of the instrument was tested during the preliminary interviews with the dealers, and those variables and scales deemed irrelevant by the responding managers were not included in the final instrument. Data was collected from dealers through mailed structured questionnaire. For the dealer firms, respondents were company owners or managing directors.

Measurement of distribution performance

Measurement of performance is critical to the management of dealers in the automobile industry. The extant literature on distribution performance has been largely confined to finding out different methods of measuring distribution performance. Several measures have been used for distribution performance in the literature. Studies of channel efficiency can be grouped under two major heads (Bijapurkar, 1979). While one stream has concentrated on macro-analysis, the other has developed analytical approaches that can be used by individual firms. Since this study is a firm-level study, only the second research stream is discussed further. Research on channel performance from a micro-level analysis has followed one of three approaches (Bijapurkar, 1979). These are :

1) the development of **check lists or marketing audit forms** that can be used by manufacturers to evaluate the performance of designated channels,

2) the development of **appropriate measures of efficiency,** and

3) the application of **distribution cost accounting techniques** to channel evaluation.

The Marketing Audit Technique involves developing marketing audit forms, and has been studied by Christian (1958), Smith (1958), Revzan (1961), and Clewett (1961).

Development of measures of efficiency. This issue has drawn significant attention among researchers in distribution. Some of the studies in this category are : Beckman (1965), McGarry (1947), Bressler and McLeod (1947), Alderson (1947), Cox (1948), Vaile (1956), Lockley (1947), Cox and Goodman (1956), Mudambi, Doyle and Wong (1997), Falk and Julander (1983), and Sibley and Michie (1981).

Most of these studies have tried to develop measures of channel efficiency by looking at estimates of work done by the channel and results achieved. Pegram (1965) has reported some measures for channel efficiency based on research of some 200 US and Canadian manufacturers.

Measures suggested in the literature include sales, turnover ratios, selling capability, internal product competition, customer opinion of dealer, cooperation and conflict, interfirm assistance, asset turnover, return on assets and investment, service to customers, profits, market share, pricing policies, efficiency in handling small orders, management continuity, general sales policies and objectives, sales and inventory coordination, number and quality of trade contacts, and cooperation in company promotional and trading programs (Bijapurkar 1979 ; Frazier 1983 ; Frazier, Gill, and Kale 1989 ; Gaski and Nevin 1985 ; Heide and John 1988 ; Noordewier, John, and Nevin 1990). Some types of scales used in literature for measurement of performance include: a) unidimensional measures (Gaski and Nevin 1985 ; Heide and John 1988) ; b) multiple dimensions, each investigated individually (Frazier 1983 ; Noordewier, John, and Nevin 1990); c) multiple dimensions, combined to construct an unweighted or weighted composite scale or index of performance (Frazier, Gill, and Kale 1989).

Kumar, Stern and Achrol (1992) have attempted to develop a comprehensive scale for measuring channel member performance. They have operationalized reseller performance from the supplier's perspective in terms of eight dimensions : contribution to profits, contribution to sales, reseller competence, reseller loyalty, reseller compliance, contribution to growth, reseller adaptability, and customer satisfaction.

Distribution Cost Accounting uses concepts of conventional accounting to analyze costs and income on the basis of nature of the cost items, or the functions performed, or by the segments of business catered to. Breyer (1949) and Ray, Gattorna and Allen (1980) are important contributions in this field. In spite of advantages like cost control and evaluation, this technique offers limitations, like presence of joint costs, inaccessibility of certain data, and inability to standardize costs.

An examination of all these approaches to measure distribution performance leads one to conclude that the multiple-item measure of performance is the most comprehensive. A modification of the scale of Kumar, Stern and Achrol (1992) was used in this research to identify a list of performance measures.

Data Envelopment Analysis

As mentioned earlier, the performance of car dealers cannot always be measured by a single bottom-line figure, like profit, since the outputs are multiple and not so easily identifiable. Modeling of the performance and efficiency of such decision-making units (involving multiple inputs and multiple outputs) has always been challenging. Data Envelopment Analysis is a powerful tool to overcome these problems and is particularly useful in such cases to measure performance and efficiency, and to develop benchmarking practices. Data Envelopment Analysis (DEA) is a mathematical approach for comparing relative efficiencies of multiple decision making units (DMUs). It is capable of incorporating multiple inputs and multiple outputs into the analysis. The method was proposed by Charnes, Cooper and Rhodes (1978) based on a fractional programming formulation suggested by Farrel (1957). Efficiency of each DMU is compared against itself and all other DMUs. The DEA programming method constructs the production frontier by floating a piece-wise linear surface to rest on top of the observations. The degree of inefficiency is quantified and measured as the metric distance from the frontier.

DEA is a deterministic linear program used to construct a frontier technology. It is non-parametric in the sense that it does not assume that the underlying technology "belongs to a certain class of functions of a specific functional form which depend on a finite number of parameters, such as the well-known Cobb-Douglas functional form". DEA is also a non-statistical approach, because it makes no explicit assumption on the probability distribution of "errors" (i.e., the efficiency residuals) in the production function (Ganley and Cubbin, 1992). The mathematical formulation is given in Appendix 1.

Like any other method of analysis, DEA has its own advantages and disadvantages. The strengths of DEA as an analytical tool are many. DEA can handle multiple inputs and multiple outputs. This is an advantage compared to techniques like multiple regression, which can handle only one output at a time. DEA does not require an assumption of the functional form relating inputs to outputs. This imparts to

the DEA approach an advantage over other production functions, like the Cobb-Douglas which have clearly specified functional forms. Each DMU can be directly compared against other similar DMUs. Further, inputs and outputs can have very different units.

DEA has certain limitations too. Since DEA is an extreme point technique, noise (even symmetrical noise with zero mean) such as measurement error can cause some problems. An errant data point may lead to a DMU spuriously reaching 100% efficiency, which can change the shape of the efficiency frontier affecting all the DMUs that have this DMU in their reference set. Secondly, the total number of DMUs in the analysis must be at least 2-3 times the total number of input and output factors. If the number of DMUs is less than this, the efficient frontier will include most of the DMUs. This puts a limitation on the sample size. DEA is good at estimating "relative" efficiency of a DMU but it converges very slowly to "absolute" efficiency. And finally, since DEA is a nonparametric technique, statistical hypothesis tests are difficult and are the focus of ongoing research. Since a standard formulation of DEA creates a separate linear program for each DMU, large problems tend to be computationally intensive.

The DEA literature identifies 'best-practice' production with Pareto Efficiency. Many authors in the DEA literature (Charnes and Cooper, 1985 ; Charnes, Cooper, Golany, Seiford and Stutz, 1985 ; Nunamaker, 1985 ; Johnson and Lewin, 1984 ; Charnes, Cooper and Rhodes, 1981 ; Lewin and Morey, 1981) have argued that best-practice decision making units (e.g., DEAs with a unity efficiency score) can be regarded as Pareto efficient. Lewin and Morey (1981), for example, identify Pareto efficiency with best-practice production in a manner characteristic of the literature on DEA : "DEA is based upon the economic notion of Pareto Optimality. A given Decision Making Unit (DMU) is not efficient if some other DMU, or some combination of other DMUs, (i.e., the peer group) can produce the same amounts of outputs with less of some resource and not more of any other resource ; conversely, a DMU is said to be Pareto efficient if the above is not possible".

One objection to this interpretation of best practice is that the current best-practice operations can be improved (Ganley and Cubbin, 1987 ; McGuire, 1987 ; Danilin et al, 1985). Also, it needs to be remembered that best-practice in a given cross section of DMUs is the best practice found within the

data set. Thrall (1985) has coined the term 'DEA-efficient' in order to distinguish best-practice production from true Pareto efficiency. He argues that "in using DEA, one must take into account the fact that a DMU can be DEA-efficient without being meritorious". Support to this argument comes from Greenberg and Nunamaker (1987), who recognize that best current practice is not necessarily fully optimal and argue that "one must be careful not to conclude that because an institution is operating on the efficient frontier, its achievement level on all measures is necessarily desirable". Charnes et al (1990), among others, have suggested that the number of citations in DEA peer groups can be interpreted as a measure of the "robustness" of best practice.

Though DEA has been used in the context of non governmental organizations, the public sector, and also for commercial organizations, it has not been applied to distribution. Recently, Donthu and Yoo (1998) used DEA to assess retail productivity, and demonstrate its use in retail marketing.

Data Analysis

The data was analyzed to identify relevant inputs or strategy elements, and outputs or performance indicators. This was then used to run the DEA model which ranked dealers in order of efficiency. However, unlike traditional DEA analysis, we went beyond this ranking to identify categories or types of efficient dealers. Thus, efficient dealers were classified based on the patterns of inputs or strategy elements to arrive at these categories. The implications of this categorization are discussed in the section on Discussions and Conclusions. Regression was also used to establish relationships between inputs and outputs. This analysis shows the impact of the inputs on each of the output measures. For instance, gross margin, one of the output or performance measures was treated as an independent variable, and the inputs or strategy elements were treated as the independent variables. The results of the regression then showed the impact of each independent variable on gross margins. A similar regression was done for each of the other three output measures used, namely, net profit before taxes, sales, and service and parts revenue. The data analysis consisted of six stages :

Stage 1 : ***Identification of strategy items***

The following list of elements of the dealer's distribution strategy were identified from the literature and through discussions with a select number of dealers. area of service centre, area of showroom, number of aftersales staff, investment in physical facilities, number of service bays, investment in service facilities, training expense, number of days of training for service people, number of days of training for salespeople, advertising and promotion expenses, rent of showroom, total expenditure, and dealer's participation in distribution decision making. The last item, which is dealer's participation in distribution decision making was treated as an independent factor as explained later.

Stage 2 : *Identification of Strategy factors*

Since it was likely that some of the items identified in Stage 1 were correlated, factor analysis was used to reduce the items into relatively independent factors. Factor analysis resulted in reducing the first 12 items to three factors. The factor matrix is shown in Appendix 2. After considering all options, the factors identified from factor analysis were:

- **Sales and Aftersales facilities** : Area of service centre, area of showroom, number of aftersales staff, investment in physical facilities, number of service bays, investment in service facilities
- **Training** : Training expense, number of days of training for service people, number of days of training for salespeople
- **Expenditure** : Advertising and promotion expenses, rent of showroom, total expenditure

A fourth factor was based on another set of 37 items which measured dealers' participation in decision on items like inventory, spares, discounts and so on. Thus, dealers were asked to distribute ten points on each of the 37 items between dealer and the manufacturer. A score of 10 indicated that the dealer had complete freedom on decision making for that item, whereas a score of 0 indicated that he had none. Although broad stipulations are laid down by manufacturers for their dealers, there was considerable variance between dealers of the same manufacturer in terms of the control exercised on day to day operations. This aspect of dealer management was therefore treated as the fourth independent factor:

- **Dealer's participation in distribution decision-making :** relative role in 37 important decisions with respect to manufacturer

Stage 3 : *Identification of Performance items*

Performance of the dealer was measured in two ways: absolute and perceived. Absolute or actual measures of dealer performance included the following variables :

- Dealer annual sales
- Total gross margins
- Net profit before tax
- Service and parts sales revenue

The perceptual measure of dealer performance was based on a number of items in a scale, based on modification of Kumar (1991). These 16 items were : dealer's sales volume, dealer's market penetration, dealer's revenues, growth in manufacturer's business with dealer, manufacturer's satisfaction with dealer's car sales, help customer choose a model, customer's servicing needs, effort to meet competitive changes, customer assistance on any problem, contribution to manufacturer's strategic objectives, innovative marketing of dealer, revenue source of manufacturer, growth in revenue for manufacturer, extra support from manufacturer, extra time-effort-energy input from manufacturer, violation of agreement with manufacturer. Dealers rated themselves on these items which were treated as perceived performance.

Reliability of the perceptual performance scale was checked. According to Nunnally's (1978) guidelines, the reliability of the dealer performance scale has been found to be satisfactory (alpha was 0.8176). Therefore, the scale was adopted for further analysis. Since the number of items in the scale was large compared to the dealer sample size, and since it was felt that some of the items were correlated, factor analysis was used to reduce the items into relatively independent factors.

Stage 4 : *Identification of Performance factors*

Two types of performance factors were used. actual and perceived. For actual performance, the factors as mentioned earlier were dealer annual sales, total gross margins, net profit before tax, and service and parts sales revenue. For perceived performance, four performance factors emerged from the factor analysis conducted on 16 items. The factor matrix is shown in Appendix 3. The factors identified for perceived dealer performance are :

Financial performance of dealer comprising dealer's sales volume, dealer's market penetration, dealer's revenues, growth in manufacturer's business with dealer, and manufacturer's satisfaction with dealer's car sales.

Customer and competitor focus of dealer comprising customer satisfaction with service, effort to meet competitive changes, providing accurate information to customer to help choose a model, and customer assistance on any problem

Dealer's contribution to manufacturer's performance comprising contribution to manufacturer's strategic objectives, innovative marketing initiatives of dealer, revenue source for manufacturer, and growth in revenue for manufacturer.

Post-contract relations with manufacturer comprising extra support from manufacturer, extra time, effort and energy from manufacturer, violation of agreement with manufacturer

Stage 5 : *Linking input and output factors.*

Data Envelopment Analysis (DEA), with each dealer as a Decision Making Unit (DMU) and with strategy factors as input and performance factors (perceptual and actual) as output was carried out. Two sets of DEA analysis were done. In one set, the perceived performance factors were treated as outputs, and the in the other, the actual performance factors were treated as outputs. The inputs to the two DEA models were the same and consisted of the factors specified earlier. The real and perceived efficiencies of each dealer obtained from the DEA are given in Table 1.

Table 1 : Real Efficiency and Perceived Efficiency of each DMU

DMU NO.	PERCEIVED EFFY.	REAL EFFY.
1	1	.32
2	1	.29
3	1	.4
4	1	1
5	1	1
6	1	.65

7	1	.42
8	1	1
9	.75	.37
10	1	.45
11	1	1
12	.57	.3
13	.48	.87
14	1	1
15	1	.47
16	1	1
17	1	1
18	.33	.32
19	1	.25
20	1	1
21	.77	.82
22	1	.33
23	.46	1
24	1.	-

All DMUs with an efficiency score of 1 are highly efficient. However, since a number of dealers have efficiency score of unity, the number of times each of these DMUs have appeared in the reference sets of less-efficient DMUs is considered to be an indicator of relative efficiency. Therefore, this could be used to obtain ranking between the efficient DMUs.

Table - 2 shows the different levels of strategy inputs for each of the nine efficient dealers using the real efficiency scores based on absolute performance. Since we use this data to identify different types of efficient dealers, the four elements of strategy were classified as either high or low. For instance, if the factor score on sales and after sales facility was low for a particular dealer, we classified this input as 'low'.

Table 2 : Strategies of Efficient Dealers

DMU No.	Sales & Aftersales Facilities	Training	Expenditure	Extent of decision making
4	low	low	high	high
5	low	low	high	high
8	high	low	high	low
11	low	high	high	high

14	low	high	high	low
16	high	low	low	high
17	low	low	low	high
20	low	low	high	low
23	high	high	high	low

The DEA output can also be used to provide a direction for improvement of dealers whose efficiency is less than one. Each such dealer has a reference sets of efficient dealers who are in the same facet, i.e., they give similar weights to the four strategy (input) factors. This can be used to identify inputs that are too high compared to the reference set. Improvement efforts can then focus on these inputs. Table 3 shows the reference sets for each inefficient dealer. Some interesting patterns emerge which we discuss later in the section on research findings.

Table 3 : Reference Sets of Inefficient DMUs

Inefficient DMU (Dealer)	Real Efficiency	DMUs in Reference Set
1	.32	5,4
2	.29	5,17
3	.4	5,16
6	.65	8
7	.42	5,14
9	.37	5,14
10	.45	14,8
12	.3	14,11
13	.87	14,8
15	.47	14,8
18	.32	14,5
19	.25	14,17
21	.82	17,14
22	.33	5,16

Stage 6 : *Multiple Regression*

Multiple regression was carried out to explore the linkages between strategy and performance for dealers. It must be noted that multiple regression and DEA have been used to answer entirely different research questions. While DEA is the most suitable data analysis technique for understanding which types of dealers are efficient, multiple regression is suitable for understanding the relative impact of all

the dealer strategy factors (taken together) on each of the dealer performance factors. All the four strategy factors were regressed against each of the performance factors. In this case, absolute measures of performance were used.

The regression results are summarized in Table 4. The figure within the bracket is value of the t-statistic and the figure outside the bracket is the beta coefficient for each independent variable in each of the regression equations. As mentioned, the starred figures are significant at 90% confidence level.

Table 4 : Dealer Analysis - Multiple Regression

Beta (Sig T)	Gross Margin	Net Profit before tax	Sales	Service and Parts Revenue
Sales and Aftersales Facilities	.495 (.0005)*	.85 (.0000)*	.61 (.0029)*	.358 (.0851)*
Training	.581 (.0001)*	.285 (.0116)*	.179 (.3314)	.044 (.8287)
Expenditure	.414 (.0025)*	-.121 (.2431)	.102 (.5729)	-.165 (.4126)
Dealer's participation in decision making	.089 (.4667)	-.018 (.8609)	-.141 (.4422)	.374 (.0766)*

* significant at 90% confidence interval

Findings

There are differences in relative efficiencies of dealers, when perceptual measures of performance are considered compared to actual measures of performance.

This is based on Table 1, which focuses on the comparison of real and perceived efficiency of dealers. Of the 23 dealers for which the comparison was done, as many as 15 dealers have different values of real and perceived efficiency. While 12 dealers had higher perceived efficiency compared to their real efficiency, 3 dealers had a higher real efficiency compared to their perceived efficiency. There is a definite tendency to perceive one's performance as better than it actually is since 18 dealers perceive themselves to be efficient (i.e., they give themselves a score of 1) whereas there are only 9 dealers who are efficient on an absolute scale of performance. This points to the need for benchmarking.

Dealer training has a significant positive impact on dealer gross margins.

This is based on the multiple regression findings given in Table 4. This may be particularly important in a fast growing market which is changing over from a seller's to a buyer's market. Old style dealers used to keeping customers waiting for several weeks before a car is delivered are not likely to succeed today when customers have more choice and the industry is no longer supply constrained. In the long run, the importance of training may change as the distribution channels become more customer friendly.

Sales and aftersales facilities have a significant impact on dealer net profits before tax.

This is also based on the multiple regression findings given in Table 4. Dealer net profit before tax is significantly influenced by both sales and aftersales facilities and training. However, of the two factors, sales and aftersales facilities of dealer is the most important factor explaining variation in dealer net profit before tax. This has implications for a manufacturer entering such markets since they would need to ensure that dealers invest sufficiently in proper facilities to meet changing market needs.

Sales of dealer is also significantly influenced by his sales and aftersales facilities.

The only strategy factor that significantly explains sales of dealer is his sales and aftersales facilities. This may be partly explained by the fact that many large dealerships with significant investments usually cater to relatively large local or regional markets.

Dealer's participation in distribution decision-making was found to have significant positive relationship with the service and parts revenue of the dealer.

From the regression results in Table 4, it can be seen that service and parts revenues of the dealer are influenced by dealer's participation in decision making and his sales and aftersales facilities. Of these, dealer's participation in decision making is the most important factor explaining variation in dealer service and parts revenue.

The criteria that dealers look for in choosing manufacturers are largely firm-specific, and not common across the industry:

The dealers were asked to rank order various criteria they used to choose their manufacturers to represent. Kendall's coefficient of concordance (Kendall's W) was used to obtain a measure of the relation among all the rankings by different dealers of different criteria used to select manufacturers. The results show that the extent of concordance (0<=W<=1) is quite low in the case of dealers in the Indian passenger car market. This means that the criteria that dealers look for in choosing manufacturers are largely firm-specific, and not common across the industry.

Configurations of Efficient Dealers

Some common configurations for efficient dealers emerged from Table - 2 titled 'Strategies of Efficient Dealers', and are described next.

Laissez faire : These dealers have low factor scores in sales and aftersales facilities and in training. Therefore, it is evident that the manufacturer does not have strict stipulations for these dealers in terms of investments to be made in sales and aftersales facilities and in training. These dealers, however, usually go in for high expenditures on things like advertising and promotion. They also have high scores on extent of decision making, which also supports the fact that the manufacturers give considerable freedom to them. Thus the typical configuration is low investment in facilities, low investment in training, high expenditure on promotions, and high dealer control over decision making. This reflects a traditional style among old established dealers who sell cars made by older manufacturers, and are left to their own devices by the manufacturer. High expenditure on promotions is a recent phenomena and reflects the stiff competition these dealers now face. These dealers are also characterized by low sales. This type of efficiency is therefore characterized by low input and low output levels.

Market leaders : This type of dealer makes high investments in sales and aftersales facilities, and lower investments in training. Usually, they also incur higher expenditure in advertising and promotions, and have relatively low decision making authority. The regression results also support this analysis, since sales and aftersales facilities are correlated with net profits, total sales

and after sales parts and service revenue. This is one type of dealer which is typical for new entrant manufacturers, and is associated with a manufacturer strategy that builds a small, selective set of dealerships. It is also associated with relatively high sales per dealer.

Agile : This type of dealer has low investments in sales and aftersales facilities, and higher investments in training. They also have high expenditure on items like advertising and promotions. Several dealers who were not classified as efficient also followed a similar strategy. This is another type of dealer which is typical for new entrant manufacturers, and is associated with a manufacturer strategy that builds a wide intensive network of dealers, each with relatively low investments. These new dealers to the Indian market, are associated with relatively low sales.

To some extent, these three types of efficient dealers reflect different styles of dealer management by manufacturers. One of the crucial decisions facing new entrant manufacturers is the kind of distribution network they need to build. The findings suggest that there are three types in the industry: (i) laissez faire, (ii) market leaders with high initial investments in dealer facilities, and usually, low investment in training, and (iii) relatively low investments in facilities, and high investments in training. The first type seems unlikely to remain successful in the emerging competitive scenario. It is difficult to predict at this point in time which of the other two types is more likely to succeed. For instance, consider dealers 13 and 21 who have relatively high efficiency scores of 0.87 and 0.82. Dealer 13 has dealers 8 and 14 in its reference set, and dealer 21 has dealers 14 and 17 in its reference set. If dealer 13 emulates dealer 8, he becomes a market leader, whereas if he emulates dealer 14, he becomes agile. Similarly, dealer 21 either becomes a laissez faire type, or agile.

Discussion and Conclusions

We identify the important elements of distribution strategy in a growing market. The results clearly show that investments in sales and after sales facilities have a significant impact on nearly all aspects of dealer performance, namely, gross margins, net profit before tax, and sales and service parts revenue. This reflects a departure from older practices where dealers did not need to build attractive or service oriented facilities because demand always exceeded supply. Results

from this study show that this has changed significantly, and in the new competitive scenario, the single most important element in a distribution strategy which seeks to maximize sales per dealer is to build proper facilities at each dealership, with the right number of aftersales staff, and investment in servicing facilities. However, maximizing sales per dealer may not lead to maximizing country wide sales for the manufacturer. New entrant car manufacturers therefore face a crucial decision while building their distribution networks. One approach, which leads to agile dealerships, might be to open several dealerships all over the country. However, there are limits to this approach since the right number of the right type of dealers may not be available. Equally important, for rapid development of a network, manufacturers might compromise on the standards they demand from dealers in terms of facilities. This is compensated by higher investments in dealer training. Another approach, which leads to market leaders, is to open fewer dealerships with large investments in key locations using highly competent dealers. This approach will help in developing some markets well but may not be able to penetrate the entire country. In the long run, facilities may not be the single most important factor differentiating dealers as more dealers respond to market and competitive needs. The current situation probably represents a transition period from a seller's market to a buyer's market.

As seen from the regression output, dealer training is the second most important element in determining dealer performance. This is also not surprising since expertise in running successful dealerships in the new competitive scenario is limited. Hence, the returns from investments in training are likely to be significant. Dealer advertising and promotions have a limited impact and it seems that currently, the customers are guided more by the manufacturers' advertising, brand image and so on, rather than by the dealers. Dealers' participation in decision making does not appear to be a very critical element in channel management, and is explained by the fact that current expertise in dealer networks is limited.

This research also throws up interesting stereotypes among car dealers. A *laissez faire* approach to dealer management is currently shown as efficient, partly because these were older dealers who had recovered most if not all their investments. Thus, they were efficient because of a low investment base in sales and after sales facilities. But it remains to be seen how long these dealers

remain efficient. An analysis of the data reveals that the crucial differences between *market leaders* and *agile dealers* is that the former spend more on investments, whereas the latter spend more on training. However, market leaders are usually chosen carefully and competence of the dealer is an important criterion in dealer appointments. This partially offsets the need for training. Currently, there are examples of efficient dealers in both sets. However, time will tell which approach will eventually succeed or whether both types of dealers will co-exist. Another interesting aspect can be seen from Table 3. Of the 14 inefficient dealers, as many as 9 had dealer 14, who is agile, in their reference set, and 7 had dealer 5, who is of the laissez faire type, in their reference set. Only 6 inefficient dealers had market leaders in their reference sets. Thus currently most dealers, are either agile or of the laissez faire type, or are likely to become so. This is not surprising since selective dealerships with large investments will be few in number. Although both types of dealers were found to be efficient, this does not tell us which approach will benefit new entrant manufacturers. Recent evidence however suggests that manufacturers using a selective approach to distribution with few, highly competent dealers have outperformed competitors who went in for an intensive country wide distribution in terms of sales and market share. These manufacturers currently enjoy higher sales and market share. Selective distribution also increases dealer performance, and thus this type of strategy could be win-win for both manufacturer and dealer. However, it is still too early to judge the long term performance.

The research results will help each dealer to assess his relative efficiency as compared to other dealers. Therefore, on a relative scale of zero to one, dealers get to know their efficiency score, and the difference between his score and the scores of other dealers of the same manufacturers, as well as dealers of competing manufacturers. The dealer gets to know where he stands compared to other dealers, and which dealers are in the reference set, i.e., which dealers he should follow to become more efficient as illustrated in Table 4. Secondly, this research also brings out the fact that large gaps exist between perceived efficiency and actual efficiency for several dealers. Manufacturers might therefore be able to improve channel performance by using benchmarking data that is available to all dealers. This may be important in an emerging market like India since distribution practices have changed recently and several dealers seem to be in the dark regarding their absolute and relative performance.

Even though the market is growing, competition is likely to intensify with the entry of several more automobile manufacturers. New entrants are therefore focusing on establishing the right type of distribution networks. The future of distribution management in the Indian car market depends on the ability of car dealers to develop effective distribution strategies, achieve increased efficiency of the distribution network through cooperation with manufacturers, and deliver higher customer satisfaction. Further changes are likely, including a high level of dealer computerization and greater efficiency in dealer activities, as well as the emergence of big dealers and dealer groups. The dealer's portfolio of activities will also increase. Finally, customer satisfaction from sales and aftersales service is likely to be decisive as the market becomes more customer-driven.

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Appendix 1

DEA 1 :

Input : Dealer Strategy ; Output : Dealer Performance (Perceptual)

Input factors to DEA	Output factors in DEA
Sales and Aftersales Facilities of Dealer	Financial performance of dealer
Dealer Training	Customer and competitor focus of dealer
Dealer Expenditures	Dealer's contribution to mfr's performance
Dealer's participation in decision-making	Post-contract relations with manufacturer

DEA 2 :

Input : Dealer Strategy ; Output : Dealer Performance (Actual)

Input factors to DEA	Output factors in DEA
Sales and Aftersales Facilities of Dealer	Dealer annual sales
Dealer Training	Total gross margins of dealer
Dealer Expenditures	Net profit before tax
Dealer's participation in decision-making	Service and parts sales revenue

Formulation for DEA2 for DMU 5, for example, was

$$\text{Max} \quad Y_5 = \mu_1.Y_{15} + \mu_2.Y_{25} + \mu_3.Y_{35} + \mu_4.Y_{45}$$

$$\text{s.t.} \quad v_1.X_{15} + v_2.X_{25} + v_3.X_{35} + v_4.X_{45} = 1$$

$$\mu_1.Y_{11} + \mu_2.Y_{21} + \mu_3.Y_{31} + \mu_4.Y_{41} - v_1.X_{11} - v_2.X_{21} - v_3.X_{31} - v_4.X_{41} \leq 0$$

$$\mu_1.Y_{12} + \mu_2.Y_{22} + \mu_3.Y_{32} + \mu_4.Y_{42} - v_1.X_{12} - v_2.X_{22} - v_3.X_{32} - v_4.X_{42} \leq 0$$

$$\mu_1.Y_{13} + \mu_2.Y_{23} + \mu_3.Y_{33} + \mu_4.Y_{43} - v_1.X_{13} - v_2.X_{23} - v_3.X_{33} - v_4.X_{43} \leq 0$$

$$\mu_1.Y_{14} + \mu_2.Y_{24} + \mu_3.Y_{34} + \mu_4.Y_{44} - v_1.X_{14} - v_2.X_{24} - v_3.X_{34} - v_4.X_{44} \leq 0$$

$$\mu_1.Y_{15} + \mu_2.Y_{25} + \mu_3.Y_{35} + \mu_4.Y_{45} - v_1.X_{15} - v_2.X_{25} - v_3.X_{35} - v_4.X_{45} \leq 0$$

$$\mu_1.Y_{16} + \mu_2.Y_{26} + \mu_3.Y_{36} + \mu_4.Y_{46} - v_1.X_{16} - v_2.X_{26} - v_3.X_{36} - v_4.X_{46} \leq 0$$

...

$$\mu_1.Y_{124} + \mu_2.Y_{224} + \mu_3.Y_{324} + \mu_4.Y_{424} - v_1.X_{124} - v_2.X_{224} - v_3.X_{324} - v_4.X_{424} \leq 0$$

$$-\mu_r \leq -\varepsilon$$

$$-v_i \leq -\varepsilon$$

where,

X_{1j} = sales and aftersales facilities factor scor e of dealer j

X_{2j} = dealer training factor score for dealer j

X_{3j} = dealer expenditures factor score for dealer j

X_{4j} = score for dealer j's participation in decision-making

Y_{1j} = annual sales for dealer j

Y_{2j} = total gross margin of dealer j

Y_{3j} = net profit before tax of dealer j

Y_{4j} = service and parts sales revenue of dealer j

are observed data, and,

$\mu 1$ = weight of dealer annual sales

$\mu 2$ = weight of total gross margins of dealer

$\mu 3$ = weight of net profit before tax

$\mu 4$ = weight of service and parts sales revenue

$v1$ = weight of sales and aftersales facilities of dealer

$v2$ = weight of dealer training

$v3$ = weight of dealer expenditures

$v4$ = weight of dealer's participation in decision-making

are variables in the formulation.

$\varepsilon > 0$ is a non-Archimedean infinitesimal, the reciprocal of the "big M" associated with the artificial variables in ordinary linear programming.

Appendix 2

Dealer Strategy Factors

The strategy items were :

1. Total expenditure	(TOT_EXP)
2. Investment in physical facilities	(PHY_FAC)
3. Investment in service facilities	(SER_FAC)
4. Number of service bays	(SER_BAYS)
5. Area of showroom	(AREA_SH)
6. Number of aftersales staff	(AS_STF)
7. Training expense	(TRG_EXP)
8. Advertising & Promotion expenses	(ADP_EXP)
9. Rent of showroom	(RENT_SH)
10. Area of service centre	(AREA_SC)
11. Number of days of training for salespeople	(TRG_SLS)
12. Number of days of training for servicepeople	(TRG_SER)

The strategy factor loadings were :

	Factor 1	Factor 2	Factor 3
ADP_EXP	.64431	.10916	-.61780
AREA_SC	.76614	-.12833	.41741
AREA_SH	.88475	.04656	.25536
AS_STF	.94201	-.18411	.08210
PHY_FAC	.88661	-.22655	-.26935
RENT_SH	.00171	.43103	.55378
SER_BAYS	.73264	-.01451	.25129
SER_FAC	.92427	-.02407	-.18700
TOT_EXP	.20919	.02039	.40201
TRG_EXP	.38400	.74048	-.20863
TRG_SER	.04339	.88744	.00258
TRG_SLS	.07164	.92283	-.03505

The factors identified from factor analysis are :

FACTOR 1 : Sales and Aftersales Facilities

Area of showroom	(AREA_SH)
Area of service centre	(AREA_SC)

Number of aftersales staff	(AS_STF)
Number of service bays	(SER_BAYS)
Investment in physical facilities	(PHY_FAC)
Investment in service facilities	(SER_FAC)

FACTOR 2 : Training

Training expense	(TRG_EXP)
Number of days of training for salespeople	(TRG_SLS)
Number of days of training for servicepeople	(TRG_SER)

FACTOR 3 : Expenditures

Advertising & Promotion expenses	(ADP_EXP)
Rent of showroom	(RENT_SH)
Total expenditure	(TOT_EXP)

Appendix 3

Dealer Performance factors

Factor Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4
A	.73015	03923	11933	- 23634
AA	.20634	.84504	01727	04287
AB	.38850	.66125	-.29715	-.27827
AD	.64106	-.47068	.23942	.25693
B	.65347	-.38025	44601	-.38262
C	.76999	-.28718	35337	-.21687
G	.00238	.48583	.41133	.36610
H	- 10919	.27481	.71150	.41128
I	.61255	-.03302	- 04162	-.24382
J	.47687	- 20201	- 05475	.41042
Q	.25185	.32429	.71098	- 04534
S	.76297	.32389	.02732	.33335
T	.75003	.42211	- 11821	14707
U	.70253	-.05806	- 41149	.43694
V	.49307	-.27047	-.42984	.53795
W	.72603	-.35260	-.08200	-.35859
Z	.36721	.65795	-.31217	- 39018

Rotated Factor Matrix.

	Factor 1	Factor 2	Factor 3	Factor 4
A	.67376	.32997	.20033	04240
AA	-.14050	.75389	.02072	.41265
AB	.07819	.86334	.02126	-.04468
AD	.59645	-.29876	54554	.11489
B	.94970	-.11069	.00148	.05251
C	.89189	-.00622	.20723	.09381
G	-.16665	.16306	.06199	69358
H	-.08288	-.16352	- 03805	.85309
I	.55287	.28201	19149	-.12498
J	.20396	-.08440	.62260	.05749
Q	.37338	.13820	-.17281	69840
S	.30668	.44864	.62616	.33389
T	.29411	.62425	.51619	.18354
U	.17045	.22827	.86937	-.14208
V	.03421	-.04622	.86037	-.21655
W	.77765	.10663	.23257	-.34141
Z	10935	.88869	- 06758	- 10556

Number of aftersales staff	(AS_STF)
Number of service bays	(SER_BAYS)
Investment in physical facilities	(PHY_FAC)
Investment in service facilities	(SER_FAC)

FACTOR 2 : Training

Training expense	(TRG_EXP)
Number of days of training for salespeople	(TRG_SLS)
Number of days of training for servicepeople	(TRG_SER)

FACTOR 3 : Expenditures

Advertising & Promotion expenses	(ADP_EXP)
Rent of showroom	(RENT_SH)
Total expenditure	(TOT_EXP)