Design of a supply chain management system of a major automobile manufacturing company

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Abstract *Firms are paying high attention to pricing decisions in order to defend their competitive positioning .Modern pricing strategies are able to take into account changed market conditions or, in other words, demand characterized by strong volatility and non loyal behavior flanking known loyalty mechanisms. Moreover, suppliers are also looking for innovative formulas to determine the exchange relationship with the customer and price is increasingly seen as a 'catalyser' of continuously changing offers in relation to market conditions.*

1. INTRODUCTION

Integrating supply with demand is a fundamental challenge for managers today. Mastering supply chain management can enable companies to increase market share , reduce cost, Improve customer service, and increase market value through improvements in return on assets. If your company makes a product from parts purchased from suppliers, and those products are sold to customers, then you have a supply chain. Some supply chains are simple, while others are rather complicated. The complexity of the supply chain will vary with the size of the business and the intricacy and numbers of items that are manufactured. Following things are important in supply chain , price and over supply, Technology involved, price and demand, consumer behaviour, factors affecting the supply of product.

2.PRICE POLICY AND OVER SUPPLY

In the current conditions of oversupply, increased competition space and pre-eminent importance of the intangible components of supply ,Service firms, in particular, as they generate intangible and perishable outputs, in other words outputs that cannot be stored for supply at a later time, find themselves having to match rigid productive capacity with instable demand. Even in the public utility industry where tariffs have always been defined by legislation, rather than by commercial and marketing strategy, important changes are happening , and a whole new season is opening up, in which operators will enter into competition with one another and managerial efficiency will have to be pursued alongside customer satisfaction and the development of regulations to safeguard public interest . they are also looking for innovative formulas to determine the exchange relationship with the customer and price is increasingly seen as a 'catalyser' of continuously changing offers in relation to market conditions (bubble demand).Finally, the customer is in a much more favourable position now, compared to some time ago, thanks to oversupply and the availability of more information which make it possible to tend to negotiate terms and conditions of purchase, up to the point of determining them.

3.Evolution of Technologies and Price Policies

Techniques for price definition and management have been developed over the last few years, which tend to increase productive capacity occupation rates without having to reduce sales prices. Modern pricing strategies are able to take into account changed market conditions or, in other words, demand characterized by strong volatility and 'non loyal behaviour flanking known loyalty mechanisms' .

In bundled offers, i.e. offers composed of several products,, different goods or services are assembled into a single proposal with a generally lower price than the sum of the prices of the single components of the supply. In this way an attempt is made to reduce part of the cost, supply greater value, attack new markets, transfer share of demand towards periods of lower request, increase average expenditure of current customers, and generally to encourage price personalization . Travel agents offer holiday packages in their catalogues which include accommodation, transport and sometimes even some excursions; telephone services or commercial services companies propose credit cards and correlated financial services in order to facilitate consumption and acquire new customers. Trading firms offer compositions of products and services, including some that are perhaps very different to one another, in order to break consolidated loyalty links with competing firms. With the use of Yield Management practices – meaning an attempt to increase the yield of production capacity in terms of expected income – introduced initially by airline companies and then adopted in other spheres such as the hotel, health and electricity supply sectors, the intention is rather to optimise the allocation of resources, starting from the different composition of market demand. Operatively speaking, with Yield Management, by making use of marginal income models, the number of production units to be assigned to each class of service is defined in relation to expected request

In service production, different outputs can be achieved only at the time of fabrication the services environment (referring yet again to transport of people, the difference between first and second class seating can be made only at the time of the aircraft fabrication) whereas a commercial offer, for the purchase of a place in one of the aforesaid seats, can be tied in to various conditions (type of service, day of the week, possibility of changing the booking, etc.) and for this reason it can be composed of different prices. Thanks to the diffusion of information technologies on wide scale and their greatly contained prices (smart cards, electronic tickets), some suppliers of services try to separate the time of purchase from that of consumption of the service. In all honesty, a large number of services include advance remuneration with respect to fruition time, but in this case the intention is to put greater emphasis on the distance in terms of time between the two events. As well as the benefits in financial and cash flow terms, bringing purchase time forward may favour use of the service from a technical and operative viewpoint, acquire greater availability to pay on the part of those customers who intend to guarantee themselves a ticket or the service and reduce uncertainty regards the actual service desired. For the seller too, obtaining information in advance on the trend in demand constitutes a resource of absolute importance. Advance sales strategy may be adopted in an exclusive manner or combined with the regular method of purchase at the time of consumption or included in a Yield Management programme. Basically, it is a case of identifying behaviours, motivations, conditions of use and priorities in the use of the service on the part of the customer, for the purpose of formulating supplies which can be perceived to be of greater value at a determinate moment of purchase.

The methods of sale via the Internet, which assign goods or service without having a predefined price (posted price), appears to introduce an element of novelty and better explain what is implicitly present in what has just been described. In the dynamics of auctions there is a bidirectional aspect between demand and supply in as far as potential buyers choose the price at which to make an exchange and the market answers. the purchaser indicates his/her own willingness to pay for a holiday package or a simple overnight stay and in a short space of time the connected firms decide whether or not to accept the proposal made by the customer; some American sports teams put tickets for matches up for auction in the days immediately preceding the match itself directly on the team's own site and fans purchase them by credit card when the price is at the desired level.

Some online auction sites ask people to indicate their own price limit and automatically re-launch until the time when the auction reaches that figure, after which it is up to the purchaser to decide whether or not to continue with the auction. Techniques for running auctions are varied and sometimes sophisticated, but all share the intention of getting as near as possible to the reservation price of the individual purchasers.

The above seems to bear out the hypothesis whereby as the offers and quantities of information available to the customer increase, in real time and in interactive format (digital economy), it is perhaps the very same customers who 'self segment themselves'; in actual fact the segmentation process is no longer unidirectional (the firm analyses the market and proposes different supplies for defined homogeneous groups of customers) but bidirectional (a market offer attracts customers with purchase habits which may be very different to one another and over time). In this hypothesis the customer chooses each time whether or not to accept the supply by adopting differentiated behaviours according to personal situation, market situation and information status (prices chosen by demand).

4. DEMAND AND PRICE

When market competition conditions show substantial equilibrium between demand and supply, price is the result of a product differentiation process performed only after having identified in the market groups of purchasers with homogeneous preferences (segmentation).

In those situations in which supply has exceeded demand for services, due to legislative changes or the arrival of new competitors, the stability in behaviour which allows identification of a market segment ceases to exist. At this point the customer, although on the one hand more prone to impulse purchases, on the other man with great ease amongst different supplies and is ever more inclined to negotiate purchase terms. Therefore in times of oversupply, traditional market segments are flanked by 'temporary groupings of purchasers which may be aggregated on the basis of sharing specific characteristics of a given corporate offer' i.e. a demand bubble which has to be managed by the firm.

Demand bubble creation is favoured by the actual firm itself in as far as it possesses the requisites for same, or to be more precise, an information system capable of obtaining the necessary information about demand, a consistent brand equity as far as market relations status is concerned and a corporate mindset capable of living with market instability. Suffice it to think of summer promotions of subscriptions to pay television channels, to mobile telephones or to special offers for some tourist destinations: the price is a feature of both attraction and composition of the various versions of the offer.

The choice of time is even more important in consideration of the extreme simplicity of being imitated by competitors and losing an acquired competitive advantage. To summarize in extreme, it appears correct to say that even in the field of services, firms try to create temporary bubble demand in order to capture a different willingness to pay on the part of purchasers and break habitual loyalty relationships between firm and customer, right up to the point of adopting specific price policies that hold that critical success factor in their time span.

5.PRICE AND CONSUMER BEHAVIOUR

The service corresponds ever more to his/her own requests and willingness to pay; on the other hand that very same relationship could be undermined by a perception of opportunistic behaviour in as far as the realisation of many versions of a service has its conceptual and operative basis in price discrimination. The value of a product or service is commonly appraised in the ratio between acquired benefits and sacrifice incurred, monetary or non monetary. uphold that the perception of non equity in price (price fairness) influences perception of the sacrifice and of the value of the product, affecting willingness to purchase.

Studies which have looked at customer satisfaction as a necessary condition to establish a lasting relationship with the customer, have put fairness as a determining factor in appraisal of the economic exchange, especially in cases of service failure such as for instance. connections or of service support equipment, underestimation of urgency. Moreover it must be noted that social psychology and economic psychology studies indicate that wherever the consumer feels they have been treated in an unfair manner, same will react by attempting to re-establish a form of justice, even by incurring further costs, and trying on the one hand to 'punish' the other party and be reimbursed and on the other to limit any future repetition of such behaviour.

perception of the unfairness of a firm's actions is proportional to the increase made in the price system;

the greater the perception of unfairness, greater will the probability of retaliation towards the firm be;

the probability of retaliation is inversely proportional to the cost of its implementation.

according to which a firm is acknowledged the power, by consumers, to increase price levels in order to maintain its current profit levels, (for example when the firm has sustained an increase in costs), whilst it is considered unfair to increase prices only to achieve greater profits; but when a firm, in the course of its business, records a decrease in costs, consumers deem it fair to maintain price levels unaltered.

6.FACTORS AFFECTING THE SUPPLY OF A PRODUCT

I. Price

II. Cost of production

III Natural conditions

IV. Technology

V. Trasnsport conditions

VI. Government policies

VII . Price of related goods

I. Price :

There is a direct relationship between the price of a product and its supply. If the price of a product increases, then the supply of the product also increases and vice versa. Change in supply with respect to the change in price is termed as the variation in supply of a product. If the price of a product is about to rise in future, the supply of the product would decrease in the present market because of the profit expected by a seller in future. However, the fall in the price of a product in future would increase the supply of product in the present market.

II. Cost of Production :

Implies that the supply of a product would decrease with increase in the cost of production and vice versa. The supply of a product and cost of production are inversely related to each other. For example, a seller would supply less quantity of a product in the market, when the cost of production exceeds the market price of the product. The cost of production rises due to several factors, such as loss of fertility of land, high wage rates of labor, and increase in the prices of raw material, transport cost, and tax rate.

III. Natural Conditions :

The supply of these products decreases at the time of drought. Some of the crops are climate specific and their growth purely depends on climatic conditions. For example Kharif crops are well grown at the time of summer, while Rabi crops are produce well in winter season Implies that climatic conditions directly affect the supply of certain products.

IV. Technology :

A better and advanced technology increases the production of a product, which results in the increase in the supply of the product. For example, the production of fertilizers and good quality seeds increases the production of crops. This further increase the supply of food grains in the market.

V. Transport Conditions :

Transport is always a constraint to the supply of products, as the products are not available on time due to poor transport facilities. Therefore even if the price of a product increases, the supply would not increase. transport This may result in the damage of most of the products during the journey, which can cause heavy loss for a seller. In addition the seller can also lose his/her customers because of the delay in. the delivery of products

VI. Government Policies

Implies that the different policies of government, such as fiscal policy and industrial policy, has a greater impact on the supply of a product. For example, increase in tax on excise duties would decrease the supply of a product. On the other hand, if the tax rate is low, then the supply of a product would increase.

VII. Price of related goods :

The prices of substitutes and complementary goods also affect the supply of a product. For example, if the price of wheat increases, then farmers would tend to grow more wheat than nee. This would decrease the supply of rice in the market.

7.SOLVING COMPLEX GLOBAL SUPPLY CHAIN CHALLENGES

As companies look to amplify growth and expand quickly into promising new markets, they will have to take a hard look at what their current supply chains are capable of, and whether those capabilities are enough to support global competition. Many will find that in order to support existing and future business objectives, they'll have to reconsider their management

processes in favor of more flexible practices

8.SUPPLY CHAIN RELATIONSHIP MANAGEMENT

Supply chain relationship management is a business strategy for improving communication between companies and their channel partners. The first ingredient to successful supply chain relationship management is having the ability to measure a supply chain partner's performance. The next is possessing technology that assists with automating processes, thereby diminishing busy work. The third is shared knowledge, for the purposes of openly measuring, managing, and valuing partners.

9.SUPPLIER MANAGEMENT

Supplier Management forms an integral part of the supply chain. A good supplier base ensures minimal disruption to processes downstream, good quality materials and optimal inventory levels of raw materials. It also provides enough confidence in the manufacturer about the capabilities of the supplier base. However, a good supplier base is built over time and it is more than just procuring materials. This study aims at identifying supplier base related issues and then gauges the level of confidence that companies have in their supplier base. This whitepaper focuses on the following three aspects of supplier management.

- **Supplier tracking**
- **Overall supplier health, and**
- **Information sharing with suppliers**

10.Supply Chain Performance Metrics

The research also tried to assess different problem areas currently present in supply chains. A majority of respondents, around 45%, put Inventory Reduction in the top slot in their list of supply chain issues. This was also corroborated by the fact that around 70% of respondents were carrying more than 30 days of inventory. Supplier management came second at 40%, while working capital reduction came third at 17%. Indian industries are in need of optimization tools and better process modeling in order to exploit available resources and sustain lean operations

11.Risk Management

Risk Management has now become an integral part of every aspect of business operations. Increasing threat due to terrorism, competition, unpredictable weather, and scarcity of natural resources are major concerns for supply chain managers. In order to insulate business operations from unpredictable, uncontrollable events that can potentially hamper material supply, production and distribution, more and more supply chain managers are turning towards risk management in SCM.

12.CONCLUSIONS

The 'new economy' seemed to lead towards a return to perfect competition with full information available to economic operators and a downwards crushing of price levels. Actually this hypothesis appears to be denied and firms apply a strong differentiation, based on the intangible components of supply and above all on price level. The use of price strategies and efficient techniques for the implementation of strategies leads, in the short term, to an increase in revenue and to the realisation of an almost infinite number of versions of service supply capable of satisfying demand expectations.

Currently, proliferation of supplies which greatly exceed the market's absorption capacity tends to develop specific price policies; in particular we are witness to the realisation of ever more differentiated supplies (price discrimination) where time is the pre-eminent variable and it is the customer who (more or less consciously) contributes to the 'planning' of the supply. In creating demand bubble a firm must not, however, lose sight of the fact that the customer has learnt to manage amongst different proposals, and therefore care must be taken to avoid causing any perception of adopting opportunistic and non-transparent conduct.

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REFERENCES

[1] subhash chander gulati, Design of a supply chain management system of a major automobile manufacturing company.

[2] F. Robert Jacobs, Richard B Chase, Nicholas J Aquilano *(2010), Operations and Supply Chain Management.*

[3] Jimmy Anklesaria, Supply Chain Cost Management.